A holistic approach toward sustainability performance: the role of the human and financial factors

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DOCTORAL THESIS

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A holistic approach toward sustainability performance: the role of the human and financial factors

Summary:

During the last decades and the aftermath of the industrial revolution, sustainability performance has been a "common" concern among policy-makers and regulators, scientists and scholars, practitioners and business leaders. A drastic metamorphosis and strategic shifting have been occurring in the corporate world and in several organizations to accommodate the emergent need of sustainability performance and to accomplish the United Nations Sustainable Development Goals. Accordingly, this PhD thesis investigates the impact of the human factor and financial indicators on sustainability performance. The main purpose of this thesis is to unveil the antecedents of environmental and social practices at both organizational and cross-national perspectives.

Embracing both qualitative and quantitative research designs, we examine the pre-requisites of sustainability performance from multi-disciplinary perspectives: from green human resources management, from corporate governance as board of directors, and from financial performance as liquidity and firm market valuation. Moreover, we make sure to rely on validated, reliable, and commonly applied indices in the literature i.e., Dow Jones Sustainability Index (DJSI) and environmental, social, and governance index (ESG) of Thomson Reuters Eikon database, as proxies of sustainability practices.

The structure of this doctoral thesis consists of the following chapters: Chapters 1and 5 constitute the Introduction and the Conclusion of the thesis; Chapters 2, 3, and 4 represents the three research studies conducted during the PhD program. Chapter 2 consists of a systematic literature review identifying the antecedents, outcomes, and barriers of sustainable human resources management (SHRM). Chapter 3 comprises an empirical analysis investigating the determinants of board of directors (BOD) that enhance sustainability practices and examines the discrepancies of the BOD characteristics between European and non-European organizations. Last but not least, Chapter 4 investigates the nexus between financial performance (free cash flow and Tobin´s Q) and environmental, social and governance scores and empirically tests the moderator effect of total quality management (TQM) on this association.

Overall, the results of Chapter 3 reveal a positive and significant association between board of directors characteristics and sustainability performance. At cross-national level, the regression analysis provide statistical evidences supporting the differences among BOD indicators between European and non-European firms. While, the BOD demographic determinants are the antecedents of sustainability practices in European companies, structure and composition of the BOD are the pre-requisites of sustainability performance in non-European context. As for Chapter 4, the findings indicate a catalyst effect between firm´s liquidity and ESG performance. While the interaction between TQM and liquidity factor has a negative effect on ESG, the interaction between TQM and Tobin's Q reveals a positive and significant relationship with ESG.

Keywords: sustainable human resources; corporate governance; financial performance; sustainability performance.

Un enfoque holístico para el desempeño de la sostenibilidad: el impacto de los factores humanos y financieros

Resumen:

A lo largo de las últimas décadas y debido a las secuelas de la revolución industrial, el desempeño de la sostenibilidad ha sido una preocupación "común" entre los legisladores y reguladores, científicos y académicos, profesionales y líderes empresariales. En consecuencia, se ha estado produciendo una drástica metamorfosis y un cambio estratégico en el mundo empresarial y en varias organizaciones para adaptarse a la necesidad emergente de desempeño sostenible y lograr los Objetivos de Desarrollo Sostenible de las Naciones Unidas. Esta tesis doctoral investiga el impacto del factor humano y los indicadores financieros en el desempeño de la sostenibilidad. El propósito principal de esta tesis es develar los antecedentes de las prácticas ambientales y sociales en las perspectivas organizacional y transnacional.

Adoptando diseños de investigación tanto cualitativos como cuantitativos, examinamos los prerrequisitos del desempeño de la sostenibilidad desde perspectivas multidisciplinarias: la gestión de recursos humanos ecológicos, el gobierno corporativo como junta directiva, y el desempeño financiero como liquidez y valoración de mercado firme. Además, nos aseguramos de confiar en índices validados, contrastables y comúnmente aplicados en la literatura: el índice de sostenibilidad Dow Jones (DJSI) y el índice ambiental, social y de gobernanza (ESG) de la base de datos Eikon de Thomson Reuters, como indicadores de las prácticas de sostenibilidad.

La estructura de esta tesis doctoral consta de los siguientes capítulos: Los capítulos 1 y 5 constituyen la Introducción y Conclusión de la tesis; Los capítulos 2, 3 y 4 representan los tres estudios de investigación realizados durante el programa de doctorado. El Capítulo 2 consiste en una revisión sistemática de la literatura que identifica los antecedentes, resultados y barreras de la gestión sostenible de los recursos humanos (SHRM). El capítulo 3 comprende un análisis empírico que investiga los determinantes de la junta directiva (BOD) que mejoran las prácticas de sostenibilidad y examina las discrepancias de las características de BOD entre organizaciones europeas y no europeas. Por último, el Capítulo 4 investiga el nexo entre el desempeño financiero (flujo de caja libre y Tobin´s Q) y las medidas ambientales, sociales y de gobernabilidad

y prueba empíricamente el efecto moderador de la gestión de la calidad total (TQM) en esta asociación.

En general, los resultados del Capítulo 3 revelan una asociación positiva y significativa entre las características de la junta directiva y el desempeño en sostenibilidad. A nivel transnacional, el análisis de regresión proporciona evidencias estadísticas que respaldan las diferencias entre los indicadores de BOD entre empresas europeas y no europeas. Los determinantes demográficos de la BOD son los antecedentes de las prácticas de sostenibilidad en las empresas europeas; la estructura y composición de la BOD son los requisitos previos del desempeño de la sostenibilidad en un contexto no europeo. En cuanto al Capítulo 4, los hallazgos indican un efecto catalizador entre la liquidez de la empresa y el desempeño ESG. Mientras la interacción entre la TQM y el factor de liquidez tiene un efecto negativo en la ESG, la interacción entre la TQM y la Tobin´s Q revela una relación positiva y significativa con la ESG.

Palabras clave: recursos humanos sostenibles; gobierno corporativo; rendimiento financiero; desempeño de sostenibilidad.

Un enfocament holístic per a l'exercici de la sostenibilitat: l'impacte dels factors humans i financers

Resum:

Al llarg de les últimes dècades i degut a les seqüeles de la revolució industrial, l'exercici de la sostenibilitat ha estat una preocupació "comuna" entre els legisladors i reguladors, científics i acadèmics, professionals i líders empresarials. En conseqüència, s'ha estat produint una dràstica metamorfosi i un canvi estratègic en el món empresarial i en diverses organitzacions per tal d'adaptar-se a la necessitat emergent d'acompliment sostenible i assolir els Objectius de Desenvolupament Sostenible de les Nacions Unides. Aquesta tesi doctoral investiga l'impacte del factor humà i els indicadors financers en l'exercici de la sostenibilitat. El propòsit principal d'aquesta tesi és desvetllar els antecedents de les pràctiques ambientals i socials en les perspectives organitzacional i transnacional.

Adoptant dissenys d'investigació tant qualitatius com quantitatius, examinem els prerequisits de l'acompliment de la sostenibilitat des de perspectives multidisciplinàries: gestió de recursos humans ecològics, govern corporatiu com a junta directiva, i acompliment financer com liquiditat i valoració de mercat ferma. A més, ens assegurem confiar en índexs validats, fiables i comunament aplicats a la literatura: l'índex de sostenibilitat Dow Jones (DJSI) i l'índex ambiental, social i de governança (ESG) de la base de dades Eikon de Thomson Reuters, com indicadors de les pràctiques de sostenibilitat.

L'estructura d'aquesta tesi doctoral consta dels següents capítols: Els capítols 1 i 5 constitueixen la Introducció i Conclusió de la tesi; Els capítols 2, 3 i 4 representen els tres estudis d'investigació realitzats durant el programa de doctorat. El capítol 2 consisteix en una revisió sistemàtica de la literatura que identifica els antecedents, resultats i barreres de la gestió sostenible dels recursos humans (SHRM). El capítol 3 comprèn una anàlisi empírica que investiga els determinants de la junta directiva (BOD) que milloren les pràctiques de sostenibilitat i examina les discrepàncies de les característiques de BOD entre organitzacions europees i no europees. Finalment, el Capítol 4 investiga el nexe entre l'acompliment financer (flux de caixa lliure i Tobin´s

Q) i les mesures ambientals, socials i de governabilitat i prova empíricament l'efecte moderador de la gestió de la qualitat total (TQM) en aquesta associació.

En general, els resultats del Capítol 3 revelen una associació positiva i significativa entre les característiques de la junta directiva i l'acompliment en sostenibilitat. A nivell transnacional, l'anàlisi de regressió proporciona evidències estadístiques que donen suport a les diferències entre els indicadors de BOD entre empreses europees i no europees. Els determinants demogràfics de la BOD són els antecedents de les pràctiques de sostenibilitat en les empreses europees; l'estructura i composició de la BOD són els requisits previs de l'acompliment de la sostenibilitat en un context no europeu. Pel que fa al capítol 4, els resultats indiquen un efecte catalitzador entre la liquiditat de l'empresa i l'acompliment ESG. Mentre, la interacció entre la TQM i el factor de liquiditat té un efecte negatiu en l'ESG, la interacció entre la TQM i la Tobin´s Q revela una relació positiva i significativa amb l'ESG.

Paraules clau: recursos humans sostenibles; govern corporatiu; rendiment financer; acompliment de sostenibilitat.

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Chapter 1. Introduction

Since the late 80´s, the corporate word has been witnessing a green revolution, encouraging organizations to engage in sustainability practices (Lange et al., 2012). The conventional mantra of "maximization of shareholder wealth" is under a critical scrutiny with the emergence of environmental and social era (Freeman and Ginena, 2015), globally reshaping the purpose and performances of organizations. Governmental pressure exerted by regulators and policy-makers have been pushing executives and business leaders to include sustainability activities in their strategic agendas (Chan and Wong, 2006; Kassinis and Vafeas, 2006; Tzschentke et al., 2004).

At a corporate level, the managerial decisions and the mission and vision of the organizations have been shifting to accommodate new sustainability objectives (Bansal, 2005; Hoffman, 2019). Following the definition of Bansal (2005, p. 236), corporate sustainability consists of the nexus of three paradigms: "environmental integrity, social equity, and economic prosperity" (Gladwin et al., 1995). The whole business organism is perceived as a vital core of sustainability performances due to the allocation and management of economic resources (Bansal, 2002). Accordingly, we can describe the role of organizations vis-à-vis sustainability, as the contributor to societal and natural systems to enhance the welfare of the communities (Schwartz and Carroll, 2008). However, the main question that remains unsolved among scholars in the sustainability literature is on identifying the unveiled antecedents and pre-requisites of a successful implementation of sustainability practices. In other words, "the how" of sustainability adoption remains under-examined (Lange et al., 2012). Moreover, as recommended by Caprar and Neville (2012), a cross-disciplinary research is encourage and well-placed to improve the holistic understanding of sustainability. Therefore, knowing that sustainability management is conceived as a multidisciplinary field, we address the aforementioned research gap by investigating the required organizational factors to adopt sustainability at three corporate divisions: human resources management, corporate governance, and financial performance. Moreover, to be able to triangulate the conceptualization of sustainability in organizations, this investigation combines three theoretical frameworks to better understand the operationalization of sustainability: ability, motivation, and opportunity theory, stakeholder theory, and slack resources theory.

The main objectives pursued in this doctoral thesis intend to contribute to the sustainability management literature as follow: firstly, to provide further insights on the antecedents, outcomes, and barriers of sustainable human resources management; second, to empirically examine the interconnectedness between board of directors and sustainability performance at cross-national level; and third, to empirically investigate the nexus between finance and environment, social, and governance practices.

The motivation behind this doctoral thesis is to unfold the paradoxical perspectives and tensions in the sustainability management literature. According, to Hahn et al. (2014, 2015) the interdependence and interrelation between the premises of sustainability (i.e., economic, social, and environmental concerns) generate organizational challenges. These challenges are translated into corporate tensions to simultaneously seek competing yet complementary targets, as firm value maximization, while taking into consideration the stakeholders´ interests. In analyzing sustainability from different managerial perspectives (i.e., different disciplines), relying on two commonly used proxies of sustainability (i.e., Dow Jones Sustainability index and Thomson Reuters ESG), and building on three theoretical models, we aim to provide statistical evidences of the components of sustainability implementation and its implications for researchers and practitioners in the field. Such sustainability indicators have received considerable attention from scholars due to their importance to enhance organizational accountability and transparency to both shareholders and stakeholders of a company (Cooper and Owen, 2007).

Sustainability management has been mainly approached from three conceptual frameworks: descriptive, instrumental, and normative (Donaldson and Preston, 1995). Recently, a novel integrative model suggested by Porter and Kramer (2006) consists of the strategic approach of sustainability. To start with, the descriptive approach of sustainability provides a unique model of specific organizational behaviors and characteristics that reflects the ex-ante and ex-post position of the firm and its stakeholders. It assists managers and directors in identifying managerial tactics to manage each actor of the firm (Boesso et al., 2013). The second paradigm of sustainability is the instrumental approach which outlines the interrelation between stakeholder management and the adoption of sustainability practices (Boesso et al.,

2013). The normative approach is mostly based on the notion that "all stakeholders' needs are of intrinsic value, where each stakeholder group deserves a consideration for its own sake and not because of its ability to further the interests of some other group, such as shareholders" (Donaldson and Preston, 1995). Last but not least, the strategic approach of Porter and Kramer is mainly originated on the synergetic association between the firms´ performance and the stakeholder management, perceived as mutual benefit to strengthen organization´s competitiveness while accommodating stakeholders´ interest (Porter and Kramer, 2011). Accordingly, in this doctoral thesis, chapter 2 adopts the descriptive approach to identify human resource strategies that enhance sustainability performance; whereas chapters 3 and 4 rely on the instrumental model to highlight the nexus between organizational factors and sustainability practices.

Chapter 2 consists of a systematic literature review examining the key role of sustainable human resources management (SHRM) in developing a sustainable work environment and in facilitating the attainment of the sustainable development goals (SDGs). Sustainable development goals (SDGs) are achieved through the adoption of new ecological techniques by the organization's human capital and by the integration of innovative sustainable strategies. Following the ability, motivation, and opportunity theory, this chapter identifies the antecedents and outcomes of SHRM and highlights the obstacles to sustainable implementation not only at the level of the firm, but also from an international perspective. We determine a set of characteristics and indicators to facilitate the implementation of SHRM; at individual level green behaviors (GB), green values (GV), and green competencies (GC) are the components of sustainability; green HRM (GHRM), collectivistic identity (CI), and organizational culture (OC) are the antecedents at the firm level. This research study has been accepted for publication in 2019 in Resources, Conservation & Recycling.

To go a step further toward the operationalization of sustainability and applying the instrumental approach, Chapters 3 and 4 consist of a quantitative research design of regression analysis and distributed lag regression, respectively. Following the premises of stakeholder theory, Chapter 3 examines the association between the determinants of the board of directors and sustainable performance. Based on the Dow Jones Sustainability (DJSI) and Standard and Poor's Global Broad Market Indices (S&P Global BMI), with a matching sample of 478 multinational companies, the results

reveal a significant and positive relationship between sustainability and the board's size, gender diversity, average age of directors and number of committees. From a cross-national perspective, the study confirms the existence of dissimilarities in the characteristics of the boards of directors of European (EU) and non-European (non-EU) firms vis-à-vis sustainable performance. This chapter has been accepted for publication in 2020 in Journal of Cleaner production.

Triangulating three literatures, sustainability, finance, and operations management, Chapter 4 investigates the impact of financial performance (FIN) on environmental, social, and governance (ESG) practices and includes the moderating effect of total quality management (TQM) on this association. The sample consists of 2087 multinational companies operating in more than 20 industries and located in Europe (EU), the United Kingdom (UK), the United States (US), and Asia (China, Japan, and Korea). The analysis relies on ESG Thomson Reuters measure of sustainability with a panel dataset for a period of six years between 2012 and 2018. Therefore, a dynamic lag regression model is proposed to empirically assess whether firms that are doing "financially good" are also doing "environmentally and socially good". This chapter sheds light on the role of finance toward implementing sustainability performances and provides further managerial and practical insights in this regard. The general finding of this study reveals that financial achievements are perceived as a pre-requisite or antecedents of ESG adoption.

Chapter 2. On the importance of sustainable human resource management for the adoption of sustainable development goals

2.1. Abstract

Today, firms are becoming increasingly aware of the importance of social, ethical, and ecological objectives. In addition to financial profit, organizations are setting themselves new goals, focusing on individual, communal, and environmental-friendly performance and development. One of the disciplines that is promoting "green" organizations is Sustainable Human Resource Management (SHRM). Sustainable development goals (SDGs) are achieved through the adoption of new ecological, social, and governance techniques by the organization's human capital and by the integration of innovative sustainable strategies. This systematic literature review examines the key role of SHRM in developing a sustainable work environment and in facilitating the attainment of SDGs. Based on a selection of empirical and conceptual articles, this review identifies the antecedents and outcomes of SHRM and highlights the obstacles to sustainable implementation not only at the level of the firm, but also from an international perspective. Four propositions are formulated that might be empirically tested in future studies. Research gaps in the existing literature are identified and potential future directions are suggested for further research in the field of sustainable management.

Keywords: Sustainable human resource management SHRM; Sustainable development goals SDGs; Green HRM; Social, ethical, and ecological performances; Sustainable development.

2.2. Introduction

The exponential growth of human economic expansion has had a devastating effect on the environment and on the world's natural resources. At the same time, the engagement in social action to redress this situation is very limited (Bauman, 2000; Korten, 2001). Recent studies have drawn attention to the impact of the human factor on sustainable development and resource preservation (Pfeffer, 2010; Speth, 2010). With the increasing focus on social responsibility and sustainable performance, some organizations have set themselves new goals other than mere financial profit, such as a commitment to social and environmental outcomes (Elkington, 1997). In fact, an international survey of 2800 global companies revealed that 70% of these organizations

include sustainability as a primary issue in their strategic plans and agendas (Kiron et al., 2012).

In 2015, the UN General Assembly presented "the 2030 Agenda for sustainable development" consisting of 17 sustainable development goals (SDGs) and 169 targets. The targets are built on the Millennium Development Goals (MDGs) and aim to accomplish their uncompleted objectives. The 17 goals are unified and incorporated in three dimensions of sustainable development: economic, social, and environmental. They are established on what are known as the five Ps: "people, planet, prosperity, peace, and partnership". With regard to "people" and "prosperity", the aim of the SDGs is to accommodate appropriate settings and generate specific conditions that enhance the development of sustained economic growth, efficient resource allocation, collective prosperity, and decent work environments. From the business perspective, the ultimate objective of the SDGs is to establish "sustainable, innovative, and people-oriented" economies that improve employment opportunities, in particular for the young generation and for women. The mission for organizations is to ensure that their workforces are healthy and well educated, and to nurture the awareness and proficiencies required to create productive employees and proactive citizens that contribute to society. The attainment of SDGs requires a strategic process involving several actors: the private and public sectors, governments, multi-national enterprises, non-governmental and philanthropic organizations, and individuals. Collaboration and interaction between these agents will represent a step further toward achieving sustainable consumption, integrating eco-friendly production and building harmonious societies. The 2030 Agenda describes itself as "an Agenda of the people, by the people, and for the people – and this will ensure its success" (United Nations, General Assembly, 2015, p. 12). Accordingly, we can clearly identify the dual role of the human element as both the initiator and the beneficiary of the implementation of SDGs. At institutional and corporate level, we consider that one of the areas that can contribute most to their fulfillment is Human Resource Management (HRM).

Scholars from fields such as marketing, economics and finance, and operation and supply chain management are currently assessing strategies and policies for integrating SDGs into the goals of the firm. However, research on the contribution of HRM to sustainable development remain scarce (Aguinis and Glavas, 2012; Jackson et al., 2011; Pfeffer, 2010). Various business disciplines have examined the relationship between

manufacturing and operational practices and sustainable performance; HRM and SDGs are interconnected through the common component of the human factor, since people's attitudes, behaviors, and resource consumption have a direct impact on social and ecological practices. The research carried out to date has provided clear examples of how the labor force and the functional areas of the firm are being re-conceptualized to meet these objectives.

Environmental awareness began with the "green movement" that espoused ecological and social engagement, while sustainable management and practices, of which sustainable human resource management (SHRM) constitutes a clear example, transfer and operationalize this ideological movement into business applications. Therefore, the objective of SHRM is to reach the organizational targets, while striking a balance between business growth and the preservation of environmental resources (Jennings and Zandbergen, 1995; Starik and Rands, 1995). To investigate the role of SHRM in the adoption of SDGs, we identify a set of interconnected HR tasks, which have been incorporated by firms to promote sustainable practices. These functions are classified into two categories: operational, and managerial. The operational responsibility consists of a strategic process comprising policy-making, planning, implementation, auditing, action-correction, and performance assessment (Barnes, 1996). With regard to the policy and planning role, Daily and Huang (2001) indicate that organizations and HR managers should be committed to complying with civic regulations and protocols vis-à-vis sustainability, ensuring consistent reporting of environmental issues and transparent disclosure, distributing responsibilities equally, and setting a specific timeline and methodological framework to be applied (Jackson, 1997; Johnson, 1997). As for the operationalization and auditing functions, HR departments should accommodate an explicit structure to manage resource usage, develop measures and processes to avoid undesirable outcomes that might harm society or the environment, and generate a monitoring system for evaluating the sustainable practices of the organization.

With regard to the managerial role, HRM must secure support from top-level management, boost employees' empowerment, provide continuous training, implement an efficient system of remuneration, and build cross-functional teamwork (Daily and Huang, 2001). Support from top-level management can help to establish a flexible and lean culture that avoids bureaucratic structures, centralized authority, and vertical communication flows (Janson and Gunderson, 1994). Daily and Huang (2001, p. 5)

state that the mission of HRM is to continuously conduct "trainings, interactive skills, team building, benchmarking, and brainstorming" while Bhushan and MacKenzie (1994) stress the importance of tackling societal and ecological issues. Daily and Huang confirm that HR managers should provide autonomy and empowerment to the workforce in order to promote a participative working environment. The last HR task they mention for backing sustainable practices is the formation of cross-functional groups to facilitate the collaboration and coordination between various organizational divisions (Daily and Huang, 2001; Leitch et al., 1995). The link between SHRM and SDGs is perceived as "means to an end" (Huselid et al., 2005). In this context, the fundamental task of SHRM is the supervision of human resources use and consumption; specifically, it is perceived as the managerial control of human capabilities and skills. This key role has a direct impact on attaining six of the UN's SDGs: 3 (health and wellbeing), 5 (gender equality), 8 (decent work and economic growth), 10 (reduction of inequality), 12 (responsible consumption and production), and 17 (implementation and revitalization of global partnerships) (United Nations Department of Public Information, 2017).

Nevertheless, achieving a consensus on what SHRM should include faces a number of obstacles: the terminology used in the research, the lack of a unified definition, the ambiguity in the conceptualization of the framework, and the lack of clarity in the developmental processes applied in sustainable firms. Previous studies have highlighted the need to identify appropriate HRM approaches and systems for implementing sustainability practices (Jackson et al., 2011; Taylor et al., 2012). Dubois and Dubois (2012) state that "HRM is a core partner in organizational environmental sustainability" (Taylor et al., 2012, p. 790). Nurturing the human aspect leads to a better understanding of SHRM and increases its potential for encouraging sustainable performance in the workforce and for optimizing resource management (Stone, 2000). The main debate in the literature concerns the complementarity of HRM and SHRM practices and the necessity to establish a clear conceptualization of SHRM so as to be able to identify the ultimate collective goal for the labor force, the firm, and the environment.

Jackson et al. (2011, p. 102) identifies the following relevant issues in the SHRM field: employees' attitudes and behaviors in the workplace related to environmental concerns, HRM strategies and regulations supporting sustainability, and differences or similarities in the green HRM practices applied in various countries. In this context, we hope to

contribute to the literature by answering the following research question: how are HRM departments developing green strategies and implementing socially- and environmentally-friendly practices to achieve SDGs? The study also examines the impact of these practices on the firm's performance as a whole. To do so, we present a systematic literature review comprising four sections: 1) The conceptualization of SHRM; 2) The antecedents of SHRM; 3) The outcomes of the adoption of social and eco-friendly practices, first at HR level and then at organizational level; and 4) The implementation of SHRM with a cross-national perspective.

The remainder of this paper is structured as follows: the second section presents the theoretical paradigms of SHRM and its impact on sustainability. We then describe the methodological framework applied to select our sample and to structure our review of the literature. This is followed by a content analysis interpreting the results of research in the SHRM field. In the fifth section, we discuss the outcomes of the study, and then conclude with an appraisal of the implications of the findings and offer some suggestions for future research directions.

2.3. Theoretical background

From a theoretical point of view, SHRM has been addressed from various perspectives, such as institutional theory (DiMaggio, 1983; Scott, 1987), stakeholder theory (Freeman, 1984), paradox theory (Poole and Ven, 1989), risk society theory (Beck, 1992a), organizational development theory (Porras and Robertson, 1986), system theory (Bertalanffy, 1950), a resource-based view (Wernerfelt, 1984), and signaling theory (Spence, 1973). However, the ability, motivation, and opportunity (AMO) theory (Appelbaum et al., 2000) is the one most often applied in the literature, given that it provides a conceptual model which clarifies the strategies and implications of the HR functions that promote sustainable performance (Gholami et al., 2016; Guerci et al., 2016; Renwick et al., 2015, 2013; Stone, 2000). In the following lines we summarize the theories addressing the connections between SHRM and sustainability.

According to the stakeholder paradigm, the linkage between SHRM and sustainability is based on an "open-system" approach established by the interconnectedness and interaction of various actors such as stakeholders, regulators, social and environmental

agents (Benn and Bolton, 2011). As stated by Schuler and Jackson (2005), the stakeholder framework covers both internal and external organizational responsibilities. They indicate that HRM strategies must not only fulfill the interests of employees but must also match the needs of all the stakeholders. In this context, the principles of this theory highlight the importance of the societal engagement and involvement of the actors mentioned above in the business field. The interactive approach accommodates a wider spectrum of values and activities addressing collective concerns (Kramar, 2014), and therefore justifies the convergence of practices between SHRM and sustainability.

From the perspective of resource allocation, a large number of scholars adopt the resource-based view (RBV) theory to validate the bridge connecting SHRM and sustainability, as both are directly related to resource-oriented strategies and management (Arulrajah and Opatha, 2016; Florea et al., 2012; Nejati et al., 2017). The RBV theory postulates that when the HR division incorporates sustainable practices associated with the labor force (i.e., involvement, motivation, retention, and empowerment), it induces an added value to the firm, both financial and non-financial (Barney, 1991; Gong et al., 2009). According to the RBV framework, the development of human competencies and skills and the safeguarding of natural resources are recognized as core factors for generating a competitive advantage (Arulrajah and Opatha, 2016; Bowman and Ambrosini, 2000; Lockett et al., 2009).

As for the operationalization of SHRM, institutional theory provides a clear explanation of how HR functions integrate the "greening" process of the organization (Arulrajah and Opatha, 2016). This theory validates the implementation of sustainability as a response to external pressures exerted by the government and the civic community (Russo and Fouts, 1997). According to the institutional approach, the adoption of SHRM is accomplished in two stages: legitimization at institutional level, and formalization at departmental level, through green HR tasks (Arulrajah and Opatha, 2016). The institutional paradigm is perceived as an aspect of the "goodness-of-fit" between ecosystems and HR systems, satisfying the communal needs of both internal and external organizational actors (Germain and Gitterman, 1995; Greene, 1999). Similarly, system theory describes SHRM as a sub-system that interacts with the environment and society to establish the viability and credibility of the organization (Jackson and Schuler, 1995). For instance, it suggests that SHRM can achieve better sustainable

performance and green practices by retaining employees, developing green skills, and enhancing proactive attitudes toward social and environmental matters.

As mentioned above, the AMO theory is widely applied by scholars in the green HRM literature supporting the association between the human capital and social, ethical, and ecological performance. It is a multi-dimensional model that aims to enhance the sustainable outcomes of the firm based on three factors: an ability to engage and to contribute to green activities and a willingness to foster an eco-friendly atmosphere inside and outside the workplace; an understanding that increasing motivation for societal activities is a joint responsibility involving both the employees and the organization (while the employees' duty is to show higher engagement in sustainable practices, the organization's role is to compensate and remunerate its personnel when they demonstrate proactive approaches and green behavior) (Opatha, 2015); and finally the opportunity to accommodate workers with a decent work environment and a supportive organizational culture that promotes a green attitude and fosters involvement in volunteering activities (Renwick et al., 2013). In our review of the literature, we present the results under the scope of AMO theory identifying green determinants for both individuals and organizations in their attempts to achieve SDGs.

2.4. Methodology

In this systematic review, we use a multi-stage method to develop an in-depth analysis of the SHRM field and to identify the predictors of SDG attainment. The research period covers more than two decades (1995 until 2017) tracking the advancement of the SHRM literature. The first step consists of a database search and the second step a reference search, using the same keywords for both. Like previous studies on SHRM, we use the following keywords in the search engine: "sustainable human resource", "sustainable human resource management", "green human resource", "green human resources management", "sustainability and HR", "green HR", "green HRM", "sustainable HR", and "sustainable HRM". These keywords are chosen in view of the aim of the study, and they also allow us to group the selected papers into three categories: antecedents, outcomes, and implementation. Articles published in peer-reviewed journals were chosen from the following databases: Web of Science, ProQuest, Business Source Premier, and Google Scholar. The various examination fields comprised the following disciplines: "Business", "Environmental Studies",

"Industrial Relations and Labor", "Management", and "Applied Psychology". In the study we include 46 journals, which provided an initial sample of 164 articles. We excluded 51 articles not directly related to SHRM issues, for example, articles with a broader view of sustainability. Subsequently, after reading the abstracts, discussions, and conclusions of the remaining 113 articles, we excluded 41 articles that did not discuss green antecedents or green outcomes at individual or organizational levels. This left us with a final sample of 72 articles. We classified the studies according to the following criteria: conceptualization, level of analysis, antecedents, outcomes, implementation techniques, and barriers. For the analysis of the antecedents, we extracted data using the relative terminologies/codes: green behaviors (GB), green values (GV), and green competencies (GC) at the individual level; and green HRM (GHRM), collectivistic identity (CI), and organizational culture (OC) at the firm level. With regard to SHRM implementation and outcomes, we identified data from the selected articles using the level of analysis as our classification criterion. With this approach, the benefits of SHRM were revealed at organizational, sector, and cross-national dimensions. As for the last section investigating the barriers to SHRM, we applied five terminologies/codes for data extraction: "obstacles", "paradox", "barriers", "challenges", and "problems". Table 1 displays the number of articles per journal included in the study.

Table 1. Distribution of articles per journal used in the study

	Name of Journals	**#Articles in the literature review**	**# Articles in the content analysis**
1	*Journal of Management	3	3
2	*International Business Research	1	1
3	The Academy of Management Journal	3	1
4	Theory, Culture & Society	1	0
5	British Journal of Management	1	0
6	*Tourism Management	1	1
7	*Journal of Sustainable Tourism	1	1
8	*International Journal of Human Resource Management	20	19
9	*Environmental Management and Health	1	1
10	*Human Resource Development International	4	4
11	Organizational Theory and Public Policy	1	0
12	*Human Resource Management	2	2
13	*European Journal of International Management	1	1
14	*Journal of Business Ethics	5	5
15	*California Management Review	1	1
16	*Journal of Cleaner Production	11	9

17	*Journal of Applied Psychology	1	1
18	*Tourism Economics	1	1
19	*Industrial Management & Data Systems	1	11
20	*Personnel Psychology	1	0
21	International Journal of Production Research	1	1
22	*Cornell Hotel and Restaurant Administrant Quarterly	1	1
23	*Organization Management Journal	1	3
24	*Resources, Conservation and Recycling	3	1
25	*Journal of Management Studies	1	1
26	*International Journal of Hospitality & Tourism Administration	1	1
27	*Hospitality Management	1	2
28	*International Journal of Contemporary Hospitality Management	2	0
29	MIT Sloan Management Review	1	1
30	*Journal of Operations and Production Management	1	0
31	Journal of Consumer Marketing	1	1
32	*Journal of Managerial Issues	1	0
33	Research Journal of Recent Sciences	1	0
34	*Business Horizons	1	1
35	*Human Resource Management Journal	1	1
36	*Organization & Environment	1	1
37	The Academy of Management Perspective	1	0
38	Canadian Journal of Sociology	1	0
39	*The Academy of Management Review	3	1
40	*Journal of World Business	1	1
41	*Journal of Organizational Behavior	1	1
42	*Management Revue	1	1
43	Administrative Science Quarterly	1	0
44	Journal of Human Resources in Hospitality & Tourism	1	0
45	Contemporary Management Research	1	0
46	*Human Resource Management Review	1	1

2.5. Analysis

2.5.1 Conceptualization of SHRM

First of all, it is important to distinguish between strategic HRM and SHRM, as they have different roles in the organization. Developed in the late 1970s and 1980s, the central role of strategic HRM focuses on the financial and economic outcomes of the organization's labor force, implementation of HR practices, and monitoring of the human capital (Frombrun et al., 1984; Nikandrou and Papalexandris, 2007; Wright and Snell, 1991). On the other hand, SHRM places the emphasis on developing an

innovative workplace with internal and external social involvement, on increasing awareness and responsibility toward environmental preservation, and on improving the distribution and consumption of resources to promote organizational success in a competitive environment (Ehnert, 2009a; Kramar, 2014). While strategic HRM goals are typically firm-oriented, SHRM objectives are deliberately communal-oriented. The definition of sustainability commonly used in the literature is provided by the United Nations World Com- mission on the Environment and Development, which describes it as "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs" (United Nations Documents, 1987, p. 41). From the perspectives of production and the environment, various indicators have been used to measure and assess sustainable performance. Jia et al. (2017, p. 3) classify these factors into five categories such as: "reducing the generation of toxic and hazardous products, environmental qualifications and certificates, service cycle processing time, minimizing the service costs per total revenue, and the service output per hour/facility utilization". As for the conceptualization of sustainability from the HR viewpoint, Ehnert et al. (2015, p. 90) present a sophisticated framework for SHRM, defining it as "the adoption of HRM strategies and practices that enables the achievement of financial, social, and ecological goals with an impact inside and outside the organization and over a long-term time horizon, while controlling for unintended side effects and negative feedback". Two components can be induced from Ehnert et al.'s definition: a human or ecological sustainability acknowledging various paradoxical objectives and goals in different dimensions (economic, ecological, and social) (Docherty et al., 2009; Jackson et al., 2011), and a multifaceted interconnectedness between "HRM systems and their internal and external environments" as the dynamic core of resource generation and reproduction (Ehnert, 2009b).

Ehnert (2009a, p. 173) clarifies the link between HRM and SDGs by providing three main interpretations: first, a responsibility-oriented approach based on an open system model including employees' well-being, community prosperity, and quality of work-life balance; second, efficiency-oriented and innovation-oriented corporate purposes, similar to Friedman's (1970) approach, focusing on the connection between economic and sustainability outcomes. The latter can be interpreted as balancing between profit and cost, while taking into account the changes in the environment, technological progress, and the quality of services and products; and third, a substance-

oriented approach directed toward responsible consumption and reproduction of resources for future organizational viability. Following this classification, Ehnert (2009a,b) also argues that sustainable development requires the co-existence of the following three interpretations: human responsibility, firm efficiency, and resource management. Moreover, Jabbour and Santos (2008, p. 2134) justify the choice of HRM as a key factor contributing to sustainability performance, for four reasons: "HRM is considered as a potential foundation for the advancement of sustainability in the organization; both HRM and sustainability need long-term planning and determination to induce economic outcome; to promote sustainable performance is the new paradigm of HRM; and to enhance the effectiveness of HRM practices by satisfying various shareholders' needs". The authors expand on the relationship between HRM and SDGs by highlighting three major aspects of management practices: innovation, cultural diversity, and environmental performance. For their part, Scully-Russ (2012) and Taylor et al. (2012) conceptualize SHRM as an integrative component of various HR divisions. The role of SHRM is simultaneously perceived both as a means, to develop sustainability through HR policies by directing employees' mindsets, and as an end, through the establishment of HRM systems entailing the "social, moral, and economic" aspects of the firm (Ehnert, 2009a,b; Osland et al., 1999; Taylor et al., 2012). Scully-Russ (2012) identifies a "mutually co-constructive" relationship between three models of Human Resource Development (HRD) (strategic, critical, and holistic) and sustainability development (Bauman, 2000; Beck, 1992b; Giddens, 1991). He claims that the link between "eco-modernism" and strategic HRD is accomplished through the implementation of a continuous learning process of social involvement. As for combining sustainable development and critical HRD, the author states that this is achieved through the enhancement of corporate social responsibility performances. Lastly, Scully-Russ proposes that the relationship between "eco-consciousness" and holistic HRD is attained through promoting reflection on moral, ethical, and ecological implications by accommodating employees with a specific mindset and encouraging their sustainable thinking (Scully-Russ, 2012, p. 400). SHRM and sustainability are two paradigms that converge toward a common organizational benefit, not only satisfying shareholders' objectives but also operating in a responsible manner, while taking into consideration collective welfare and the preservation of natural resources. For instance, SHRM can be defined as the "hardware" of the organization, while the employees are considered as the engine of the "software" part (Florea et al., 2012); both are

complementary components in the accomplishment of SDGs. A summary of the conceptualization of SHRM is provided in Table 2.

Table 2. Conceptualization of SHRM

Authors & Year	Findings	Gaps & Issues for Future Research
Boudreau and Ramstad (2005)	Paradigm shift toward talentship and sustainability: the HC Bridge Decision Framework composed of efficiency, effectiveness, and impact.	Unclear view of the implication of talents in the shifting process and the evaluation of the strategic success.
Jabour and Santos (2008)	Multidimensional model linking HRM and organizational sustainability through: innovation management, cultural diversity and continuous improvement of environmental management.	Further investigation, using survey design in order to enhance the robustness of the results. Variables to be included: company size, industry, and country.
Jackson and Seo (2010)	Presentation of a list of questions in the greening of strategic HRM for scholarships and identification of barriers facing sustainability development: apathy, complexity, confusing terminology, and careerism.	Assessing the intersection between HRM and environmental sustainability as an opportunity to address a real world's problem connecting HRM to other disciplines by creating knowledge at multilevel complexities.
Renwick et al. (2013)	Based on AMO theory, a conceptual review providing clear evidence supporting the positive impact of employee involvement EI and environmental management EM.	Lack of research differentiating effective and ineffective EI initiatives; impact of EM on selection criteria and selection process; personality and antecedents of green leadership; role of emotions in EM; knowledge of the motivation of employees to becoming involved in EM via performance appraisal and reward management systems; impact of GHRM as a whole on environmental outcomes; research gap of the Asian economic development.
Taylor et al. (2012)	Review of five articles clarifying the role of HRM as a means to achieve sustainability strategies, and highlighting new areas to be explored by scholars and practitioners.	Novel HRM approaches and practices in companies experimenting with new governance structures; need for empirical studies that examine the link between strategic approach to sustainability and the way a company designs its HRM systems; industry type; new conceptualization of HRM and identification of the best outcomes of SHRM for employees and firms.
Scully-Russ (2012)	Three HRD models: strategic, critical and holistic; model of social change and learning from within based on three conclusions: need for a practice-based approach, engagement in the organizational micro-interactions, and metaphysical orientation including issues of power and ethical choices	Conceptual paper; models need to be supported empirically; what are the motives for doing good? And what is good?

Florea et al., 2012	Relating employees' values and organizational sustainability; intrinsic factors of employees' mindset are due to organizational actions and identification of values, and their relation to effective HRM practices. influencing implementation of HR policies.	Inventory of all the values that might impact organizational sustainability; inclusion of two constructs: organizational culture, and organizational structure.
Devins and Gold (2014)	Sustainable Talent Management and Development STMD as a tool to understand ecosystem skills by moving toward pluralist, collective and multi-voiced approaches to improving sustainable development.	Conceptualization and measurement of talents; role of STMD in small organizations; uncovering of "hidden knowledge" through STMD.
Kramar (2014)	Differentiation between SHRM and strategic HRM; generation of two models: adapted and extended from Ehnert (2009), acknowledging both negative and positive results for different stakeholders and factors	Creation of appropriate measures for individual organization and cascaded down to all employees (design, performance indicators and rewards); shift from knowledge development to integrating the findings into practical implications in the workplace.
Russ-Eft (2014)	Building a theoretical model connecting HRD with program evaluation leading to sustainable HRD programs; evaluation as a learning opportunity.	Development of instruments or assessment tools measuring the effect of the external and internal findings identified in the study; cultural and international applicability of the model.
Renwick et al. (2015)	Contemporary literature on GHRM based on AMO theory; Agenda for future research.	Research to assess job candidates' understanding of company environmental credentials (green job descriptions); PMA metrics to understand employees' accountability for EM performance; effect of green training on employees' behaviors, environmental outcomes, and evaluation of green learning; HR managers' role in ES; determinants of EGB; individual traits; HRM practices for implementing ES; empirical investigation of green work-life balance; Marxist social and employment relations theory for understanding Trade Union behavior

2.5.2 Antecedents of SHRM

a) Green behaviors, green competencies, and green values

The review of the literature reveals that individual characteristics, attributes, and behaviors are important drivers of sustainable performance. They are considered as facilitators of the metamorphosis of organizations into more socially responsible, green-oriented entities. The following section consists of three sub-parts which outline the

antecedents of SHRM at individual level, classified as: Green Behaviors (GB), Green Competencies (GC), and Green Values (GV).

Green behaviors (GB). GB are associated with any humanistic conduct toward colleagues at work, firm as a whole, public and social communities, and the environment. These behaviors are perceived as "good" actions that benefit the "collective" interest. Norton et al. (2015, p. 105) propose a conceptual model examining two types of employees' green behaviors (EGB): required EGB and voluntary EGB. Required EGB are performed within the context of job duties, also known as task-related EGB; for their part, voluntary EGB are similar to organizational citizenship behaviors (OCB), consisting of personal and social initiatives toward the internal and external work environment including activities beyond the firm's requirements. Their findings suggest a framework founded on "person-environment" interaction, categorization and taxonomy of job performance, and self-determination theory. The authors identify discrepancies between voluntary and required EGB relative to "institutional, organizational, leader, team, and employee" levels and dependent on contextual factors. They generate a spectrum of EGB with different shades at various firm levels. However, the literature still lacks in-depth empirical studies identifying the types of individual behaviors that can promote specific sustainable performances, toward other individuals, organizations, or the ecosystem. Moreover, there is a need to differentiate between the nature of proactive behaviors toward society and proactive behaviors toward the environment in order to classify their different effects on sustainability.

Green competencies (GC). As identified in the literature, scholars have conducted both qualitative and quantitative studies addressing GC and assessing their impact on SHRM. GC are described as employees' green skills and green talents (Pinzone et al., 2016) for promoting environmental friendliness, sensitivity to societal matters, and the alignment between individual and green consumerism. Environmental awareness reflects "an individual's orientation toward the environment and an individual's concern toward ecological issues" (Kim and Choi, 2005, p. 593). Tantawi et al. (2009, p. 31) explain GC and sustainability development as a process of determining "what people know about the environment", "how they feel about it" and "what actions they take and efforts they exert to preserve the environment". Generally, GC are personal attitudes reflecting

human contribution to the society and devotion to the conservation of natural resources (Lee, 2009). They are perceived as crucial antecedents to the development of green and cooperative behaviors (Pinzone et al., 2016).

Subramanian et al. (2015) differentiate between natural green competencies (NGC) and acquired green competencies (AGC). The combination of NGC and AGC constitutes the effective green competency (EGC). Based on Roberts' (1997) competencies' framework, NGC5 are described as underlying traits derived from individual observations, whereas AGC are perceived as green knowledge and skills accumulated through experience. The results reveal that AGC are stronger predictors of green performance than NGC and have a higher influence on the initiation of GB. Hence, HR managers might focus on identifying employees with AGC and offer green workshops and training to develop AGC with the aim of accelerating sustainable development processes (Subramanian et al., 2015). The identification of procedures for building acquired knowledge for sustainable performances and the examination of strategies for inducing AGC may be promising lines for future research. Green training materials and instructions need to be created and adopted by scholars to facilitate green practices and the successful accomplishment of SDGs.

Green values (GV). In addition to GB and GC, the convergence of individual and organizational values and the compatibility of leadership traits with the work environment are predictors of SHRM. Leadership styles have been analyzed in the literature to indicate which types initiate sustainable development and assist in the implementation of SHRM. Robertson and Barling (2013) found that transformational leadership plays the role of a "catalyst" in promoting employees' pro-social behaviors. For instance, actively sharing environmental values, addressing sustainable issues, and encouraging employees to take part in social events are aspects positively associated with proactive behaviors (Ramus, 2002; Robertson and Barling, 2013). In the same vein, Florea et al. (2012) investigate the relationship between values and sustainability, and conclude that altruism, empathy, positive norm of reciprocity, and private self-effacement have significant impact on effective HR practices and the advancement of sustainability management.

At a micro level, GV, GB, and GC are associated with a higher predisposition toward engagement, involvement, and participation in communal activities. These individual traits are antecedents of SHRM that induce positive outcomes and are achieved in a

gradual manner: that is, they start from personal initiatives, are executed and expanded in the organizational framework, and eventually help to create a better environment.

b) Green HRM, collectivist identity, and organizational culture

Both employers and employees pay attention to green attributes and the protection of environmental resources (Renwick et al., 2015). Employers are implementing green practices such as "employee branding" to improve the hiring process and to create a more responsible and environmentally aware workforce (Renwick et al., 2013, p. 2). An interconnected organization-employee fit facilitates the progress of SHRM. Here, we describe how these organizational antecedents of SHRM are recognized as drivers of the "greening" process of organizations.

Green HRM. The HR functions are complementary and interrelated tasks, incorporated in order to reach social and financial goals. Knowledge management, communication, and HR planning are predictors of the greening process. Cohesiveness and shared-interest among HR members are focal components for sustainable development. The support and contribution of HR practices are fundamental for achieving organizational greening (Jabbour and Jabbour, 2016). Green recruitment and selection help to advance sustainable performance, by featuring green criteria in the job description and by informing the candidates about the organization's mission and values. It is the preliminary step of the HR department to match the "green" values of the employees and the firm. As regards training and development, HR managers rely on this key task to foster green competencies and green talents. Pro-environmental attitudes require the development of green teams (Jabbour et al., 2013) and green skills (Fernandez et al., 2003) to increase participation in social and ecological activities. Establishing a learning system, providing extensive workshops (Hale, 1995) and encouraging volunteering activities are strategies used by green training units to accomplish SDGs. Scholars emphasize the importance of raising awareness of environmental management and developing educational programs to improve the use of innovation and technologies (Hale, 1995; Unnikrishnan and Hegde, 2007; Venselaar, 1995). Practical workshops and on-site training should be customized to the corporate strategy and type of industry (Venselaar, 1995).

Unnikrishnan and Hegde (2007) provide evidence in support of in-house and on-job training, finding them to be more efficient and effective learning tools for sustainable adoption. The aforementioned practices lead to a twofold benefit at both individual and societal levels and enhance employees' consciousness and knowledge of SDGs. According to Jabbour et al. (2010), sustainability development is an evolutionary process of environmental learning management. Hence, to ensure the consistency of green training, organizations should detect needs among employees and assess their readiness to adopt sustainable practices (Zibarras and Coan, 2015).

As for boosting employees' motivation to implement sustainable practices, this managerial aspect is accomplished through green performance appraisal and reward systems. Renwick et al. (2013) confirm that environmental rewards and recognition have a significant and positive influence on employees' willingness to participate in eco-initiatives. While regular performance appraisal relates to employees' evaluation with regard to job description and work-related tasks, green performance appraisal is based on employees' commitment to green issues, evaluating whether they exhibit extra-social behavior, pay attention to resource consumption, and show a responsible attitude toward the environment. The customization of rewards and benefits de- pends on the individualized demands and needs, taking into account the type of industry and sector. Wagner (2013) empirically proves the existence of positive correlation between environment management systems (EMS) and HR practices. He concludes that work satisfaction is a stronger driver of EMS implementation than employees' recruitment/ retention factor. For their part, Jabbour et al. (2013) indicate that organizations with intensive green team activities tend to show higher EMS performance.

Zibarras and Coan (2015) argue that reward systems and environmental training are keystones for enhancing environmental sustainability and encouraging proactive behaviors. Jackson et al. (2011), among others, stress that social compensations and public rewards are more effective than monetary and private rewards, and that negative appraisal techniques and punishments have adverse effects on environmental advancement. Personalized and intrinsic reward systems show a higher influence on SDGs and environmental management, since the valuation of the reward may vary among employees (Fernandez et al., 2003; Govindarajulu and Daily, 2004).

Collectivist identity (CI). At the macro level, some organizational antecedents of sustainable management (i.e. organizational identity, firm structure, and stakeholder

pressure) have recently been investigated in HR and environmental studies. Using a sample of Chinese manufacturing companies, Li et al. (2012) conducted an empirical analysis on the relationship between firm's identity, HRM performance, and sustainable development. The authors assess the impact of three types of organizational orientation – individualistic, relational, and collectivist – on performance. Both collectivist and relational orientations of firms have direct and moderating effects on sustainable performance. CI positively moderates the relationship between HRM performance and sustainability, while relational orientation has a negative direct effect on sustainable performance. Accordingly, collectivist firms tend to be more socially responsible and exhibit higher involvement in moral activities with regard to the general benefit of the society and the ecosystem. However, the authors acknowledge that these results cannot be extrapolated to other countries, as China is a country where connections and business relations are crucial in the corporate operations and where little attention is paid to environmental protection. It seems that these practices were justified by the strong relationship between the government and organizations, which might mitigate the punishments imposed on social and ecological abuses. This leniency towards firms might be regarded as favoritism, and may slow down the advancement of SDGs. Several political regimes and governmental-corporate ties are negatively influencing sustainability and harming the environment, causing corruption-related practices and inducing a lack of transparency between business agents and policy regulators. As a consequence, additional attention and intervention from external auditors and inspectors is required to control and evaluate the sustainable implementation across industries.

Organizational culture (OC). To increase environmental management opportunities, scholars recommend that HR departments encourage employees' relationships, engagement and involvement, and build a supportive organizational culture that promotes SDGs. Hence, instead of a superficial and occasional collection of employees' opinions and perceptions of environmental matters, a more organized and extensive commitment is needed. The results reveal that employees' involvement improves environmental management by efficient resource usage (Florida and Davison, 2001), waste reduction (May and Flannery, 1995), and workplace pollution minimization (Denton, 1999; Kitazawa and Sarkis, 2000). Del Brio et al. (2007) identify four HR factors for generating environmental action-based competitive advantages at the individual, managerial and organizational levels. Their figures indicate that the

contributions to ecological performance of environmental managerial involvement, strategic integration of environmental organizational management, employees' motivation, and involvement in environmental activities amount to 16%, 8%, 8% and 10% respectively. The highest contribution to environmental practices is achieved by accommodating an organizational culture of involvement, participation and engagement. This organizational indicator can produce a synergetic effect on both the implementation process and the yield of social performance. In this context, Bunge et al. (1996) state that participatory culture is an important antecedent of social and ecological practices, and find a positive and significant correlation between environmental issues and the participatory organizational atmosphere. This culture entails the incorporation of waste reduction techniques through employees' participation and a formal engagement to guaranteeing effective green outcomes.

According to Dubois and Dubois (2012), to achieve successful SDGs, organizations might embed changes at various levels. The effort may be exerted inter- and intra-organizationally through the adoption of sustainable visions and strategies, the development of moral behaviors and attitudes, and the establishment of the organization's social systems. Proactive leadership, innovative culture, flexible structure, and transparent reporting facilitate environmental sustainability (Ramus and Steger, 2000). An innovative culture is built on employees' creativity and fair treatment among workers, novel technological schemes, de-centralization, and horizontal communication with interdependent relationships. Witjes et al., (2017, p. 136) investigate the impact of three levels of organizational culture on corporate sustain-ability: at the "surface level", accomplished through artifacts; at the "value level", achieved through shared norms and beliefs among individuals, teams, and firms; and at the "underlying level", by adopting principles that reflect the interconnectedness between humans and the eco-system. They conclude that organizational culture should combine the three levels to integrate sustainable development. A summary of the antecedents of SHRM is provided in Table 3.

Table 3. Antecedents of SHRM

Authors & Year	Findings	Gaps & Issues for Future Research
Del Brio et al. (2007)	Human factors are key to successful environmental activities in firms; positive impact of employees' motivation, management involvement and strategic integration on achieving environmental action-based competitive advantage.	Joint influence of human factors such as other facets of the firm (suppliers, clients, R&D activities) on environmental performance.
Jabbour et al. (2010)	Model of evolution of the HRM contribution to environmental management in case studies: through systematic contribution and rewards dimensions; demand for environmental learning management.	Comparative case studies of small and large companies
Dubois and Dubois (2012)	Recommendation of a list of both transformational and traditional HR functions for design and implementation to facilitate the embeddedness of Environmental Sustainability ES initiatives; the degree of organizational commitment toward embedding ES determines the impact of HRM.	Generalization from specific behavior changes to the wide range of relevant behaviors; positive deviance on ES behavior change for both organizational and employee levels.
Li et al., (2012)	Moderating effect of organizational identity on sustainable performance (SP); collectivist orientation and SP are positively correlated; relational orientation and SP are negatively correlated; firm size and SP are positively correlated	Comprehensive measurement of sustainable performance (separating environmental performance and donations) to test the effect of collectivist identity.
Ji et al. (2012)	Positive direct effect of employee training on firm's performance in sustainable development; evidence supporting the relationship between firm's environment attitude and its performance.	Assessment of firm's sustainability performance: differentiation between environment preservation and donation, charity, and educational activities.
Harvey et al. (2013)	Direct effect of HRM: hard HRM, performance management system and training; Indirect effect of HRM: soft HRM, job satisfaction, commitment and involvement.	Duplicate study in other industries; Complexity of managing employment relationship under increased pressure and enabling employees to meet range of targets that might be contradictory.
Wagner (2013)	Positive relationship between EMS implementation, work satisfaction and recruitment and staff benefits; work satisfaction benefits are strong predictors of EMS; increased interrelation between EMS and work satisfaction as a driver for strategic integration of sustainability-related issues.	Causal model integrating different disciplines such as psychology, sociology and management theory; integrating individual and firm level analyses; indirect effect of integrating HR and EMS.
Norton et al. (2015)	Comprehensive perspective on required and voluntary employees' green behaviors; EGB, antecedents, moderating and mediating factors; conceptual multi-level framework based on person-environment, job performance and motivational perspectives.	Identification of personal and contextual antecedents; influence of EGB and EGB effect on employees, coworkers, teams and leaders; cross-level processes. Assessment of contextual factors at institutional, organizational, leader and team levels.

Zibarras and Coan (2015)	Larger organizations have higher HR implementation in relation to team, organization-based and individual incentives. Transformational leadership transfers environmental values, models desirable behaviors and motivates employees. Importance of the vision and mission of the organization toward pro- environmental behaviors; a cultural shift promoting sense of belonging to community.	Quantitative evaluation of HRM practices on successful EMS implementation; exploration of the specific role of HR managers in the implementation of these practices; analysis of the perspective of all employees; investigation of the factors that contribute the most to make green HRM a success; differentiation between green and non-green practices.
Subramanian et al. (2015)	AGC positively related with individual GC and green behavior; AGC as an enhancer of individual green performance.	Influence of competencies on green culture and performance; BRIC nations (Brazil, Russia, India, and China).

2.5.3 Outcomes of SHRM

c) Benefits of Green performance

After identifying the antecedents of SHRM, this section explores its various outcomes. First of all, adopting SHRM is perceived as a signaling factor of the firm satisfying shareholders' standards from different perspectives (O'Donohue and Torugsa, 2015; Renwick et al., 2013). On the one hand, SHRM may be a successful tool to attain both financial and social targets; and on the other, organizations are implementing this new approach as a response to external pressure exerted by government and regulatory agents, public and private communities, and consumers and customers. In this regard, Gholami et al. (2016) and Renwick et al. (2013) conclude that SHRM positively impacts financial goals, employees' well-being, and collective organizational objectives. More specifically, Gully et al. (2013) point out the positive impact of green recruitment and training on sustainability performance. Their model clarifies the "role of desire for significant impact" investigating the effect of the company's environmental responsibility values on the "person-organization" fit, organizational attraction, and job pursuit intentions. The results highlight the importance of recruitment advertisements, specifically through communicating the firm's social and environmental engagement. Recruitment advertisements have an impact on job seekers' perceptions of the "person-organization" fit, which has a positive association with the organization's attractive-ness. The outcome of the individual-firm matching is the maximization of the overall utility and interest for both employees and the organization.

Environmental performance is on the agenda of sustainability management leaders, CEOs, and top management teams. According to Judge and Douglas (1998), it reflects the "firm's effectiveness in meeting society's expectations with respect to concern for the natural environment". Among the measures applied to evaluate green performance are waste reduction, pollution management, and recycling activities (Lober, 1996). Paillé et al. (2014) argue that SHRM contributes to improving green performance through staff and organizational support, and has both direct and indirect effects on the company and the labor force. The direct effect of HRM is reflected by policies and practices influencing workers' behavior through performance management systems (rewarding and penalizing); whereas its indirect effect is seen in the promotion of organizational commitment, job satisfaction, and employees' involvement (Harvey et al., 2013). At the firm level, Guerci et al. (2015) differentiate three types of organizational climate: benevolent, principled, and egoistic. According to Martin and Cullen (2006), the egoistic climate elicits behaviors based on self-interest, maximizing personal utility, and organizational profit. In a benevolent climate, the well-being of others is the motivation underlying humanistic behaviors; thus, employees tend to act based on the utilitarian view, boosting the overall good. In contrast, the principled climate induces behaviors grounded by formal and informal "rules and norms of conduct" (Guerci et al., 2015, p. 327). To support their arguments, Guerci et al. (2015) apply the AMO theory and find that ability-enhancing practices (i.e., recruiting, selection, and training) and opportunity-enhancing practices (i.e., job design and employee involvement) have a positive influence in benevolent and principled climates. In contrast, motivation-enhancing practices have a positive impact in egoistic climates and negative effect in principled climates. The authors conclude that the HRM system influences the firm's ethical climates. Therefore, analyzing the link between a company's orientation and sustainability performance is crucial to expanding the effect of SHRM on organizational ethical climates (Guerci et al., 2015, p. 337).

Summing up, the result of SHRM at the firm level is the generation of a decent climate and a transparent culture considered as the foundation of a virtuous green cycle able to promote SDGs and enhance sustainability performance. The integration of sustainability at the organizational level is perceived as an intermediate indicator between the individual and the environment. From one perspective, it creates a necessary milieu for initiating the development of employees' characteristics to behave in a socially and

environmentally responsible way toward the firm; but from another, it contributes to establishing an interconnected society and a protected environment.

One of the leading sectors in sustainable development is hospitality management and tourism. The nature of this sector triggers the merge of social achievement and managerial operations such as cost minimization, waste management, employees' engagement, the firm's reputation, and fulfillment of customer value. Several certifications, training programs and licensed qualifications have been developed to legally classify hotels and firms as sustainable organisms (Rodríguez- Antón et al., 2012). The literature indicates that HR practices are the factors that contribute to making hotels "green", transforming the hospitality management industry into a socially responsible sector. Scholars identify three types of motivations for the initiation of green practices: regulatory and community pressure (Chan and Wong, 2006; Kirk, 1998, 1995; Tzschentke et al., 2004), financial benefits (Gonzaléz and León, 2001; Iwanowski and Rushmore, 1994) and positive public image (Claver-Cortés et al., 2007; Kirk, 1998, 1995; Tzschentke et al., 2004). Rodríguez-Antón et al. (2012) distinguish three elements influencing sustainability incorporation in the Spanish hospitality field: the hotel's classification, market style (independent versus hotel chain) and customer type. They conclude that low category and chain hotels with leisure clientele tend to show higher involvement in environmental issues, while hotels with a business clientele are more dedicated to employees' health and performance, focusing on reducing costs, avoiding absenteeism, and maximizing productivity.

Exploring SHRM and overall performance in greater depth, Kim and Choi (2013) examine green practices from the employees' perspective. At the individual level, employees do not perceive overall sustainable performance as an important issue, a position that indicates a lack of awareness and consciousness of the organizational objectives in regard to SDGs and the benefit of green implementation at the firm and environmental levels. Hence, the top management team plays a central role in delivering green training and workshops, and in informing employees about SDGs and green practices. Kim and Choi (2013) stress the positive association between the perception of green strategies and employees' commitment. To increase employees' identification with their jobs and to reduce staff turnover, companies are encouraged to engage regularly in SDGs and green management. Hence, the benefits of these practices can be

recognized as a win-win situation for employees, corporations, and the environment, enhancing overall harmony inside and outside the organization.

2.5.4 SHRM: from cross-national perspective

To provide a broader perspective, some studies have adopted a cross-national approach to global green performance, implementation, and outcomes. They consider whether HR strategies differ across countries and test whether the similarities in SHRM practices outweigh the differences. The aim is to determine to what extent a combined vision of the interrelation between HR and sustainability can be acknowledged at international level. Dogle and Holtburgge (2013) examine the link between corporate environmental responsibilities (CER), the employer's reputation, and employees' commitment in multi- national companies (MNC) operating in developed (Germany and the US) and emerging (China and India) economies. The findings do not reveal any drastic differences in CER according to the level of economic development: "green strategy & culture, green products & technologies, and green recruitment & evaluation" are positively correlated with organizational reputation in both types of economies (Dogle and Holtburgge, 2013, p. 1754). However, for green communication, companies in developed economies have "rule-based" operations, while in emerging economies they have "relationship-based" operations. Thus, in Germany and the US, green communication is positively associated with the firm's reputation as a consequence of the monitoring of environmental reporting by external regulators and auditors. Comparing green practices across the economic markets, they do not reflect any significant influence on the signaling effect of CER. These results suggest that due to globalization, firms' culture and values are converging toward one social paradigm that reduces national differences in business performance. In the same vein, Ehnert et al. (2015) compare liberal market economies (LME) and coordinated market economies (CME). LME (English-speaking countries such as the US, UK, Australia, Canada and New Zealand) are shareholder-driven and associated with long-term shareholder pressure, while CME (such as northern Europe and Japan) are stakeholder-driven and associated with short-term shareholder pressure. The authors observe that the differences in sustainable performance between MNC from LME and CME are not significant. They mention that in the sample selected in the study, organizations report equally on sustainability activities for both "green matters" as an operational consideration and

"people matters" as an employee consideration. However, the social disclosures are more focused on internal indicators of sustainable performance than on external ones. The authors conclude that the world's largest firms tend to report more on "decent work" as an intra-organizational factor in developed countries than on societal factors such as "human rights" in developing countries (Ehnert et al., 2015, p. 100–101). This might be the consequence of a lack or misapplication of HR policies and regulations endorsing sustainable and green matters. Reflecting upon these results, integrating both internal and external social responsibilities within HR tasks might be a "signaling attribute" to maintain successful business and to achieve SDGs. Hence, organizations with green HR functions tend to develop a sustained competitive advantage perceived by various business and social agents as an added value between competing firms.

Haddock-Millar et al. (2016) conduct a comparative case study in the food industry assessing SHRM in MNC with subsidiaries in the UK, Germany, and Sweden. They focus on the various positioning and implementation strategies of environmental performances in different departments of the firm. In the UK, the HR division plays the major role in sustainability development; in Sweden, societal responsibilities move from supply chain departments to communication teams; whereas in Germany, the environmental management tasks are part of the corporate social responsibility agenda. Only limited companies in the UK and Sweden implement the "Green Champion" initiative, defined as "specialist knowledge and people with energy, passion, persistence, and right attitude toward the environment" (Haddock-Millar et al., 2016, p. 205). As for the similarities across MNC subsidiaries, they reflect a commitment to environmental sustainability, but also reveal a scarcity of indicators enabling the firm to improve its ecological performance (Haddock-Millar et al., 2016; Paillé et al., 2014).

Despite some minor discrepancies in green implementation techniques, the inclusion of eco-friendly practices and operationalization of sustainable performance (i.e., the enhancement of employees' welfare, brand image of the company, and offering sustainable benefits to customers) are becoming commonplace in many countries. At a cross-national level, the end result of SHRM is to generate an opportunity for organizations to perform in a better environment. As mentioned above, the globalization paradigm minimizes the differences between SHRM schemes in developing and developed economies. The distinctive practices that vary among countries are the

assignment of the department in charge of SDGs and the strategic prioritization of the sustainable agenda among the workforce, society, and the environment. A summary of the outcomes of SHRM is provided in Table 4.

Table 4. Outcomes of SHRM

Authors & Year	Findings	Gaps & Issues for Future Research
Gully et al. (2013)	Communicating firm's social and environmental engagement has an impact on job seekers' perception of the organization by influencing the person-organization fit; this has a positive link to the organization's attractiveness for job applicants.	Replication studies in different job contexts; identification of additional factors influencing organizational attractiveness.
Guerci et al. (2015)	Ability-enhancing practices and opportunity-enhancing practices are positively related to benevolent and principled ethical organizational climates; motivation-enhancing practices are positively related to egoistic climate; sustainability as a key factor to balance green HRM practices and ethical climates.	Cause-effect relationship between HRM practices and ethical climate; longitudinal study to clarify the interventions for establishing positive ethical climates; other countries and different institutional settings.
Guerci and Pedrini, (2013)	Significant level of consensus between HR and sustainability managers; HR management is considered as a means and an end for developing corporate sustainability; sustainability practices may reinforce corporate HR by increasing employee sensitivity toward social issues; convergence between both trends; HR managers focus on development of competencies whereas sustainability managers focus on practice-related factors; they do not fully share the same vision.	Replication in different countries, firm sizes, industries; exploration of the perception of the contribution of HR to sustainability- driven change in different organizational actors such as trade unions, NGOs, and local communities; test of the impact of the consensus on the strength of HR management and on its effectiveness for sustainability-driven change.
Guerci and Carollo (2016)	HR practices are implemented by organizations for two reasons: to fulfill the explicit commercial requirements imposed by public administrations and to take advantage of public resources; eight paradoxes in the GHRM system: objectives, boundaries, formalization, standardization, promoting ability, motivation and opportunity, and role of HR managers.	Investigation of the association of organizational, institutional and cultural factors with green HRM paradoxes; a list of paradoxes perceived by other actors in the organization; identification of strategies to overcome HR related paradoxes.
Kim and Choi (2005)	Positive relationship between the perception of green strategies and employees' commitment; green practices and win-win-win situations for employees, company and the environment.	Interaction of green perceptions and other antecedents; link between green practices and employees in the hotel industry: motivational factors, communication and design of green training.

O'Donohue and Torugsa (2015)	Moderating effect of GHRM between proactive environment management and financial performance in small firms; similar findings in large firms.	Quasi-experimental longitudinal study of causality and generalizability; multi-industry sample; further studies taking into account the role of employees in contributing to the effectiveness of proactive environment management in small firms.
Dogle and Holtburgge (2013)	Green technology and products have the highest impact on environmental reputation, followed by green communication and green recruitment and evaluation; positive relationship between environmental reputation and employee commitment in developed economies more than in the emerging ones; cultural differences are less significant for the signaling effects of CER activities; globalization leads to a convergence of cultural values in the business context.	Assessment of the convergence of corporate governance systems and cross-national differences; other geographical areas; investigation of interaction between CER activities; affective, cognitive and behavioral processes of individual perception of CER activities.
Ehnert et al. (2015)	World's largest organizations focus on internal dimensions of SHRM more than on the external ones; they report more on indicators of decent work; few international differences between MNC in LME and CME.	Lack of indicators to measure SHRM relevance; further combination of both qualitative and quantitative research to understand the international differences between countries or cultures in SHRM; need to redesign HR functions and operations for performance review to incorporate sustainability criteria; examination of the integration and coordination mechanisms between external and internal aspects of SHRM (for reporting); integration between SHRM and supply chain employment concern; focus on human rights of labor-related categories influencing employees in the supply chain.
Haddock-Millar et al. (2016)	Identification of similarities and differences in MNCs approaching GHRM in European context; differences in positioning and alignment of HR function and environmental objectives; both Sweden and the UK achieve the Green Champion position, though through different paradigms: in UK, managers have the leading role; whereas in Sweden, the frontline employees undertake the role toward achieving the Green Champion; Germany developed CSR strategic approach at senior head office level; an important innovation is the "shades of green" typology to reflect a spectrum of various level of environmental involvement.	Examination of strategic, operational and managerial roles in environment performance and the hierarchical influences of GHRM; demonstration of effective outcomes at employee level.

To summarize these findings, several drivers of SHRM are identified as fundamental tasks of HR: Green recruitment is achieved by selecting socially responsible employees who not only enhance the firm's profitability, but also achieve benefits in the overall environment; Green training is applied through continuous environmental learning and development of knowledge, skills and competencies promoting socially and eco-friendly behaviors and attitudes; employees' green performance is appraised and rewarded in relation to their ethical and civic engagement and participation in intra- and inter-organizational activities. Overall, green HRM functions intend to accommodate an innovative work-atmosphere aiming to fulfill both the interests of the individual and the collective objectives of the organization. The major outcomes of SHRM at the individual level are the involvement, commitment, engagement and retention of employees; at the firm level, its outcomes have an impact on the firm's economic and financial performance, its reputation, and its attractiveness. In this context, these characteristics are perceived as sustained benefits that supporting the firm's viability and credibility.

2.5.5 Barriers to SHRM implementation

The purpose of SHRM is to implement the recommended green practices but also to post-evaluate their effects on the corporate milieu. While most of the studies focus on the contents of sustainability, there is a need to underline the difficulties and challenges facing this organizational development. Russ-Eft (2014, p. 553) classifies the barriers encountered by HR to implement sustainability into three categories: external factors (i.e., linking external partnerships, funding, and support of organizations); organizational factors (i.e., internal partnerships, the organization's mission, and leadership); and program specific factors (i.e., alignment of HR programs and organizational missions, administrative support, and developmental evaluation). In the same vein, Jackson and Seo (2010, p. 286–288) identify four sets of obstacles challenging SHRM: apathy, defined as lack of engagement and knowledge; skepticism and externalizing responsibilities; complexity in individual, organizational, political-economic, socio-cultural and ecological systems; and confusing terminology and a lack of consensus between researchers to attain a clearer conceptualization of sustainability and to favor career development and professional integrity. Furthermore, Stone (2000) categorizes the barriers to the adoption of sustainability in three dimensions:

organizational, systematic, and attitudinal. She explains that at organizational level, centralized decision-making, lack of employees' involvement, lack of recognition, and increased staff turnover slow the pace of sustainable execution. As for the systematic barriers, the absence of a transparent reporting system, lack of public disclosure, and poor developmental structure inhibit the implementation of sustainability. The attitudinal obstacles include a lack of supportive culture and effective leadership, job insecurity, and resistance to change in the labor force. Combining the two paradigms of organizational change theory and change management theory, HR managers can overcome these difficulties by identifying the sources of the barriers and incorporating suitable strategies to resolve these operational issues.

From the same perspective, Guerci and Carollo (2016) conceptually examine the paradoxical aspect of SHRM, identifying six main issues to be addressed in future research: formalization, standardization, promoting ability, motivation, opportunity, and the role of HR managers. These challenges in SHRM operationalization illustrate the ambiguity and complexity of this framework. Guerci and Pedrini (2013) stress the lack of agreement between HR managers and sustainability managers: while HR managers focus on "competency-related" developments such as sustainability-driven change processes, sustainable managers consider that "practice-related" factors are more important for societal performance. The solution proposed for overcoming the difficulties in achieving SHRM is to achieve consensus between sustainability and HR executives in order to build integrative and cooperative teamwork systems for attaining common organizational visions and goals.

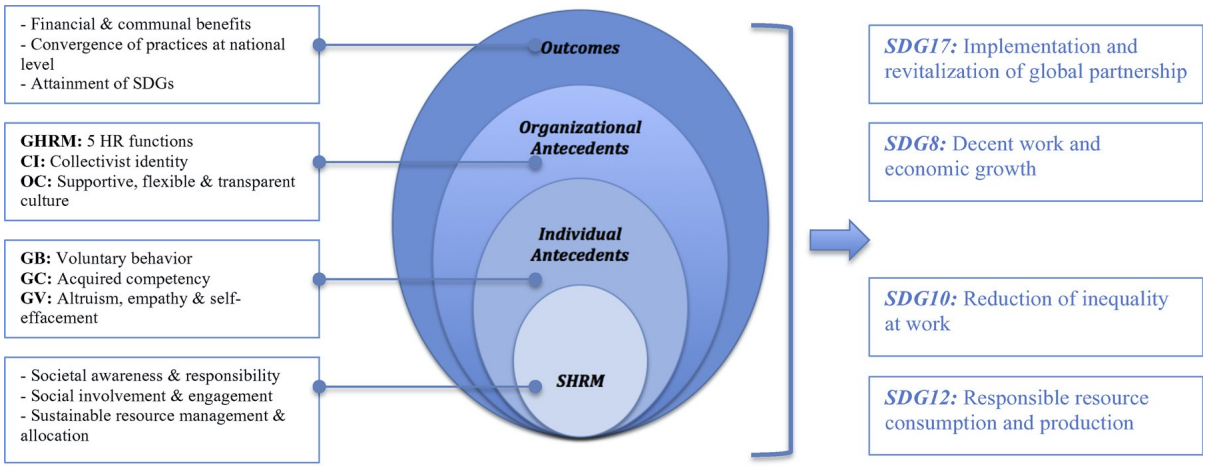
2.6. Discussion

This article investigates the link between SHRM and sustainable performance and identifies the HR practices that can contribute to the attainment of SDGs. It reviews the antecedents and outcomes of SHRM at individual, organizational, and cross-national levels. We provide the following definitions for each SHRM function: Green recruitment and selection are based on "green job descriptions", where candidates are hired depending on their social and ethical qualifications. Green training and development consist of providing "green workshops" in order to enhance employees' knowledge, skills, and competencies toward social and ethical matters. Green performance appraisal reflects employees' evaluations based not only on their job-

related duties, but also on extra-role behavior and engagement in internal and external volunteering activities. Green implementation and practices consist of the continuous follow-up of green decision-making process and sustainable strategies adopted, as well as their post-implementation evaluation at the levels of both employee and firm performance for financial, social and environmental outcomes.

Through green recruitment and selection, green training and development, green performance appraisal and rewards, and green implementation and practices, SHRM is considered as a key area for monitoring the use of natural resources and introducing SDGs in all organizational domains (Taylor et al., 2012). Furthermore, HRM is a humanistic tradition that leaves behind the classical view of firms as exclusively maximizing economic output and reducing costs (Jabbour and Santos, 2008). SHRM takes into consideration the influence of internal and external factors such as social and environmental policies and regulations, governmental and community pressures, consumers' needs, and employees' welfare (Lucio and Stuart, 2011). The main findings of this systematic literature review are the generation of an integrative model of SHRM and the formulation of four propositions. Regarding the model, SHRM entails three main practices: the involvement of the human capital in societal activities, efficient and effective management of natural resource allocation and consumption, and the stimulation of a certain level of awareness and responsibility among both individuals and organizations. At the micro level, green characteristics comprise voluntary green behaviors, acquired green competencies, and green values, which are perceived as drivers of sustainable performance. Once these antecedents are identified at the employee level, the transformation of the organization in order to attain SDGs becomes more feasible. At the firm level, the predictors of sustainability include: implementation of green HR functions, promotion of a collectivistic organizational identity, and the establishment of a supportive and transparent organizational culture. At a cross-national level, the globalization factor influences sustainable development by inducing a unified paradigm of social and eco-friendly practices that elicit a convergence of corporate performances. Despite a slight deviation in the application of green strategies across economic market structures (i.e., the liberal market and the coordinated market) and between developed and developing countries, sustainable practices reveal positive effects not only on social achievements but on financial performance as well. The diagram below summarizes the results of the literature review by linking together the findings of the content analysis (Figure 1).

Figure 1. Integrative Model of SHRM.



As a result of this review, we are able to formulate four propositions, which can be empirically tested and validated in future studies:

Proposition 1. Combining Social Learning Theory and Parson's Social System Theory creates the Collective Sustainability Theory, which establishes a conceptual foundation to explain the "greening" process of organizations.

Proposition 2. Employees with higher green values such as altruism, empathy and self-effacement tend to acquire green competencies easily; these competencies are perceived as activators of green behaviors. This enhances employees' green attitudes and contributes to the attainment SDGs 8 (decent work and economic growth) and 10 (reduce inequality at work).

Proposition 3. Green training and role rotation addressed by SHRM are essential tools to generate green competencies, which in return facilitate the implementation of SDGs. Continuous environmental training and workshops increase employees' awareness and develop the green skills needed to achieve SDG 12 (responsible resource consumption and production).

Proposition 4. Leadership style and personality traits are interconnected with the establishment of a green organizational culture and the attainment of SDGs. Leaders and managers are responsible for boosting a collective and ethical atmosphere among workers to attain SDG 8 (decent work and economic growth).

2.7. Conclusion

Competitiveness, legitimacy, and ecological responsibility are the motives that underlie organizational change (Bansal and Roth, 2000). This transformation is

described as a paradigm shift toward "green" management and a metamorphosis generating dual objectives at social and financial levels (Harris and Tregidga, 2012). While most HRM studies address one level of analysis, this article adopts a multi-dimensional approach. The contribution of this review is to provide an in-depth analysis of each attribute of sustainable development at different levels (individual, organization and national). The study summarizes various conceptual and empirical findings, provides a clear definition of all green HR functions, identifies certain research gaps in the literature, and examines the impact of SHRM on the three pillars of sustainability: economic, social and environmental. The outcome of this review is a reflection on two main dimensions: research and practice. In the research area, although sustainable development is becoming increasingly articulated, agreement among scholars is still a necessity in order to develop the SHRM paradigm further. Various theoretical frameworks are presented in the literature, but there is still a lack of a "combined" theory explaining the whole phenomenon from socio-economic and behavioral perspectives. As for the practical implications, the benefits of green organizations for governments, social communities, and customers are clearly defined; however, the added value of this transformation at the employee level is still not well established in the business field, and in particular for trade unions. Although some studies claim that SHRM is positive for employees' well-being (and in fact employees are the dynamic factor contributing to this organizational change) there is still a lack of HR policies backing up SDGs. This fact triggers a certain skepticism about the motives of green organizations, which leads to a reflection on the following question: is the "greening of organizations" an obligation embedded in the system, or a step further toward social cohesiveness and environmental protection?

Further conceptual and empirical studies are necessary to make further advances in the SHRM field. In particular, an evaluative tool should be developed to measure the post-implementation outcome of SHRM. This tool could be used to assess the advantages of sustain- ability, to monitor its impact on natural resource consumption, and to determine the value of this organizational transformation. Focusing on the methodological framework, quantitative research and more precisely longitudinal studies estimating the effects of SHRM on various divisions of the firm might be replicated, taking into consideration different samples and contexts (demographics, culture, industry and sector) to provide the most meaningful results. In this vein, a multi-disciplinary study

connecting managerial paradigms of SHRM, CEOs and board of directors' structure and composition could help to address the effects of SHRM and corporate governance on financial performance, risk assessment, and tax alleviation. In addition, the HR literature lacks experimental studies assessing the causal relationships between SHRM and features of sustainability. For instance, the research design is considered as an opportunity for future studies to identify the existence of a cause-effect relationship between green competencies and green behaviors for inducing sustainable performance. From a conceptual perspective, there is a need to mitigate the ambiguity and complexity of the concept of sustainability in general, and of SHRM in particular. Generating a new theory based on Bandura's Social Learning Theory and Parson's Social System Theory might help to explain the transformation of organizations – that is, from an initial commitment to a green philosophy at individual level to a collective responsibility toward the attainment of SDGs.

The main limitation of this study is the small sample of articles included, due to the novelty of the topic. However, the review reflects and associates major findings from different perspectives. The content analysis clarifies the link between various components of SHRM and SDGs. Another shortcoming is the fact that it is a qualitative review; integrating empirical and statistical data should provide further evidence on how SHRM contributes to the creation of "green" organizations.

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Chapter 3. Sustainable or not sustainable? The role of the board of directors

3.1. Abstract

Environmental degradation, scarcity of resources, and societal issues have been reshaping the strategic agendas and governance mechanisms of many organizations. From a traditional perspective, the duty of the board of directors (BOD) has always been to the owners and investors of the firm. With the beginning of the 21st century, a social paradigm has emerged, reflecting broader directors' responsibilities in not only fulfilling shareholders' interests but also addressing stakeholders' needs. Both research and practice emphasize a metamorphosis of the board's task, which is not restricted to maximizing shareholder's value but also involves going out into the real world and tackling the emerging concerns regarding social and ecological practices. Following the premises of stakeholder theory, this study examines the association between the determinants of the board of directors and sustainable performance. Based on the Dow Jones Sustainability (DJSI) and Standard and Poor's Global Broad Market Indices (S&P Global BMI), with a matching sample of 478 multinational companies, the results reveal a significant and positive relationship between sustainability and the board's size, gender diversity, average age of directors and number of committees. From a cross-national perspective, the study confirms the existence of dissimilarities in the characteristics of the boards of directors of European (EU) and non-European (non-EU) firms vis-à-vis sustainable performance. The practical implications of the study can be useful for policymakers and governance systems in identifying the nature of the "green" board. In light of the managerial inference, the study delivers an explicit recommendation on the composition of the board of directors and stakeholder management to promote sustainability adoption.

Keywords: Board of Directors; Sustainability Performance; Dow Jones Sustainability Index; Global Broad Market Index

3.2. Introduction

Concerns about social, ethical, and environmental performance are continuously increasing in the corporate world (Temminck et *al.,* 2015). Recent research studies and policymaking have been emphasizing the adoption of "green"

strategies, such as reducing carbon emissions (Li et *al.*, 2018; Sun et *al.*, 2018), improving the efficiency of new energy investments (Zeng et *al.*, 2018), and promoting sustainable water management (Baudoin and Arenas, 2018). The constant escalation of the governmental and communal pressure triggers the dominant coalition and the top management teams to engage in wider corporate affairs, such as sustainability performance (Eesley et *al*., 2016; Goranova and Ryan, 2013). The functional departments in companies are developing new organizational missions and have been "re-conceptualized" to fulfil the new sustainable objectives (Chams and García Blandón, 2019). Accordingly, this shift towards acknowledging and adopting social responsibilities anticipates a transformation at multi-dimensions of the firms: board of directors (BOD), chief executive officers (CEO), human resources (HR) managers, and employees (Borghesi et *al*., 2014; Chin et *al*., 2013). Thus, the BOD's duties have been diversified into a wider spectrum of charges accommodating broader demands and satisfying different interests of various business agents. Directors on the board endorse ethical behaviours, foster transparent disclosure, and adopt performance accountability. Previous studies indicate that the BOD structure is a key catalyst to social and ecological achievements (Lawrence et *al*., 2013; Post et *al*., 2011), influencing both financial and non-financial objectives (Galbreath, 2018). The latter has an impact on investors' risk assessment, firm valuation, board's credibility, and market efficiency (Aguilera et *al*., 2008, 2013, 2015). One of the BOD's roles is to increase awareness towards sustainability implementation, by adopting a systematic tactic balancing between shareholders' and stakeholders' interests. BOD characteristics are perceived as crucial antecedents to reaching a dual alignment between business profit and business effectiveness, increase responsiveness to the public and regulators' pressure, and enhance employees' involvement in sustainability commitments (Waring, 2008).

Although governance mechanisms, BOD, financial performance, and corporate social responsibility have been receiving considerable attention in past decades, little is known about which of the board's specific indicators facilitate or deter the implementation of sustainable practices. This study aims to provide further insights to the literature on this particular issue. With the help of regression techniques, the research question states: Which characteristics of the BOD are identified as qualifiers to

classify a firm as a sustainable entity? This study intends to identify the board's attributes that promote sustainable performance and investigates whether these attributes differ between European (EU) and non-European (non-EU) firms. In this regard, the purpose of this article is to extend Post et *al.*'s (2011) findings by using a larger cross-country matched sample of 478 multinational firms operating in 11 different industries. This sample is based on the Dow Jones Sustainability index (DJSI) and Standard and Poor's Global Broad Market index (S&P Global BMI) released in September 2017. In contrast, Post et *al.* (2011) based their analysis on a sample of 78 companies from the electronics and chemical industries located in the United States (US) for the year 2007. Another important difference between the two studies is the measurement of sustainability performance. While Post et *al.* (2011) use a continuous variable as the environmental corporate social responsibility (ECSR) provided by Kinder Lyedenberg Domini (KLD), in this article, the empirical analysis relies on a dichotomous measure, as it is the inclusion of the firm in the DJSI report. Therefore, a logistic regression model is proposed to assess the association between being considered a sustainable company and the variables of interest such as the BOD's size, composition, directors' age, gender diversity, educational background, CEO duality, and number of committees.

The motivation of this study is to contribute to the ongoing debate on the BOD determinants and their impact on the adoption of sustainable practices, which is particularly intense due to the issues of global warming and general environmental deterioration. For market competitiveness, corporate reputation, and legitimacy motives, sustainability has been a controversial issue among firms and governance systems (Haque, 2017). Therefore, this study attempts to provide evidence supporting the association between BOD characteristics and sustainable performance and to draw new insights from the lens of the stakeholder paradigm. In the authors' view, the rapid evolution of the issues addressed in this study (e.g., the enactment of laws and the release of codes of good practices) makes it necessary to update the results of Post et *al.* (2011), which was reported for the pre-financial crisis era. To the best of the authors' knowledge, few studies addressing the effect of the BOD's characteristics on sustainability have been conducted at cross-country and multi-industry levels. Most of the prior research rely on a continuous variable as the measure of sustainability. In this analysis, a dichotomous variable has been used as a clear-cut measure of sustainable

performance. In addition, the sample for the study includes only the top 10% best performing firms in sustainability. The main novelty of this article is the cross-national investigation of the board determinants of EU and non-EU organizations. There is a considerable gap in the literature, highlighting the absence of empirical research at the regional level examining the differences in BOD structure and composition and their effects on sustainable performance. In this regard, this study intends to fill the gap by conducting a comparative analysis between EU and non-EU firms, identifying relatively the distinctive characteristics of each "green" board associated with sustainable performance. Consequently, the inferences proposed in this article target not only an academic contribution, but more deliberately a corporate contribution for practitioners and decision-makers, providing further implication of the nature of the board that qualifies a firm to be classified as a sustainable organism.

The remainder of the study is structured as follow. The second section comprises the review of the literature and hypotheses formulation, providing an overview of the findings and conceptual frameworks addressing the corporate link between BOD and sustainability. Section three presents the methodological design and describes the sample for the study. Then, in section four, the results of the univariate and multivariate regressions are discussed, and the findings of the cross-national analysis are elaborated. Finally, the last section presents the conclusions and implications of the nexus between the BOD's characteristics and sustainability.

3.3. Review of the literature and hypotheses

Governance and members of the boards are perceived as the major contributors to elicit various societal activities, such as encouraging ethical and moral engagement, philanthropic influences, implementation of ethical codes, compliance with laws and policies, awareness of environmental concerns, social disclosures reporting, and stock market indicators (El-Kassar et *al.*, 2015). The following section presents various theoretical frameworks addressing the link between governance systems and sustainability.

3.3.1 Theoretical lenses

A number of scholars explain the connection between BOD and sustainability building on agency theory (de Villiers et *al.*, 2011; Haque, 2017). The premises of this theory

emphasize the divergence between shareholders and agents towards various interests, risk levels, managerial capabilities, and information processing (Dalton et *al*., 2007). The central adoption of the agency theory is the fundamental monitoring role of BOD (Hillman and Dalziel, 2003) and the shareholders' priority to focus on economic and financial efficiency (Gill, 2008). As from a sustainability perspective, the agency view emphasizes the board's mechanism to be structured and designed in a way to implement social and ethical performances, only when the latter guarantees some efficient benefits and promising returns (McWilliams and Siegel, 2000). In contrast, the neo-institutional theorists elaborate on the managerial behaviour that challenges economic rationality, by acknowledging the combined social and economic comportments, which are determined by country specific organizations (Meyer and Rowan, 1977). These institutions define a set of legal, political, and financial systems to legitimize certain actions in societies (Ioannou and Serafeim, 2012; Lubatkin et *al*., 2005; Williamson, 2000). From a social perspective, the major opposition to this theory is that firms embedded in shareholder-centric governance tend to emphasize shareholder primacy over other stakeholder interests (Jain and Jamali, 2016). Matten and Moon (2008) state that proactive corporate social responsibility (CSR), as one component of sustainability practices, will be explicitly undertaken predominantly for instrumental and strategic objectives, whereas Jain and Jamali (2016, p. 255) indicate that firms embedded in pro-stakeholder settings "adoption of society-oriented strategies that align with norms and laws intend to protect the interests of multiple entities (Brammer et *al*., 2011), implicitly as a matter of principle" (Aguilera and Jackson, 2003). According to resource dependence theory, one of the board's functions and capabilities is to improve the firm's performance through the effective allocation of resources (Granovetter, 1985). Having the adequate skills and competences, firm governance and BODs (Pfeffer and Salancik, 1978) are considered as the dynamic initiator of sustainability implementation, enabling managers to acquire pro-social behaviours and enhancing the total value of the firm (Bansal and Clelland, 2004; Berrone and Gomez-Mejia, 2009). Regarding legitimacy theory, the involvement of corporate management and firm governance in social activities is important from a legal perspective, providing a reputable image to the company from both market and societal perspectives (Oliver, 1991).

Whereas most prior studies tackle BOD and sustainability from the lens of the agency theory and resource dependence theory (Berrone and Gomez-Mejia, 2009; Liu and Zhang, 2017; Mallin and Michelon, 2011), in this article, the line of analysis is developed under the scope of stakeholder theory. According to this paradigm, the core of the firm is reflected through the embeddedness of the relationships among stakeholders (Freeman, 1984), providing a guide to detect the firm's responsibilities (Jamali et *al.*, 2008; Parmar et *al.*, 2010). Based on this theoretical framework, BODs and CEOs must ensure that the firm is able to fulfil the stakeholders' needs and benefits, for both financial and non-financial outcomes (de Graaf and Stoelhorst, 2009). Freeman (1984) states that the fundamental basis of this theory is the company's acknowledgement of economic, legal, and philanthropic duties, not only towards shareholders but also towards stakeholders. A combination of instrumental and normative approaches bridges the interconnectedness between BOD and corporate sustainability. This business nexus accomplishes a dual benefit: on the one hand, it is perceived as the fulfilment of the intrinsic value and demands of stakeholders; on the other hand, it is considered as an enhancement of the firm's profitability and reputation (Ayuso and Argandoña, 2009). Embracing the premises of stakeholder theory and the sustainability approach, Hörisch et *al*. (2014, p.331) state "that the theory enlarges the scope to a broader societal embeddedness of organizations and their interdependencies with the societal environment. It postulates that the purpose of business is to create value for all stakeholders".

3.3.2 Green BOD as enhancer of sustainability

Several terminologies are interchangeably applied in the literature to reflect sustainable practices, such as environmental, social, and governance (ESG), corporate social responsibility (CSR), triple bottom line (TBL), and corporate or business sustainability. This study follows Rezafee's definition (2015, p. 64) of sustainability as "the process of focusing on the achievement of financial economic sustainability performance in creating shareholder value while recognizing the importance of environmental, social, and governance performances in protecting the interests of other stakeholders". In a fast-changing environment, to survive the market's competitiveness and to maintain legitimacy, firms generate a sustained competitive advantage through effective resource allocation, maximization of

profit, and promotion of social welfare (Chams and AlSagheer, 2017; Galbreath, 2018). This section discusses the latest findings of BOD determinants and sustainable performance at the international level.

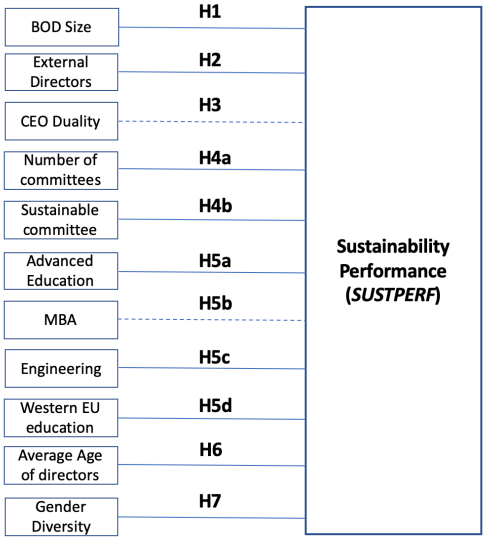
Lau et *al.* (2016) examine how the board's structure, ownership, and top management teams' composition affect corporate social performance in the Chinese context. These researchers indicate a positive connection between sustainability performance and the governance mechanism, particularly with the board's ownership and board's characteristics. The authors find that the more diverse the BOD is, the higher the sense of philanthropy is, and hence the higher the likelihood is of being involved in social and ethical activities. In contrast, the results reveal that the number of outside directors in a firm is statistically insignificant to advance social performance. Moreover, the study concludes that the size of the board is positively correlated with social responsibility performance. The major outcome is that boards have stronger effects on corporate governance mechanisms than top management teams do. For this reason, Lau et *al.* (2016) claim that the BOD has higher efficiency to induce social performance. Supporting the aforementioned evidence but in the African context, Ntim and Soobaroyen (2013) conduct a longitudinal analysis assessing the link between BOD and social performance based on South African companies from 2002 to 2009. Following the neo-institutional framework, the findings reveal that South African firms having large and diverse BODs with a larger proportion of independent directors tend to have greater social, environmental, and ethical performance. In contrast to Lau et *al.* (2016), Zhang and his co-authors (2013) reveal a positive association between outside directors and sustainability performance. With a sample formed by the largest US firms, these researchers demonstrate that a greater presence of both outside and women directors on the board promote better ecological and societal performance within the firm's industry. Zhang et *al.* (2013) propose that deliberate structuring of the BOD might be an effective factor to improve the firm's moral legitimacy. In the same vein, based on a sample of 78 US companies, Post et *al.*'s (2011) results are consistent with Zhang et *al.*'s (2013) findings, confirming that gender diversity and outside BOD are positively associated with environmental performance. Moreover, they conclude that boards with a higher presence of directors with Western European education and an average directors' age in approximately the mid-fifties have a higher tendency to adopt an environmental

governance structure.

3.3.3 Hypotheses development

For the sake of this analysis, various hypotheses are formulated to test the association of BOD composition and demographics with sustainability performance (*SUSTPERF*). Figure 1 presents the framework of the study and reveals the anticipated relationships with the predicted signs between sustainability and the variables of interest.

Figure 1. Framework of the study



†**Note:** The dashed line represents a negative relationship between the latent variable and *SUSTPERF*

BOD size. While some articles identify a negative effect of BOD size on financial performance and shareholders' interest (Benson et *al.*, 2011; Cannella et *al.*, 2008), other studies reveal a positive correlation between BOD size and social performance (Frias-Aceituno et *al.*, 2012; Ntim and Soobaroyen, 2013). On the one hand, large BODs tend to lack a focus on shareholder's demands and their value creation; on the other hand, they are perceived as a diverse group that normally leans to be sympathetic towards stakeholders' concerns; therefore, they engage more in social and ecological practices. Hence, this study hypothesizes that firms with larger BODs will exhibit stronger sustainable performance.

H1: *The size of the BOD is positively and significantly associated with sustainable performance.*

BOD composition. Prior studies indicate that inside directors are shareholder-

focused, while outside board members are more stakeholder-oriented (Ibrahim et *al.,* 2003; Zhang et *al.,* 2013). Inside directors concentrate on resource allocation and profit maximization, emphasizing shareholders' demands (Coffey and Wang, 1998; Wang and Dewhirst, 1992). In this context, Galbreath (2016) identifies a negative correlation between inside directors' ownership and corporate sustainability. Moreover, based on a sample of top-performing CEOs in the world, García Blandón and Argiles (2017) reveal that outside CEOs achieve better financial and ESG performance compared to inside CEOs. Generally, outside directors reflect on the long-run return due to lower explicit pressure and lower restraint level in the focal firm. Therefore, these directors are more likely to develop organizational goals beyond materialistic values. According to Post et *al*. (2011), outside directors tend to take a wider role, not only in accomplishing financial success but also in achieving "collective" goals. Hence, it is expected that BODs with more outside directors demonstrate higher sustainable performance.

H2: *The presence of external directors on the board is positively and significantly associated with sustainable performance.*

CEO duality. CEO duality occurs when the CEO fulfils a double role, as president of the firm and as chairman of the board. An external board chair is perceived by shareholders as a positive attribute to enhance the board's independence and authority (Lorsch and MacIver, 1989). The dual task of the CEO has an explicit effect on the BOD decision-making process and the firm's operations. Evidence in the literature indicates that firms with CEO duality tend to be more financially oriented and to show less concern towards societal issues (Webb, 2004). Thus, this study anticipates that CEO duality has a negative impact on social, ethical, and environmental practices.

H3: *CEO duality is negatively and significantly associated with sustainable performance.*

BOD committees. One of the BOD indicators influencing sustainable performance is the number of committees and the presence of a sustainability committee in charge of social, ethical, and eco-friendly concerns. The assessment of the activity and the role of the latter committee remains understudied in the literature. However, two prior studies indicate a positive effect of CSR committees on sustainability disclosure (Fuente et *al.*, 2017; Michelon and Parbonetti, 2012). The role of committees is perceived as an

essential component of the board addressing regulations, policies, and standards of various issues. An important aspect in adopt sustainability is through monitoring and reporting committees' activities (Amran et *al.*, 2014). In addition to managing economic and auditing operations, some specific committees are established to engage in a wider aspect of tasks. Accordingly, two hypotheses are formulated to test the link between BOD committees and sustainability:

H4a: *The number of BOD committees is positively and significantly associated with sustainable performance.*
H4b: *The existence of a sustainability committee is positively and significantly associated with sustainable performance.*

BOD educational background. Prior studies suggest a positive association between directors' education and the board's responsibility vis-à-vis societal and environmental matters (Elm et *al*., 2001; Hafsi and Turgut, 2013). The rationale behind this relationship is that executives with advanced educational backgrounds tend to have broader concerns and better understandings of sustainability issues (Post et *al*., 2011). For the specialization field, according to Hambrick and Mason (1984), directors holding a Master's of Business Administration (MBA) degree are prone to be "aggressive" managers in respect to business operations. Thus, they have lower concern towards environmental matters. In contrast, Tyler and Steensma (1998) argue that having a degree in engineering is perceived as a positive asset for developing a better understanding of technology and innovation (García Blandón and Argiles, 2017). Since sustainability development is widely connected with technology, innovative-based issues, and energy preservation (Holliday et *al*., 2002), it is expected that there is a positive relationship between the number of directors holding engineering degrees and sustainable performance. Accordingly, the following hypotheses are formulated:

H5a: *The number of directors holding an advanced educational degree (master's degree or above) is positively and significantly associated with sustainable performance.*
H5b: *The number of directors holding MBA degrees is negatively and significantly associated with sustainable performance.*
H5c: *The number of directors holding engineering degrees is positively and significantly associated with sustainable performance.*

Since the late 1980s, Europe has shown increased attention to social and environmental concerns and has dedicated remarkable effort to developing sustainability regulations (Mair, 2001; Vogel, 2003). According to Post et *al.* (2011), cultural backgrounds and geographic locations have an influence on the perception and attitudes of the directors

towards societal and ecological performance. More precisely, the authors consider that BOD members who completed their studies in Western European universities tend to show higher involvement in sustainable performance. The general "green" culture in this region and the advanced development of policies and laws regarding environmental preservation inspire people to behave in a sustainable way. In this context, the study anticipates a positive association between the number of directors with Western European education and sustainability.

H5d: *The number of directors with Western European education is positively and significantly associated with sustainable performance.*

BOD age. While more senior directors have developed moral reasoning and relate more to social and ethical issues, younger members of the BOD show increased awareness towards ecological concerns and are known to be more conscious and proactive towards environmental preservation (Diamantopoulos et *al*., 2003; Klineberg et *al*., 1998). Specifically, some scholars propose a curvilinear relationship between directors' age and sustainability (Diamantopoulos et *al*., 2003; Post et *al*., 2011). Therefore, it is postulated that both younger and senior BOD members exhibit higher involvement in social, moral and eco-friendly concerns.

H6: *The relationship between the age of directors and sustainability is curvilinear; a higher presence in the board of both younger and senior directors is positively and significantly associated with sustainable performance.*

BOD gender diversity. Prior studies note that BOD gender diversity is an added value of governance, as it provides several advantages (Davidson and Freudenburg, 1996; Galbreath, 2011, 2018; Wehrmeyer and McNeil, 2000). Female directors possess certain personality traits, such as low risk aversion, transparency, responsiveness and identification with social and environmental concerns that enhance sustainable performance (Boulouta, 2013). Several studies provide empirical evidence indicating that women tend to exhibit higher concern and attention towards societal matters than men (Diamantopoulos et *al.*, 2003; Liao et *al.*, 2015; Nadeem et *al.*, 2017). Thus, the following hypothesis is formulated:

H7: *The presence of female directors is positively and significantly associated with sustainable performance.*

3.4. Method

The following section presents the methodological framework of the study to reveal what specific BOD characteristics and demographics support sustainable performance.

This framework comprises the research design, sample, and control variables of the study.

3.4.1 Research design

A logistic regression model is proposed to test the hypotheses formulated in the former section. This method is considered an appropriate analytical tool when the outcome variable is nonmetric and dichotomous (Peng et *al.*, 2002). The plot of this respective data is usually two parallel lines that are difficult to be analysed with ordinary least squares (OLS) regression. Accordingly, the main advantage of this method is that when the basic assumptions of OLS regression (i.e., linearity, normality, and heteroscedasticity) are not met, the logistic regression is less affected (Hair et *al*., 2014). To check the effectiveness of the method applied, various tests were conducted, such as overall model evaluation, Wald chi-square statistic, and goodness-of-fit indices. For all the estimations, the integrated software package STATA (version 14.2) is used to display the statistical findings of the logistic regression. The empirical model is given in the below equation, Eq. (A.1). Table 1 provides a detailed description of the variables included in the study.

$$SUSTPERF = \beta_0 + \beta_1\ BODSIZE + \beta_2\ EXTBOD - \beta_3\ CEODUAL + \beta_4\ NUMCOM + \beta_5\ SUSCOM + \beta_6\ AVAGE + \beta_7\ AVAGESQ + \beta_8\ GENDIV + \beta_9\ ADVEDU + \beta_{10}\ PhD - \beta_{11}\ MBA + \beta_{12}\ ENGIN + \beta_{13}\ BUS + \beta_{14}\ WEUEDU + \beta_{15}\ CONTROLS + \varepsilon \quad \text{Eq. (A.1)}$$

Table 1. Summary of the measures and variables of the study

NAME OF VARIABLES	ABBREVIATION	MEASUREMENT
Sustainability performance	*SUSTPERF*	1 if a company is listed on the 2017 report of DJSI Index; 0 otherwise.
BOD determinants		
Board size	*BODSIZE*	The total number of directors on the board.
External directors on board	*EXTBOD*	The total number of outside directors on the board.
CEO duality	*CEODUAL*	1 if CEO is both president and chairman of BOD; 0 otherwise.
Number of committees on board	*NUMCOM*	The total number of active committees of a firm.
Presence of sustainable committee	*SUSCOM*	1 if there is any Social Responsibility/Charity Committee or Ethics/Integrity Committee/or Environmental/Health/Safety Committee; 0 otherwise.
Demographics		
Mean age of directors	*AVAGE*	Average age of the directors of the board; Young BOD is % of directors under 45 years old, and old BOD is % of directors above 70 years old.
Mean age square	*AVAGESQ*	Square of the average age of the directors of the board.

Gender Diversity	*GENDIV*	Number of female directors on the board of a firm.
Advanced Education	*ADVEDU*	Number of directors holding a master's degree or above.
PhD	*PhD*	Number of directors holding a PhD Degree.
MBA	*MBA*	Number of directors holding an MBA Degree.
Engineering degree	*ENGIN*	Number of directors holding an Engineering Degree.
Business degree	*BUS*	Number of directors holding a Business Degree.
Western EU education	*WEUEDU*	Number of directors graduated from Western European Universities.
Control variables		
Return on assets	*ROA*	Operating income to total assets.
Price to book value	*PBV*	The price of the stock divided by its book value.
Leverage	*LEV*	Liabilities divided by total assets.
Firm's beta	*BETA*	The Beta of the stock as a measure of volatility.
Research & development expenditure	*R&D*	The total € amount (in logs) spent in the R&D.
Number of business segments	*BUSSEG*	Number of operating business segments.
Analyst coverage	*ANACOV*	Number of analysts following the firm.
Fixed effects		
Region	Region	Dummies for each of the following regions: US, South America, Canada, UK, Europe, South Africa, Australia and Asia.
Country	Country	Dummies for each of the 28 countries.
Industry	Industry	Dummies for each industry: consumer goods, energy, industrials, financials, health care, information technology, materials, real estate, telecommunication, and utilities.

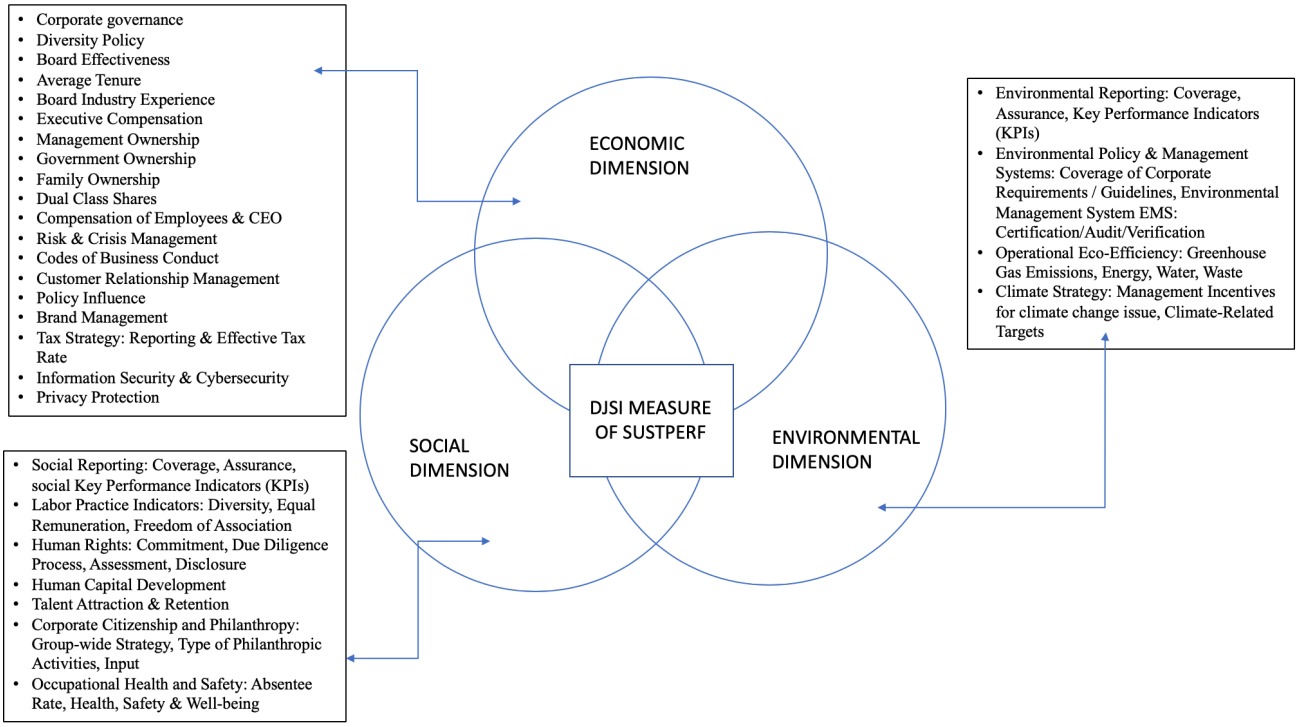
†**Note:** Table 1 presents the description and abbreviation of the variables included in this study.

3.4.2 Sample and descriptive analysis

Since 1999, RobecoSAM and S&P Dow Jones Indices, specialists in sustainability and ESG practices, have published the Dow Jones Sustainability Index on a yearly basis. Based on a survey comprising 80 to 120 questions, RobecoSAM collects, quantifies, and evaluates ESG performance for over 3,400 firms from 60 different industries. It is known to be the first global sustainability benchmark tracking the stock performance of the world's leading companies. The selection process comprises three universes: "the invited universe" includes 4,500 firms from the S&P Global BMI that participate in the corporate sustainability assessment (CSA); "the assessed universe" contains the final list of the firms that have successfully completed the CSA; and the "DJSI universe" comprises the top 10% sustainable firms attaining the highest scores in the CSA. Using the media and stakeholder analysis (MSA), RobecoSAM and its partners identify the practices related to sustainability such as fraud, illegal actions, human rights and labour

conditions, work-environment and wellbeing, environmental and ecological performances, and economic and financial corruption (*DJSI Methodology,* 2017). In this study, the sustainable performance variable (*SUSTPERF*) is based on the three DJSI pillars: economic, social, and environmental. Each dimension is measured by a set of indicators and sub-indicators. Figure 2 displays the comprehensive list of items assessed by RobecoSAM (DJSI, 2018).

Figure 2. DJSI indicators and sub-indicators of SUSTPERF measurement



During the past decade, the DJSI index has been widely used in the literature to assess sustainability practices and environmental disclosure (e.g., Baskin, 2006; Hawn et *al.*, 2018; Michelon and Parbonetti, 2012). The sample of this study relies on the DJSI report issued in September 2017. The initial index comprises 319 sustainable firms. Eighty companies were removed because of a lack of data. The final list of the sustainable group comprises 239 constituents. The matching group of the latter is taken from the 2,500 largest companies listed on the 2017 S&P Global BMI index. For each sustainable firm, a matching firm with similar characteristics (country of origin, industry, primary sector, firm's size, and market capitalization), but not listed in the DJSI report is selected. A dummy variable is generated taking the value of 1 for sustainable firm included in the DJSI and 0 for non-sustainable firm included in the S&P Global BMI. The final sample comprises 478 of the world's largest companies operating in 11 industries over 28 countries. The data collection of the variables of

interest is retrieved from the CapitalIQ database. In case of missing values, the needed information is identified from the firm's website. In the sample of this study, consumer goods and financial industries occupy the highest percentages with 21.72% and 18.44% respectively, whereas for the continent distribution, Europe and Asia have the highest proportions of sustainable companies with 38.11% and 28.28% respectively. Table 2 provides the detailed descriptive statistics for the sample.

Table 2. Descriptive analysis

	Mean	**Median**	**SD**	**MAX**	**MIN**
BODSIZE	13.09	12	5.21	43	3
EXTBOD	0.82	0.87	0.15	1	0.31
GENDIV	0.22	0.22	0.13	0.57	0
NUMCOM	4.91	5	2.35	12	0
SUSCOM	0.28	0	0.47	1	0
CEODUAL	0.32	0	0.47	1	0
AVAGE	57.90	57.56	6.08	80.5	42.70
MBA	1.97	2	1.54	10	0
ADVEDU	0.37	0.35	0.23	1.43	0
ENGIN	0.22	0.18	0.20	1.29	0
BUS	0.15	0.11	0.16	1.13	0
WEUEDU	2.40	1	2.58	14	0
ROA	4.84	4.0	4.91	34.50	-28.50
LEV	0.38	0.40	0.22	0.98	-0.26
PBV	3.10	1.92	3.53	23.5	0.33
BETA	0.93	0.87	0.47	3.41	-0.19
BUSSEG	5.82	5	3.97	43	1
ANACOV	20.07	20	8.10	46	1
R&D	1.92	0	2.92	8.99	0

†**Note:** Mean, median, standard deviation (SD), maximum value (MAX), and minimum value (MIN)

3.4.3 Control variables

To mitigate the cofounding effect of the external factors, the usual control variables in the literature are included: *LEV, ROA, PBV, BETA, R&D*, *BUSSEG, and ANACOV* (Dienes et *al*., 2016; Dilling, 2010; Post et *al*., 2011). Prior studies reveal a positive association between sustainability and *R&D* and *ROA* (Clarkson et *al*., 2008; de Villiers et *al*., 2011; Patten and Trompeter, 2003). For example, Guenster et *al.* (2010) find a positive asymmetric association between financial indicators and eco-efficiency performance, suggesting that companies with low eco-efficiency practices have a significantly lower *ROA*. Derwall et *al.* (2005) indicate that firms with a lower *BETA* and a higher *PBV* tend to have better environmental performance. Thus, a negative association between *BETA* and *SUSTPERF* is expected as well as positive effects of *ROA, PBV,* and *R&D* on *SUSTPERF*. While some scholars identify a negative and significant correlation between *LEV* and sustainable performance (Barnea and Rubin,

2010), others do not reveal any statistical relationship between the corresponding variables (Haniffa and Cooke 2002, 2005; Reverte, 2009). Although there is no consensus in the literature towards the effect of the respective two variables, a negative association between *LEV* and *SUSTPERF* is anticipated. For *BUSSEG* and *ANACOV*, a higher number of business segments *(BUSSEG)* (Diling, 2010) and stronger analyst coverage (*ANACOV*) (Healy and Palepu, 2001) are expected to be positively associated with *SUSTPERF*.

To check for potential multicollinearity problems in the estimation of Eq. (A.1), a correlation analysis is conducted (Table 3). The Pearson correlation coefficients strongly support the expected association between *SUSTPERF* and the BOD proxies. Moreover, the figures suggest no serious multicollinearity in the dataset, as the highest coefficient for any pair of independent variables is 0.45. The results provide preliminary support for the *BODSIZE* (H1), *NUMCOM* (H4a), *SUSCOM* (H4b), and *GENDIV* (H7). Among the control variables, *SUSTPERF* is positively and significantly associated with *R&D, BUSSEG*, and *ANACOV*. Moreover, a negative and slightly significant correlation exists between *LEV* and *SUSTPERF*.

Table 3. Pearson correlation matrix and coefficients

Variables	*SUSTPERF*	*ROA*	*PBV*	*R&D*	*LEV*	*BETA*	*BUSSEG*	*ANACOV*	*CEODUAL*
SUSTPERF									
ROA	-0.013								
PBV	-0.045	-0.694***							
R&D	0.132***	0.185***	0.082*						
LEV	-0.077*	0.399***	0.024	0.237***					
BETA	0.026	-0.275***	-0.251***	0.030	-0.180***				
BUSSEG	0.201***	-0.203***	-0.120***	-0.148***	-0.220***	0.178***			
ANACOV	0.222***	0.098**	0.022	0.233***	-0.043	0.024	0.056		
CEODUAL	-0.019	-0.001	-0.043	0.197***	-0.018	0.027	-0.086*	0.211***	
EXTBOD	0.025	0.004	0.099**	-0.047	-0.232***	-0.043	0.025	0.206***	0.097**
GENDIV	0.096**	0.039	0.123***	-0.074	-0.182***	-0.035	0.050	0.174***	0.000
BODSIZE	0.147***	-0.208***	-0.177***	-0.057	-0.223***	0.312***	0.189***	0.119***	0.037
NUMCOM	0.166***	-0.044	0.025	-0.061	-0.207***	0.106**	0.091**	0.223***	0.046
SUSCOM	0.086*	0.022	0.040	0.010	-0.066	-0.015	-0.030	0.048	-0.034
AVAGE	0.030	-0.030	-0.080*	0.014	0.087*	0.097**	0.026	-0.131***	-0.046
AVAGESQ	0.004	-0.044	-0.110**	0.013	0.110**	0.103**	0.013	-0.173***	-0.071
ADVEDU	-0.005	0.082*	0.112**	-0.046	-0.006	-0.273***	-0.029	0.021	0.064
WEUEDU	-0.001	-0.014	0.033	-0.093**	-0.082*	-0.031	0.026	0.063	0.035

†**Note:** *p≤0.1. **p ≤ .05. ***p ≤ .01.

Table 3 (continued)

Variables	*EXTBOD*	*GENDIV*	*BODSIZE*	*NUMCOM*	*SUSCOM*	*AVAGE*	*AVAGESQ*	*ADVEDU*	*WEUEDU*
GENDIV	0.449***								
BODSIZE	-0.004	0.091**							
NUMCOM	0.277***	0.278***	0.200***						
SUSCOM	0.22	0.147***	0.133***	0.461***					
AVAGE	-0.277***	-0.245***	0.037	-0.153***	-0.045				
AVAGESQ	-0.322***	-0.333***	0.027	-0.224***	-0.068	0.955***			
ADVEDU	0.293***	0.114**	-0.451***	0.033	-0.124***	-0.092**	-0.143***		
WEUEDU	0.339***	0.440***	-0.123***	0.038	-0.045	-0.223***	-0.289***	0.373***	

3.5. Results and discussion

The following section discusses the results of both the general and cross-national analyses.

3.5.1 General analysis: sustainable and non-sustainable firms

a) Univariate analysis

Table 4 displays the results of the univariate analysis of mean and median differences of the variables of interest conducted with the *t*-test and the Mann-Whitney test, respectively. The mean and median differences of *BODSIZE, NUMCOM (p-value < 0.01)* and *GENDIV (p-value < 0.05)* are statistically significant, in the predicted direction. For *SUSCOM*, the mean and median differences are both slightly significant (*p-value* < 0.10), again in the predicted direction. In regard to the variables accounting for the education field, the results do not reveal any statistical significance, although for *ENGIN,* the mean and median differences are at the edge of significance *(p-value = 0.102)*. The univariate analysis confirms the findings of the correlation matrix and provides preliminary support for hypotheses H1, H4a, and H7. In this context, similar to Liao et *al*. (2015), firms with a larger BOD size, a higher number of committees and the presence of female directors on the board tend to have better sustainable performance. In contrast, the presence of external directors, the age of directors, as well as the educational variables, do not reveal any statistical significance.

Table 4. Univariate analysis

	BODSIZE		***EXTBOD***		***GENDIV***		***NUMCOM***		***SUSCOM***	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Total Sample	13.090	12	0.820	0.867	0.216	0.222	4.906	5	0.272	0
DJSI = 0	12.324	11	0.816	0.862	0.203	0.211	4.516	5	0.234	0
DJSI = 1	13.853	13	0.823	0.867	0.228	0.235	5.295	5	0.310	0
Sig. t-test	**0.0011**		0.5893		**0.0344**		**0.0002**		**0.0572**	
Sig. MW	**0.0004**		0.5176		**0.0303**		**0.0002**		**0.0573**	
	AVAGE		**ADVEDU**		**MBA**		**ENGIN**		**WEUEDU**	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Total Sample	57.901	57.560	0.375	0.350	0.168	0.143	0.218	0.176	0.193	0.117
DJSI = 0	57.720	57.700	0.376	0.350	0.171	0.136	0.209	0.162	0.194	0.111
DJSI = 1	58.082	57.440	0.374	0.360	0.164	0.143	0.226	0.188	0.193	0.143
Sig. t-test	0.5101		0.9107		0.5741		0.3505		0.9780	
Sig. MW	0.9082		0.9080		0.9486		0.1024		0.4478	

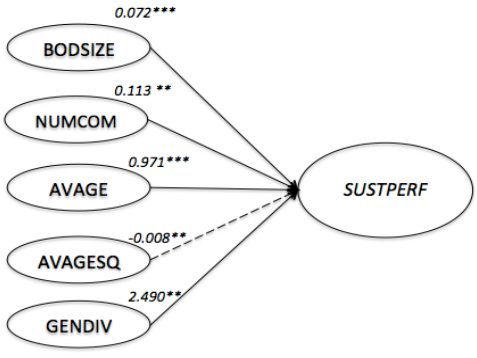
†**Note:** Mean and median differences of BOD characteristics between sustainable and non-sustainable firms. Sig. t-test: significance of t-test; Sig. MW: Significance of Mann-Whitney test.

b) Multivariate analysis

Table 5 shows the results of the multivariate logistic estimations of Eq. (A.1) with robust standard errors. Six different estimations have been performed. In all the models,

the values of the independent variables are computed for the year 2016. For robustness checks, all the estimations are conducted using the 2015 values, as well, as the process to the final inclusion of a company in the DJSI may take some time. Therefore, the process can be based on some delayed information. However, the results of the latter estimation are not tabulated. The first column of Table 5 displays the estimations of the BASE-Model, which includes only the coefficients of the control variables. In Model 1, all the variables of interest are introduced except for *MBA, PhD, ENGIN* and *BUS*. Afterwards, in the remaining models, the variable *ADVEDU* "master's degree or above" is switched by *MBA* (Model 2), *PhD* (Model 3), *ENGIN* (Model 4), and *BUS* (Model 5). All the estimations are globally significant with 8.78% *PseudoR2* for the BASE-Model and 14% for the remaining five models. To assess the "Goodness of Fit" of the estimations, the classification accuracy of the models is examined at the 0.5 cut-off point. The BASE-Model estimates 63.90% of the overall rate of correct classification. For the sensitivity and specificity check, the findings show respectively 62.34% and 65.43% as correctly classified. Model 1 reveals higher values than the BASE-Model, with 68.41% for the overall rate of correct classification, 68.35% for sensitivity, and 68.46% for specificity. Figure 3 summarizes the major findings of the general analysis and displays the regression coefficients of the explanatory variables. It reveals a statistically significant association between *SUSTPERF* and the five BOD indicators (*BODSIZE, NUMCOM, GENDIV, AVAGE, and AVAGESQR*).

Figure 3. BOD Characteristics and SUSTPERF with regression coefficients



†**Note:** The dashed line represents a negative relationship between the latent variable *AVAGESQ* and *SUSTPERF*. *** p <0.01; ** p <0.05

For the proxies capturing BOD characteristics, the results provide support for the positive relationship between *BODSIZE* (H1) and *SUSTPERF* (*p-value* < 0.01), indicating that firms with larger boards show better sustainable performance. In

contrast, Post et *al.* (2011) did not detect any statistical significance between the size of the board and ECSR disclosure or KLD. Under the stakeholder paradigm, large BODs are distinctive with their diversity aspect accommodating a wider view of interests and values for both shareholders and stakeholders (Ntim and Soobaryen, 2013). However, some scholars argue that a larger BOD might generate a chaotic atmosphere hindering an efficient adoption of sustainable performance (Post et *al.*, 2011). Nevertheless, a general convergence exists in the corporate governance literature confirming the positive effect of the board's size on ecological and social practices (Frias-Aceituno et *al.*, 2012; Lau et *al.*, 2016).

Regarding the structure and composition of BOD, the results provide statistical support only for H4a. *NUMCOM* is positively and significantly associated with *SUSTPERF* (*p-value* < 0.05). Board committees are strategic dynamics for auditing, monitoring, and assessing governance performances, agendas, and policy-making (Michelon and Parbonetti, 2012). Consequently, firms with a higher number of committees tend to tackle a broader spectrum of financial and non-financial issues, facilitating the implementation of sustainable practices. Similar to Liao et *al.* (2015) and Dilling (2010), the results of this study do not reveal any significant results regarding *SUSCOM* (H4b). However, Amran et *al.* (2014) and Kent and Monem (2008) find a positive association between the presence of sustainable committee and environmental disclosure. To build a consistent conclusion vis-à-vis the impact of *SUSCOM* on sustainability, it is recommended to include additional proxies in the analysis, such as the committee-tenure, number of meetings, the presence of independent members, and the board voting system, etc.

With regard to hypotheses H2 and H3, neither *EXTBOD* nor *CEODUAL* are significantly associated with *SUSTPERF*. Like Lau et *al.* (2016) but in contrast with Post et *al.* (2011), the findings do not suggest a significant relationship between outside directors and sustainable performance. For *CEODUAL*, the results are at the edge of marginal significance (particularly in Model 3), with the predicted negative sign. Some scholars find a positive relationship between *CEODUAL* and CSR reporting (Jizi et *al.*, 2014; Shamil et *al.*, 2014), whereas Lim et *al.* (2008) observe a negative association and Post et *al.* (2011) and Said et *al.* (2009) report an insignificant relationship.

Concerning the BOD demographics, the positive coefficient of *AVAGE* and the negative coefficient of *AVAGESQR* (*p-value* < 0.01 and < 0.05, respectively) indicate that the relationship between the age of the directors and *SUSTPERF* is curvilinear, as predicted; although sustainable performance first increases with age, but at a later stage as the average age of directors increases, sustainable practices increase at a decreasing rate. These results provide a partial support of hypothesis H6 (i.e., curvilinear relationship), and they are consistent with the findings of Post et *al.* (2011).

Regarding the variables capturing the educational background, *WEUEDU* shows the predicted positive coefficient in all estimations. However, the results do not reveal any statistical significance and do not provide any evidence supporting hypothesis H5d. These findings corroborate prior studies and confirm Post et *al.*'s (2011) results. Similarly, we report insignificant results for *ADVEDU*, *PhD*, *MBA, BUS,* and *ENGIN*. Nevertheless, previous studies indicate a positive association between directors holding a master's degree or above and sustainable performance (Elm et *al*., 2001; Rest and Narvaez, 1994). Generally, executives with advanced education tend to develop higher level of awareness towards environmental concerns and lean to acquiring certain "green" skills and competencies enabling them to tackle various societal issues.

In support of hypothesis H7, *GENDIV* shows a significant coefficient with a positive sign (*p-value* < 0.05), indicating that the presence of female directors on boards is positively associated with *SUSTPERF*. The results coincide with prior studies, proposing that more diverse boards (i.e., greater women participation) tend to exhibit and promote environmental and sustainable practices (Frias-Aceituno et *al*., 2012; Webb, 2004). More specifically, researchers advocate that BODs comprising at least three women executives are keen on adopting and implementing sustainability (Liao et *al*., 2015; Post et *al*., 2011). The intrinsic dissimilarity of gender features (i.e., risk aversion, empathy, responsiveness or social identification) influences the decision-making process and corporate prioritization. Thus, female directors are more likely to develop concerns and affinity to societal and environmental matters (Boulouta, 2013), whereas male directors are more focused on the economic and financial implications (Ibrahim and Angelidis, 1994; Liao et *al*., 2015), classifying the sustainability issues as secondary goals.

As for the control variables, the regression analysis reports significant results for *R&D,*

BUSSEG and ANACOV (*p-value* < 0.01) in all six models. The associated coefficients of these variables are positive as expected. Therefore, firms investing in R&D, with diversified business segments and higher analysts' coverage are more likely to adopt sustainable practices. For instance, by reducing information asymmetry and monitoring the accuracy of sustainability reporting, financial analysts have a considerable influence on shareholders' decision-making (Ivković and Jegadeesh, 2004). Thus, these analysts are perceived as enhancers of sustainable performance (Easley and O'Hara, 2004; Luo et *al*., 2015). Regarding the remaining controls (i.e., *ROA, LEV, BETA,* and *PBV*), although with the only exception of *PBV*, the findings confirm the predicted signs, and the results are insignificant at the usual statistical levels. These results are consistent with the findings of prior studies (Brammer et *al.,* 2006; Haryono et *al.*, 2016; Zhang et *al.*, 2013).

Table 5. Multivariate analysis for sustainable and non-sustainable firms

Variables		**BASE-Model**		**Model1**		**Model2: MBA**		**Model3: PhD**		**Model4: ENG**		**Model5: BUS**	
SUSTPERF	Sign	Coef.	P-Val	Coef.	P-Val	Coef.	P-Val	Coef.	P-Val	Coef.	P-Val	Coef.	P-Val
EU		-0.061	0.851	0.029	0.952	0.022	0.962	-0.005	0.992	0.045	0.925	0.028	0.953
UK		0.081	0.853	-0.197	0.694	-0.215	0.668	-0.249	0.619	-0.192	0.703	-0.187	0.708
Canada		0.493	0.397	0.470	0.487	0.494	0.462	0.416	0.539	0.494	0.461	0.511	0.448
Asia		0.240	0.506	**1.547**	0.009	**1.533**	0.010	**1.490**	0.012	**1.561**	0.008	**1.582**	0.008
Australia		0.691	0.293	**1.173**	0.091	**1.156**	0.098	**1.177**	0.088	**1.184**	0.091	**1.202**	0.085
South America		0.658	0.372	**1.906**	0.011	**1.983**	0.008	**1.990**	0.008	**1.966**	0.008	**1.969**	0.008
ROA	+	0.035	0.415	0.028	0.574	0.028	0.574	0.028	0.584	0.029	0.571	0.027	0.599
PBV	+	-0.055	0.257	-0.030	0.553	-0.030	0.551	-0.029	0.568	-0.307	0.541	-0.028	0.589
R&D	+	**0.110**	0.003	**0.131**	0.001	**0.131**	0.001	**0.125**	0.002	**0.129**	0.002	**0.132**	0.001
LEV	-	-0.862	0.168	-0.368	0.601	-0.387	0.582	-0.290	0.681	-0.039	0.579	-0.336	0.637
BETA	-	-0.092	0.710	-0.177	0.542	-0.218	0.444	-0.168	0.559	-0.215	0.448	-0.205	0.470
BUSSEG	+	**0.131**	0.000	**0.120**	0.000	**0.121**	0.000	**0.121**	0.000	**0.120**	0.000	**0.120**	0.000
ANACOV	+	**0.059**	0.000	**0.057**	0.000	**0.056**	0.000	**0.056**	0.000	**0.057**	0.000	**0.056**	0.000
CEODUAL	-			-0.370	0.129	-0.365	0.132	-0.387	0.116	-0.363	0.135	-0.362	0.136
EXTBOD	+			-0.150	0.875	-0.013	0.989	-0.247	0.797	-0.079	0.934	-0.042	0.965
GENDIV	+			**2.490**	0.042	**2.456**	0.046	**2.603**	0.034	**2.481**	0.042	**2.495**	0.042
BODSIZE	+			**0.072**	0.009	**0.064**	0.015	**0.069**	0.007	**0.066**	0.009	**0.068**	0.009
NUMCOM	+			**0.113**	0.042	**0.119**	0.032	**0.115**	0.036	**0.117**	0.034	**0.115**	0.039
SUSCOM	+			0.128	0.624	0.093	0.722	0.125	0.628	0.099	0.698	0.108	0.673
AVAGE	+			**0.971**	0.010	**1.003**	0.007	**0.957**	0.011	**0.990**	0.008	**0.990**	0.008
AVAGESQ	+			**-0.008**	0.011	**-0.008**	0.008	**-0.008**	0.011	**-0.008**	0.009	**-0.008**	0.009
ADVEDU	+			0.407	0.471								
MBA	-					-0.192	0.829						
PhD	+							1.085	0.251				

ENGIN	+									0.181	0.739		
BUS	+											0.329	0.628
WEUEDU.	+			0.926	0.187	1.809	0.120	0.973	0.165	1.084	0.120	1.105	0.114
Cons.		**-1.620**	0.009	**-33.782**	0.003	**-34.549**	0.002	**-33.105**	0.003	**-34.267**	0.002	**-34.340**	0.002
Fixed Effect													
Region		*YES*		*YES*		*YES*		*YES*		*YES*		*YES*	
Country		*YES*		*YES*		*YES*		*YES*		*YES*		*YES*	
Industry		*YES*		*YES*		*YES*		*YES*		*YES*		*YES*	
# Obs.		**482**		**478**		**478**		**478**		**478**		**478**	
Wald-Chi2		**50.92**		**71.31**		**70.93**		**72.64**		**70.37**		**71.93**	
Prob>Chi2		**0.000**		**0.000**		**0.000**		**0.000**		**0.000**		**0.000**	
Pseudo R2		**0.0878**		**0.1439**		**0.1432**		**0.1451**		**0.1433**		**0.1435**	
Class.Abil.		***63.90%***		***68.41%***									
Sensitivity		***62.34%***		***68.35%***									
Specificity		***65.43%***		***68.46%***									

3.5.2 **Additional analysis:** European versus non-European firms

This section addresses the differences of the BOD indicators toward sustainable performance between EU and non-EU countries. In this context, the board's determinants of EU and non-EU companies are assessed to identify whether they are similar or different vis-à-vis sustainability. The analysis is based on the original sample; however, now firms are grouped in two sub-samples: EU and non-EU. For the sake of this analysis, the EU sub-sample comprises the list of firms that are located in continental Europe, whereas the non-EU sub-sample presents the list of firms that are located in other regions (i.e., United Kingdom (UK), US, Asia, South Africa, Australia, Canada, and South America).

Corporate governance models and BOD indicators vary among countries due to the various implications of national laws, financial regulations and policies, and cultural factors (Rubach and Sebora, 1998). Previous studies have elaborated on the discrepancy in governance practices between European and Anglo-Saxon countries (Aguilera, 2005; Becic, 2011). In non-EU countries and particularly in the US, the BOD is described as a shareholder-oriented system, whereas in the EU region, it is perceived as a stakeholder-oriented system (Martynova and Renneboog, 2011; Samara et *al.*, 2018). While BODs of non-EU firms focus on the capital market, shareholder's value, and wealth maximization (Rubach and Sebora, 1998), the BODs of EU firms aim to reach an alignment between firm's stakeholders and to accomplish a mutual organization-agents benefit. The *latter* BOD encourages labour participation (Brickley et *al.*, 1997; Hanson and Song, 2000), which induces

better industrial relationships through greater job satisfaction and employees' identification with their companies (Becht, 1999). In the corporate governance literature, the bulk of the studies comparing the structure and composition of BODs in EU and non-EU firms and assessing their impact on sustainability are mostly classified as conceptual research (Becic, 2011; Martynova and Renneboog, 2011). In this regard, the aim of this additional analysis is to fill the gap in the literature by providing some empirical evidence supporting the connection between BODs and sustainable performance across different regions. Separate estimations of Eq. (A.1) are conducted for the EU and non-EU subsamples. Regression analysis is performed for four models: BASE: EU, Model 1: EU, BASE: non-EU, and Model 2: non-EU.

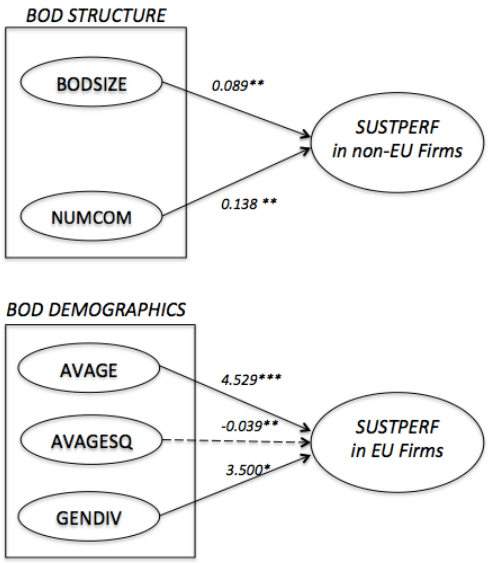
c) Multivariate analysis

First, the "Goodness of Fit" test of the new estimations is conducted. In Table 6, columns 1 and 3 display the findings of BASE Models for EU and non-EU samples, which include only the effect of the control variables on *SUSTPERF*. The BASE-EU Model indicates 68.65% as the overall rate of correct classification, whereas Model 1: EU estimates 73.37%. For the non-European sample, the values are slightly lower, revealing 60.61% as the overall rate of correct classification for BASE: non-EU and 65.65% for Model 2: non-EU.

The results reveal that the EU models (*p-value* < 0.01) show stronger significance levels than the non-EU models (*p-values* < 0.1 and 0.5). Accordingly, the findings are considered robust and consistent because the estimations and the significance levels in all the models for both years 2016 and 2015 (untabulated in the latter case) are almost identical. Moreover, the EU models also present greater explanatory power. The results indicate that Model 1: EU (*PseudoR2* =27.47%) estimates a higher percentage of the variation in *SUSTPERF* than does Model 2: non-EU (*PseudoR2*=11.94%). Due to the Organisation for Economic Co-operation and Development Principles of Corporate Governance (OECD, 1999) and the Action Plan 'Corporate Governance and Company Law' (EU, 2004), EU governments and regulations show exigency and persistence in adopting and implementing sustainable performance (Aguilera, 2005). The latter policies and regulations influenced the corporate systems and the business strategies to increase their involvement in sustainable development. Another possible explanation is based on the political differences between EU and non-EU regimes and their governmental schemes. In this regard, Hartmann and Uhlenbruck (2015) indicate that

policies and agendas vis-à-vis the ecosystem vary between countries, and accordingly, they anticipate that this variation is eventually disseminated into differences at the company level. Being influenced by the social and democratic systems, the EU region exhibits a stronger legal paradigm preserving the labour force interests. In contrast, the capitalistic regimes and economies (mostly in the US, UK, Canada, and Japan) tend to have stronger mechanisms protecting the investor's interests and maximizing their wealth. Consequently, this constitutional dissimilarity between EU and non-EU countries might be reflected at the corporate level inducing some variation in the governance systems and the role of BODs in EU and non-EU companies in respect to sustainable performance (Bhasa, 2004). In the cross-national comparative analysis, the findings report evidence confirming the dissimilarities between BOD determinants identified as qualifiers of DJSI classification in EU and non-EU regions. Figure 4 displays the major results of the additional analysis. The figure shows that in non-EU firms, the BOD structure is associated with *SUSTPERF*, whereas in EU firms, BOD demographics are correlated with *SUSTPERF*.

Figure 4. BOD determinants and SUSTPERF with regression coefficients in EU and non-EU firms



†Note: The dashed line represents a negative relationship between the latent variable *AVAGESQ* and *SUSTPERF*. *** p <0.01; ** p <0.05; * p <0.1

Comparing Models 1 and 2, for the EU subsample, *GENDIV* (*p-value* < 0.1) and *AVAGE* (*p-value* < 0.01) are significantly and positively associated with *SUSTPERF*. In contrast, for the non-EU subsample, *BODSIZE* and *NUMCOM* (*p-value* < 0.05) are significantly and positively related to *SUSTPERF*. Similar results are revealed in the estimations for the year 2015. Reflecting on this difference, during the 1970s, two

influential and revolutionary agendas marked Europe: the green movement (environmentalism) and the women's (feminism) movement (de-Shalit, 1997; Galtung, 1986). Accordingly, during this era, the European generation that witnessed this social change shows stronger identification with sustainable and ecological concerns and encourages female participation on various dimensions such as social, political and corporate (Vlasblom and Schippers, 2004). Appraising the distinctive determinants between EU and non-EU qualifiers of DJSI classification, the results reveal that demographic indicators (i.e., age and gender) of the board are perceived as the predictors of sustainability in Europe, while for non-EU firms, BOD structural and composition criteria (i.e., board size and number of committees) are considered as the drivers of sustainability. This can be interpreted by the cultural differences between the two regions. Due to the geographical and contextual factors, in EU firms, directors assigned to the board tend to be proactive (Maruyama, 1984) and self-construal (hence, the greater effect of "demographic" characteristics) adopting societal behaviours out of individual willingness and volunteering. In contrast, North American and in general, Anglo-Saxon cultures are considered as profit-oriented and risk-averse (Hofstede, 1980). Directors of non-EU firms, particularly in Japan, tend to be reactive and require a specific organizational scheme (hence the greater effect of "structure" characteristics) enabling them to exhibit extra-role behaviours and to involve themselves in sustainable performance (Schneider and De Meyer, 1991).

Table 6. Multivariate analysis for EU and non-EU countries

Variables		**BASE: EU**		**Model1: EU**		**BASE: non-EU**		**Model2: non-EU**	
SUSTPERF	Sign	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value	Coef.	P-Value
ROA	+	0.071	0.398	0.084	0.422	0.023	0.647	-0.001	0.993
PBV	-	-0.037	0.744	0.014	0.891	-0.076	0.185	-0.056	0.342
R&D	+	**0.116**	0.065	0.692	0.339	**0.108**	0.023	**0.148**	0.005
LEV	-	-1.625	0.207	-0.839	0.515	-0.080	0.269	-0.292	0.729
BETA	-	**-0.906**	0.087	-0.909	0.156	-0.033	0.910	-0.095	0.783
BUSSEG	+	**0.116**	0.025	**0.114**	0.045	**0.124**	0.001	**0.110**	0.007
ANACOV	+	**0.126**	0.000	**0.133**	0.000	0.028	0.109	0.021	0.295
CEODUAL	-			-0.514	0.199			-0.181	0.609
EXTBOD	+			-0.341	0.859			-0.021	0.985
GENDIV	+			**3.500**	0.094			2.364	0.161
BODSIZE	+			0.057	0.132			**0.089**	0.031
NUMCOM	+			0.078	0.524			**0.138**	0.049
SUSCOM	+			0.092	0.848			0.227	0.499
AVAGE	+			**4.529**	0.009			0.575	0.215
AVAGESQ	+			**-0.039**	0.011			-0.005	0.194

ADVEDU	+			0.173	0.887			0.638	0.337
WEUEDU	+			1.204	0.288			0.150	0.907
Cons.		**-2.608**	0.006	**-137.294**	0.006	-0.886	0.213	-21.096	0.139
Fixed Effect									
Country		*YES*		*YES*		*YES*		*YES*	
Industry		*YES*		*YES*		*YES*		*YES*	
# Obs.		**185**		**184**		**297**		**294**	
Wald-Chi2		**42.09**		**56.09**		**21.14**		**37.62**	
Prob>Chi2		**0.000**		**0.000**		**0.070**		**0.050**	
Pseudo R2		**0.1995**		**0.2747**		**0.056**		**0.119**	
Class.Abil.		***68.65%***		***73.37%***		***60.61%***		***65.65%***	

3.6. Conclusion

This study investigates the impact of BOD determinants on the likelihood of a firm's being considered to be a sustainable organization. The empirical analysis identifies the nature of the BOD that is perceived as an "enhancer" of sustainable performances. The findings provide evidence supporting a significant and positive relationship between sustainability and BOD size, the number of committees, age of directors, and gender diversity. Overall, the results of the study are consistent with prior research. From the cross-national analysis, two types of BOD characteristics are distinguished. In continental EU countries, the demographic criteria, such as age and gender diversity, have a greater effect on sustainability than any other BOD determinants, whereas for non-EU countries, the structural and composition criteria of the board, such as the size and number of committees, are the leading factors influencing sustainable performance. One interpretation of this finding is the legislative differences between the EU and non-EU regions vis-à-vis corporate governance, ecosystems, and sustainability. The main conclusions of the study suggest a significant effect of the role of the BOD in promoting sustainable and environmental practices.

3.6.1 Theoretical and practical implications

Governance, BODs, and CEOs constitute the dynamic core of the firm targeting profit maximization, the credibility of financial performances, and the enhancement of share valuation. Nevertheless, with the pressure exerted by the government and civic society, companies are engaging in various activities to optimize their sustainable and ecological strategies. In this regard, Aguilera (2005, p. 51) states, "governance is about individual as well as mutual accountability not only to firm shareholders but also to all stakeholders. Future corporate governance should aim at a sustainable corporate governance model". This study identifies specific indicators of the board that can be

perceived as the pillars of a "sustainable model", facilitating the implementation of environmental and social practices. Regarding the theoretical implication, the three premises of the stakeholder paradigm, descriptive, normative, and instrumental, align to confirm that in addition to the maximization of shareholder value, businesses have been committing to a wider spectrum of responsibilities to sustain superior corporate performance. Thus, the findings resonate with the principles of the stakeholder theory supporting the link between BOD and sustainability. In addition to the financial objectives, the leading role of directors is to initiate the metamorphosis of the company, transforming it into a sustainable organism and to present an internal and external role model in adopting green attitudes and comportments. This paper demonstrates that large BOD size and greater female presence on the board as well as factors relating to the age of directors and the number of committees have a positive influence on sustainable performance. From a global perspective, the findings indicate that there are dissimilarities of BOD characteristics between EU and non-EU sustainable firms. The mere fact of the latter differences is explained by social and political movements, governmental laws and policies, and variation of the governance systems between common law (mostly in the US, UK, Canada, and Australia) and civil law (mostly in the EU) countries. These considerations have an explicit impact on shaping the business priorities of the board, whether to be shareholder-oriented or stakeholder-oriented. It is noteworthy to mention that the overall conclusion of this study reflect that EU firms might be more advanced in the three dimensions of sustainability, stakeholder management, and corporate governance practices in combination than non-EU firms including the US. However, from the regression analysis, these results indicate only a statistical association between BOD determinants and sustainability performance, and not a causal inference. Therefore, at the cross-national level, one implication can be deduced that only re-structuring the board in non-EU firms may not guarantee a better sustainable performance. Rather a synchronization of board structure, stakeholders' management, and public policies is perceived as a pre-requisite to improve sustainability practices.

Regarding the practical and managerial implication, firms dedicated to adopting and implementing sustainable practices are encouraged to appoint female directors (low risk-aversion and greater identification with social and ecological concerns), to form a sufficient number of active committees (monitoring and improving a consistent and

transparent disclosure of both financial and non-financial activities) and to increase the size of the board (diversity of the board accommodates a broader aspect of responsibilities and tasks), predominantly by appointing middle age directors. An interesting implication of this study is that the presence of a sustainability committee in a firm does not make the firm sustainable. In fact, this finding triggers a controversial premise reconsidering the role and functions of the sustainability committee; "putting a question mark" on whether it is created for an authentic motive truly and actively seeking to implement and adopt sustainable practices or if it is only a matter of the firm's public image and reputation.

3.6.2 Limitations and Future direction

This study has several limitations. First, the dependent variable is based on the DJSI index used as a proxy of sustainable performance. Although it is considered a valid and clear-cut measure (i.e., dichotomous variable) of sustainable measurement, the findings of this research paper, however, cannot be extrapolated, since there are several indices, indicators, and metrics applied to evaluate sustainable and ecological practices such as the environmental sustainability index (ESI), global reporting initiative (GRI), and Morgan Stanley capital international (MSCI) KLD 400 Social Indexes. Nevertheless, so far, there is no consensus or agreement among scholars on adopting a specific measurement or indicator of sustainability. In regard to the sample of the study, the multi-industry and cross-national data strengthen the significance of the results. However, it is noteworthy to mention that the findings are applicable and relevant only for large corporations. For instance, family businesses and small and medium-sized enterprises (SMEs) indicate different implications of BOD characteristics on sustainability and environmental performance.

Further qualitative and empirical studies might be conducted to unfold the interconnection between corporate governance and sustainability. Surveys, quasi-experiments, and case studies might be applied to underpin the impact of the board of directors on the adoption of social and environmental practices. With regard to the endogeneity issue, the consistent results of the independent variables revealing similar significant coefficients for two consecutive years (2015 and 2016) provide robust evidence supporting a statistical correlation between BOD features and sustainability. However, replicating the study with the experimental design will mitigate the

endogeneity problem, enhance the internal validity, and might prove the existence of a causal relationship between BOD indicators and sustainable performance. Along the same line, in addition to the investigation of BOD characteristics, future research may tackle the underlying effect of CEOs' determinants on sustainable performance. There is a need to identify the "specific" profile of the CEO (age, gender, tenure, compensation, ownership, education, insider or outsider, and duality) that fosters strategies and tactics in favour of the ecosystem preservation and social engagement while sustaining an optimal financial performance.

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Chapter 4. Role reversal! Financial performance as antecedent of ESG: The moderating effect of total quality management

4.1. Abstract

Shifting from short-term profit maximizing strategies to more sustainable long-term ones, the corporate world has been exerting extra effort to adopt environmental, social, and governance (ESG) performances. However, the loop question remains unsolved: *is ESG financially-driven* or *is financial performance (FIN) ESG-driven?* Building on the slack-resources theory and bridging three management literatures, this analysis relies on a six-year panel dataset of multinational organizations from different industries. A distributed lag regression model is proposed to empirically investigate the impact of FIN performance on ESG and to test the moderator effect of total quality management (TQM). The findings reveal a stimulus effect between free cash flow (FCF) and ESG scores. While the interaction between TQM and FCF has a negative effect on ESG, the interaction between TQM and Tobin's Q reveals a positive relationship with ESG. This study sheds further insights for both research and practice toward the operationalization of sustainability management.

Keywords: environmental, social, and governance; financial performances; free cash flow; total quality management; cross-national analysis

4.2. Introduction

The aftermath of the financial crisis and the recommendations of the United Nations Global Compact have been re-modeling the financial markets, entailing governmental pressure to widespread environmental and social practices (Nicholson et al., 2011). Consequently, a transformational shift has been occurring in the corporate world to assess the credibility of business institutions, their dual responsibilities toward both shareholders and stakeholders, and their advocacy to incorporate environmental, social, and governance (ESG) performances (Boerner, 2010; Eesley et al., 2016). However, the ambiguity of this metamorphosis remains on identifying the prevailing dynamics or factors behind integrating "green" practices. Practitioners and scholars in the field are still in search of the "building blocks" of sustainability practices to enhance ESG mechanisms. For instance, sustainability development is both perceived as a framework of three pillars (i.e., economic, environmental, and social) and as an "object of standardization" of management systems (Schwartz and Tilling, 2009).

During the last decades, organizational responsibilities have been widening their targets to tackle a broader spectrum of goals, combining both financial and non-financial activities (Chams and García Blandón, 2019). Large firms have been exerting extra effort to adopt sustainable practices and implement waste and pollution reduction management (Sroufe and Gopalakrishna-Remani, 2018), as a tool to improve their societal behaviors and public image (Fatemi et al., 2018). To start with defining ESG, prior studies describe it as non-financial performance, engendering environmental activities (ENV) i.e., efficient energy consumption and resources allocation (Porter and van der Linde, 1995; Russo and Fouts, 1997); social activities (SOC) i.e., employee motivation, labor welfare, organization-employee bonding (Bhattacharya et al., 2008; Greening and Turban, 2000), customers´ valuation and brand recognition (Cahan et al., 2015; Hsu, 2012); and, last but not least, governance activities (GOV) related to regulatory obligation toward the society and good corporate performances (Freeman, 1984; Neiheisel, 1995).

Given the lack of conclusive findings and dissensus among scholars, the ongoing debate on the nexus between ESG and financial performance (FIN) remains unsolved (Albertini, 2013; Clark et al., 2015; Margolis et al., 2009). While Brammer et al. (2006), Horváthová (2010) and Wright and Ferris (1997) reveal a negative relationship between ESG and FIN performances, other studies indicate a catalyst effect (i.e., positive) (Eccles et al., 2014; Ge and Liu, 2015; Orlitzky et al., 2003) or non-significant effect (Aupperle et al., 1985; Patten et al., 1991; Renneboog et al., 2008a). Another controversy is the direction of the association between ESG and FIN: are ESG performances financially-driven or are financial performances ESG-driven (Brammer and Millington, 2008; Scholtens, 2008). Accordingly, there is no confirming statement clarifying whether “doing well” enables “doing good” (Waddock and Graves, 1997). In other words, as questioned by Peloza (2009, p. 1520), he highlights a skeptical view in this regard as “do organizations that are more profitable engage in corporate social performance (CSP) or do organizations that engage in CSP become more profitable?”. In the same vein, Aragón-Correa and Sharma (2003) suggest that including moderators or mediators effects would enhance the investigation of the FIN-ESG association.

This study intends to examine the effect of FIN on ESG scores, including total quality management (TQM) as a moderator of this association. We engage in an empirical

approach to tackle the emerging trend of analyzing the dual effect of financial performance and organizational standardization management systems on ESG. With a sample of 2087 multinational companies operating in more than 20 industries and located in Europe (EU), the United States (US), and Asia, this analysis relies on the ESG Thomson Reuters' measure of sustainability (continuous variable). The panel dataset consists of a six-year period from 2012 to 2018, taking into account the time factor and the moderating effect of TQM. Therefore, a distributed lag regression model is proposed to assess empirically firm´s liquidity measured by cash generating efficiency as free cash flow (FCF) on ESG. We hypothesize that firms that are doing "financially good" (i.e., higher FCF) are doing "environmentally and socially good" (i.e., higher ESG scores). Financial achievements (as increased profitability, higher revenues and net income) are perceived as pre-requisites or antecedents of ESG adoption. Economic success might enable the firm to dedicate and allocate a budget for ESG investments; therefore, it improves its sustainable practices toward both shareholders´ value and stakeholders´ wealth.

To elaborate on the rationale behind the moderator effect, TQM is perceived as one main component of lean management revealing potential implications for organizational practices (McLachlin, 1997). In this study, TQM is measured by the International Organization of Standardization ISO 9000 certification (Chaudary et al., 2014). ISO 9000 quality standards were fated to be perceived as a leading benchmark, issued in more than 160 countries. Schwartz and Tilling (2009) describe the adoption of management standards as a "process" and a "legitimizing" component of responsible firms. European countries, followed by the US and China, show an incremental increase in the adoption rate of ISO certification (Franceschini et al., 2006). While the motives behind implementing ISO (both ISO 9000 and/or ISO 14000) might vary among countries, the common aim converges toward quality and environmental management (Matten and Moon, 2008). It was described as a "tangible proof" providing evidences of organization´s capacity to manage efficiently and effectively resources, taking into account stakeholders' satisfaction (Franceschini, 2002). Prior studies claim that "lean" and "green" congregate toward the same targets, as they both incorporate waste reduction techniques and efficiency strategies (Galeazzo et al., 2014; Yang et al., 2011). These two concepts are perceived as a "dual" means to "one" end. Many articles consider social responsibility practices and quality management practices to be two

sides of the same coin (Holjevac, 2008; Parast et al., 2006). TQM models and change management programs enable the effective implementation and incorporation of sustainability initiatives within organizations (McAdam and Leonard, 2003). Likewise, higher social standards and transparency can be achieved as a result of TQM implementation (Zwetsloot, 2003). It helps in creating a corporate culture that fosters social responsibility and ethical behavior (Tarí, 2011), and allows firms to better serve their members and communities (Hackman and Wageman, 1995). Organizations implementing TQM go through changes in their organizational culture, which makes them better equipped to implement ecological and social initiatives (McAdam and Leonard, 2003; Zink, 2007).

The motivation of this research is to contribute to the ongoing debate about FIN-ESG link and to investigate how ISO 9000 certification might impact this association. The FIN-ESG link can be described as a continuous "virtuous" cycle (Aguilera-Caracuel et al., 2013, p. 334). However, we anticipate that the starting point is the FIN performance, which is considered as a "slack resource" to achieve a "collective" goal (i.e., adoption, investment, and engagement in ESG practices). It attempts to combine finance, sustainability, and operations management disciplines. The purpose of merging these three literatures is to move from conceptualization to operationalization of sustainability implementation. Prior research rely mainly on market based and/or accounting based financial indicators, such as return on assets (ROA), return on equity (ROE), and Tobin´s Q (Fatemi et al., 2018; Giannarakis, 2014). For instance, in their research Aguilera-Caracuel et al. (2013) have used the ratio of current assets divided by current liabilities as a measure of slack financial resources. Al-Tuwaijri et al. (2004) highlight some limitations of the aforementioned measures, indicating a biasness issue when the sample consists of firms from multi-industries. Accounting-based financial measures indicate internal assessment of managerial and decision-making capabilities rather than external market evaluation of the organization (Cochran and Wood, 1984). Therefore, to mitigate and overcome these limitations, this analysis relies on an alternative measure of FIN as FCF, reflecting the liquidity effect of the organization on ESG investments. Previous studies document significant association between cash flow and organizations´ investment expenditure (Meyer and Kuh, 1957; Richardson, 2006). To handle some issues related to the valuation of intangible assets (Vogt, 1994), Tobin´s Q has been included in this analysis to reflect the inherent value of the firm. Using market-based

indicator, Tobin´s Q is considered as the most recommended metric for long-term financial performance, capturing the market valuation of future cash flow prospects (Kang et al., 2016).

Moreover, some studies are identified in the literature that are based on single-country samples such as the US (Artiach et al., 2010), the United Kingdom (UK) (Renneboog et al., 2008a), Germany (Velte, 2017), and Australia (Galbreath, 2012). In addition, while the bulk of the literature relies on the Kinder, Lydenberg, Domini (KLD) index, this study uses Thomson Reuters Eikon as a measure of ESG. Some critics emerged regarding the GOV score of KLD, as lack of robust evaluation and limitation of assessment factors (Galbreath, 2012). In the same vein, few studies investigate the FIN-ESG association taking into account simultaneously the ESG overall score and each dimension, separately. For instance, among the three dimensions, environmental performance has been widely explored by scholars (Levine and Chatterji, 2006; Uecker-Mercado and Walker, 2012); whereas, the other two dimensions of ESG have received less attention. As perceived mutually inclusive (Galbreath, 2012), the examination of all the dimensions simultaneously enhance the assessment of the "global" and "segregate" effect of ESG.

The structure of this study is presented as follow. The second section consists of the review of the literature and hypotheses formulation. Section three comprises the methodological framework and descriptive analysis. The results of the regression estimation, moderator effect, and cross-national analysis are discussed in section four. Lastly, section five highlights the conclusions and limitations of the study.

4.3. Literature review and hypotheses formulation

The nexus between financial and sustainability practices is influenced by a myriad of inter- and intra- organizational dynamics (i.e., sector, economic context, company´s size, board of directors, governmental regulation, and country policies) (Chams and García Blandón, 2019; Peloza, 2009). While the foundational components of FIN performances are dedicated to maximize profitability and shareholder´s value, the pillars of ESG practices comprise a wider set of societal responsibilities toward the ecosystem and public communities. Based on the "Investor Revolution", a study

published by Harvard Business Review, ESG performance is considered as a "top priority" action according to 70 senior leaders from 43 multinational investing companies (Eccles and Klimenko, 2019). Despite that, sustainability engagement may implicitly engender some agency costs perceived as "unfavorable spending" going against stockholders' desires (Eccles et al., 2014). The skeptical decision-making among practitioners, portfolio analysts, and investors emphasizes the payback of "doing good". As stated by Eccles and Klimenko (2019), the perception toward sustainability investments is that "ESG just hasn't gone mainstream in the investment community".

4.3.1 Theoretical framework

According to the founder of the shareholder theory, Milton Friedman (1970) explicitly states that any societal or environmental engagement induces extra expenses and consequently, these additional costs might reduce the economic or financial value of the company. Kim and Lyon (2015) consider that environmental practices should be imposed as an "obligatory paradigm" among organizations. Since, they are perceived as costly investments, that most probably would not generate any profit, therefore they tend to be avoided. From a different perspective, according to McWilliams and Siegel (2001), the interaction between sustainability and FIN performances is perceived as a "neutral" or "break-even" effect, as the "incurred cost" and the "generated profit" of non-financial activities are counterbalanced under market equilibrium. As for the premises of the stakeholder theory, Edward Freeman (1984) claims a synergetic relationship between environmental performances, social engagement, and financial achievements. The rationale behind this positive association is due to improved market competitiveness, decreased transaction costs, and cohesive interaction among stakeholders' network, entailing a higher overall firm performance (Fombrun et al., 2000; Jones, 1995).

In this study, the line of analysis is developed under the scope of slack resources theory. Slack resources can comprise a wide range of a firm´s assets including economic, human, strategic, and managerial capitals (Ortas et al., 2015). Availability of slack resources enables organizations to engage more easily in extra activities such as research and development projects, and similarly in sustainability practices (Bourgeois, 1981). The slack resources paradigm deeply supports the fact that financial resources

(Kraatz and Zajac, 2001), as a tool for slack availability, enhance environmental and social performances (Ortas et al., 2015; Waddock and Graves, 1997). The interconnection between resources slack and sustainability is described as an exponential association (Cheng et al., 2014). While Shahzad et al. (2016) describe financial capital as a "key driver" for social practices in an organization to accomplish stakeholders' interest, McGuire et al. (1988) perceive corporate financial status as "predictors" of ESG performances.

4.3.2 Financial status: catalyst of ESG performance

While most prior studies address the association or the cause-effect between ESG and FIN performance (Hillman and Keim, 2001; King and Lenox, 2002; Konar and Cohen, 2001; Velte, 2017), Hang et al. (2017) and Preston and O´Bannon (1997) highlight the scarcity of studies examining the reversed association. Some of the studies that are identified in the literature, investigate the effect of FIN on ESG : Ortas et al. (2015) in France, Spain, and Japan; Ariatch et al. (2010) in the US; and Makni et al. (2008) in the Canadian context. Following slack resources premises, the willingness of a firm to tackle stakeholders´ pressure varies relatively to its financial situation and strategic positioning (Bansal and Roth, 2000). Companies with good financial status tend to widen their spectrum of investments due to the accessibility and abundance of resources (Brammer and Millington, 2008; Orlitzky and Swanson, 2008). Hence, they are more willing and capable to engage in environmental and social practices (Kraft and Hage, 1990). Conversely, organizations with financial scarcity and unstable profitability tend to prioritize financial-oriented goals and shareholders' interests (Ariatch et al., 2010). From the shareholders´ perspective, ESG performance is not classified as a necessity or compulsory action. As described by Schaltegger and Synnestvedt (2002), sustainability performances are perceived as a "luxury" good, requiring a certain degree of financial flexibility. Thus, not until a specific threshold of financial performance is achieved, that organizations invest in ESG activities.

Perceived as a discretionary financial slack, Seifert et al. (2004) provide evidences revealing a significant association between cash flow and corporate philanthropy. Shahzad et al. (2016) show a positive effect of financial slacks on charitable and social activities in the US context. Therefore, we anticipate that FCF (current and one-year

lag) positively influences ESG practices. Firm´s cash flow is described as the "driver" behind higher ESG performance. In financial market analysis, firm´s valuation (i.e., Tobin´s Q) is based on prospect profitability, providing an unbiased measure of the present value of discounted cash flow (Fama, 1970). According to prior studies, firm market valuation has been commonly associated with firm profitability. Hence, Tobin´s Q (current and one-year lag), as a market-based financial indicator for firm value, is included in the analysis (Seifert et al., 2004; Velte, 2017). We anticipate that organizations with higher market value achieve higher profitability; thus, they tend to have higher ESG scores (Konar and Cohen, 2001). Based on the aforementioned literature, the following hypotheses are formulated:

H1: *FCF is positively and significantly associated with ESG scores.*
H2: *Tobin´s Q is positively and significantly associated with ESG scores.*

4.3.3 Moderator effect: Total quality management TQM

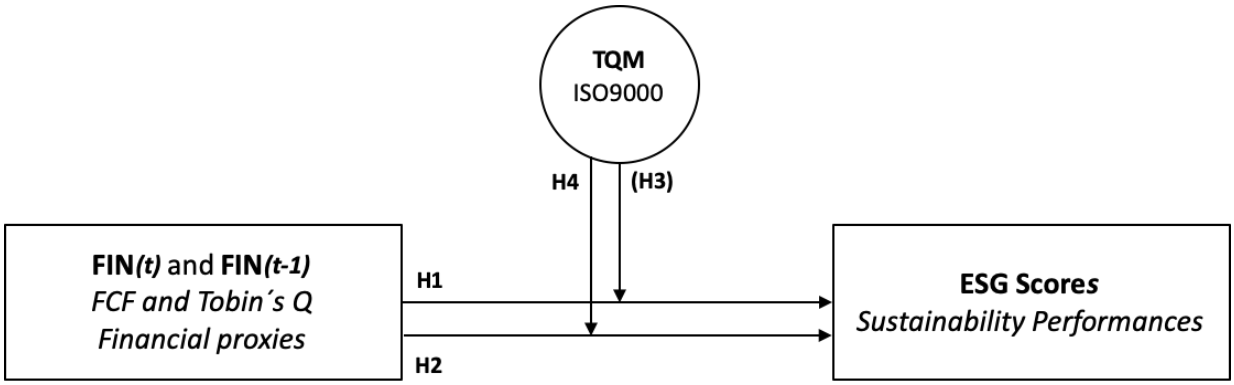
TQM is an established management philosophy that aims to increase organizations´ profitability and productivity by integrating all internal functions in order to continuously improve system quality and deliver superior value (Kumar et al., 2009; Mehralian et al., 2016). It is a managerial tool that seeks to prevent rather than detect defects, by allowing managers and employees to continuously improve the value adding processes within the organization (Kaynak, 2003; Pipatprapa et al., 2017). In fact, prior empirical studies conducted in different industries and countries highlight a positive and significant relationship between TQM and performance (Bou-Llusar et al., 2009; Douglas and Judge, 2001; García-Bernal and Ramírez-Alesón, 2015). Given that, ISO 9000 certification has been commonly used as a proxy of TQM (Chaudary et al., 2014; Para-González and Mascaraque-Ramírez, 2018). It identifies regulatory requirements that will enable organizations to meet quality standards (Marimon et al., 2009). These practices aid the development of environmental management and socially responsible activities (Curkovic, 2003; Withanachchi et al., 2007). Molina-Azorín et al. (2009) state that quality management´s aim of zero defects is closely related to environmental management´s goal of no waste. In addition, some studies show that quality management facilitates the implementation of environmental management initiatives (Darnall and Edwards, 2006; Klassen and McLaughlin, 1993). However, the controversy remains in assessing the outcome of implementing TQM and estimating its effects on the financial situation and value of the firm (Hendricks and Singhal, 2001).

While the bulk of the literature widely assesses the effect of environmental management systems on organizational performance (ISO 14001 and ISO 26000) (Castro et al., 2016; Schwartz and Tilling, 2009; Wiengarten and Pagell, 2012), we mainly investigate the "quality factor" (ISO 9000) on the FIN-ESG interconnection. We consider that this would have higher implication in the field, since environmental standards might have a cofounding effect with ESG indicators. On the one hand, quality management could be perceived as an alternative tool of cash resources in terms of ESG performance. Organizations with ISO 9000 certification might benefit from the role of TQM and diminish their reliance on FCF to improve their ESG scores. Moreover, TQM qualification induces some costs and requires capital investments (i.e., training and information costs, measurement systems, and certification) (Hendricks and Singhal, 2001); this might generate a negative effect on the FCF-ESG nexus (Chaudary et al., 2014), at least on the short-run. This negative association may be described as an "opportunity cost" as organizations allocate a certain budget for TQM implementation instead of ESG investments. On the other hand, TQM is perceived as a "competitive advantage" enhancing firm profitability, stock returns, and firm´s market value (Easton and Jarrell, 1998; Hendricks and Singhal, 2001); thus, it is anticipated to reveal a positive effect on Tobin´s Q-ESG link. Based on the literature described above, the following hypotheses are formulated:

H3: *TQM negatively moderates the relationship between FCF and ESG.*
H4: *TQM positively moderates the relationship between Tobin´s Q and ESG.*

Figure 1 displays the model of the study and the formulated hypotheses.

Figure 1. Framework of the study



†**Note:** Hypothesis (H3) between parenthesis: negative association between TQMFCF and ESG

4.4. Methodological framework

The following section consists of the sample of the study, research design and descriptive analysis.

4.4.1 Sample and definition of the variables

Since 2002, Thomson Reuters ESG assessment has been commonly used in the literature to evaluate firms´ performance taking into account a set of social and environmental issues (Huber et al., 2017). After acquiring Asset4 in 2009, the screening process and the ESG ratings have been revealing some improvement. Thomson Reuters provides ESG scoring for over 6000 companies relying on more than 400 metrics and comprehensive indicators. Recently, financial analysts and investors have been extensively adopting these indices as benchmarks for ESG practices and financial market comparison (Huber et al., 2017). Using Thomson Reuters Eikon database (Thomson Reuters ESG Scores, 2017), the sample of this study relies on the top 3000 ranked companies based on their market capitalization from 2012 to 2018. Organizations which only have up to two years of reported ESG scores, are removed from the dataset. However, due to some missing information, the final sample used to perform the regression analysis, consists of 1115 firms and 6690 firm-year observations. Table 1 provides information about the variables used in the empirical analysis.

Table 1. Summary of the measures and variables of the study.

Name	**Abbreviation**	**Measures:** Panel data (from 2012 to 2018)
Dependent Variables		
Environmental score	ENV	3 environmental practices: resource management and use (20 parameters with 11% weight); emissions (22 parameters with 12% weight); innovation (19 parameters with 11% weight). Continuous variable between 0 and 100.
Social score	SOC	4 societal practices: workforce (29 parameters with 16% weight); human rights (8 parameters with 4.5%weight); community (14 parameters with 8% weight); product responsibility (12 parameters with 7% weight). Continuous variable between 0 and 100.
Governance score	GOV	3 corporate governance practices: management (34 parameters with 19% weight); shareholders (12 parameters with 7%weight); CSR strategy (8 parameters with 4.5% weight). Continuous variable between 0 and 100.
Overall ESG score	ESG	An overall score of environmental, social and corporate governance performance. Continuous variable between 0 and 100.
Independent Variables		
Free cash flow One-year lag free cash flow	$FCF_{(t)}$ $FCF_{(t-1)}$	Measure of financial performance: operating cash flow less capital expenditures.
Tobin´s Q One-year lag Tobin´s Q	Tobin´s $Q_{(t)}$ Tobin´s $Q_{(t-1)}$	Market-based financial measure: the total market value divided by the total asset value.

Moderator		
Total quality management	TQM	A dichotomous variable:1 if the firm has ISO 9000 certification; 0 otherwise.
Control Variables		
Firm´s size	SIZE	Total assets of the firm
Beta	BETA	A measure of stock volatility and firm riskiness.
Fixed effects		
Year	Year	Dummies for each year from 2012 to 2018
Country	Country	Dummies for each of the 23 countries: Austria, Belgium, Canada, China, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Korea, Luxembourg, Netherlands, Norway, Poland, Portugal, Russia, Spain, Switzerland, Sweden, United Kingdom UK, and US.
Industry	Industry	Dummies for each industry, as example: banking and investment services, real estate, chemicals, food and beverages, retailers, telecommunications, utilities, automobiles, etc.

†**Note:** the calculation and explanation of the parameters for each ESG dimension and overall ESG score are based on the definition provided by Thomson Reuters Eikon database

4.4.2 Research design

A distributed lag regression model is suggested to test the formulated hypotheses and to provide statistical evidences on the association between FIN performance and ESG. It is perceived as a well-established tool when: the estimation model includes multiple variables (Evans, 1991), investigates an interaction effect (i.e., moderator) (Allison, 1977), and for time series or panel data. The lag model specification is considered as a dynamic approach, considering the time factor and tracing the correlation between ESG and lag of FIN variables. As the impact of FIN performance on ESG scores might not be translated immediately, current *(t)* and one-year lagged *(t-1)* of FCF and Tobin´s Q are included in the equation models (sub-equations are conducted for each dimension of the ESG score) Eq. (A.1) and Eq. (A.2). To run the estimations, the integrated software package STATA (version 14.2) is used to perform the statistical analysis. Panel regression analysis is conducted using fixed effects method for both estimations. For robustness check, ordinary least square (OLS) method is performed (Appendix A) for Eq. (A.1) and random effects (including dummy variables for industry, country, and year) for Eq. (A.2).

$$ESG_{(i,t)} = \beta_0 + \beta_1 FCF_{(i,t)} + \beta_2 FCF_{(i,t-1)} + \beta_3 Tobin´s\ Q_{(i,t)} + \beta_4 Tobin´s\ Q_{(i,t-1)} + \beta_5 CONTROLS_{(i,t)} + \varepsilon_{(i,t)} \quad \text{Eq. (A.1)}$$

$$ENV_{(i,t)} = \beta_0 + \beta_1 FCF_{(i,t)} + \beta_2 FCF_{(i,t-1)} + \beta_3 Tobin´s\ Q_{(i,t)} + \beta_4 Tobin´s\ Q_{(i,t-1)} + \beta_5 CONTROLS_{(i,t)} + \varepsilon_{(i,t)}$$

$$SOC_{(i,t)} = \beta_0 + \beta_1 FCF_{(i,t)} + \beta_2 FCF_{(i,t-1)} + \beta_3 Tobin's\ Q_{(i,t)} + \beta_4 Tobin's\ Q_{(i,t-1)} + \beta_5 CONTROLS_{(i,t)} + \varepsilon_{(i,t)}$$

$$GOV_{(i,t)} = \beta_0 + \beta_1 FCF_{(i,t)} + \beta_2 FCF_{(i,t-1)} + \beta_3 Tobin's\ Q_{(i,t)} + \beta_4 Tobin's\ Q_{(i,t-1)} + \beta_5 CONTROLS_{(Iit)} + \varepsilon_{(i,t)}$$

$$ESG_{(i,t)} = \beta_0 + \beta_1 FCF_{(i,t)} + \beta_2 FCF_{(i,t-1)} + \beta_3 Tobin's\ Q_{(i,t)} + \beta_4 Tobin's\ Q_{(i,t-1)} + \beta_5 TQM_{(i,t)} - \beta_6 FCF_{(i,t)} * TQM_{(i,t)} + \beta_7 Tobin's\ Q_{(i,t)} * TQM_{(i,t)} + \beta_8 CONTROLS_{(i,t)} + \varepsilon_{(i,t)}$$

Eq. (A.2)

4.4.3 Control variables and descriptive statistics

According to prior studies, the control variables which are commonly identified in the assessment of the FIN-ESG nexus are firm risk, size, research and development (R&D), and industry (Mahoney and Roberts, 2007; Makni et al., 2008; Ullman, 1985). Waddock and Graves (1997) indicate that there is a different "comportment" between large and small organizations in terms of prosocial engagement and behaviors. Hence, smaller companies might exhibit less interest toward ESG performances and rather focus on financial and market survival. As for firm's riskiness, Roberts (1992) claim that low-risk organizations are perceived to have a certain level of stability, which enhances their environmental and social practices. Due to limited data availability of R&D variables, only total assets (SIZE) and beta factor (BETA) are used as proxies to measure firm's size and firm´s riskiness, respectively. We anticipate that larger organizations with low level of risk tend to exhibit higher ESG performances.

Table 2 provides an overview of the descriptive analysis with means and standard deviations of the variables included in the study. To overcome the effect of possible spurious outliers in the estimation models and to approximate a normal distribution, all the variables are winsorized at 95% percentiles (Dixon, 1960; Ghosh and Vogt, 2012).

Table 2. Descriptive analysis

Variable	**Observation**	**Mean**	**Std. Dev.**	**Minimum**	**Maximum**
ENV	11.633	59.64	22.40	20.6	92.35
SOC	11.633	58.03	20.56	20.04	90.22
GOV	11.634	55.47	20.26	18.46	87.18
ESG	11.634	57.80	17.073	27.19	84.2
FCF	10.468	7.38e+08	1.21e+09	-6.40e+08	4.55e+09
Tobin´s Q	11.786	1.28	1.30	0.11	18.46
TQM	11.634	0.33	0.47	0	1
SIZE	11.831	3.76e+10	6.55e+10	1.09e+09	2.63e+11
BETA	8.114	0.99	0.42	0.32	1.8

To check for multicollinearity among the variables, Pearson correlation and variance inflation factors (VIF) (Table 3) tests have been conducted. The results indicate no serious multicollinearity in the dataset. As for the VIF test, in large sample size, the cutoff points are less restrictive, with 10 points as threshold for VIF (Hair et al., 1995; Hair et al., 2010). As predicted, FCF, TQM, and SIZE are positively and significantly correlated with ESG (*p*-value <0.01). However, contrary to our expectations, ESG is negatively and positively correlated with Tobin´s Q and BETA, respectively. These results provide preliminary support to conduct the regression analysis.

Table 3. Pairwise correlation matrix and variance inflation factors

	ESG	*FCF*	*Tobin´s Q*	*TQM*	*SIZE*	*BETA*	**VIF**
ESG	1.000						
FCF	0.335***	1.000					3.71
Tobin´s Q	-0.146***	-0.079***	1.000				5.86
TQM	0.246***	0.038***	-0.019**	1000			2.77
SIZE	0.320***	**0.528*****	-0.363***	-0.081***	1000		1.64
BETA	0.024**	0.038***	-0.074***	0.046***	0.139***	1000	1.02

** p<0.1, ** p<0.05, *** p<0.01.*

4.5. Results and discussion

This section discusses the results of the general analysis, moderator effect, and comparative cross-national analysis.

4.5.1 General analysis: FIN-ESG nexus

In accordance with the panel data structure of the dataset of this study, the Hausman test has been conducted (Hausman, 1978). The result indicates that fixed effects models should be used. The fixed effects technique controls for unobservable firm heterogeneity and mitigates some statistical concerns as endogeneity issue, reversed causality, and correlated omitted variables (Nikolaev and van Lent, 2005). Four different estimations have been conducted. Model 1 displays the estimations for the overall ESG score; whereas Models 2, 3, and 4 show the results of the segregate scores for each dimension: environmental (ENV), social (SOC), and governance (GOV), respectively. All four estimations are statistically significant at *p*-value < 0.01. The explanatory power of the independent variables i.e., FIN indicators is higher for the variance of ESG, ENV and SOC scores than the GOV dimension. Overall, these results indicate that financial performance has a higher statistical effect on the environmental and social pillars of sustainability practices (Table 4).

Table 4. Distributed lag estimation for the general analysis with standard errors in parentheses

Variables		Model 1: ***ESG***		Model 2: ***ENV***		Model 3: ***SOC***		Model 4: ***GOV***	
	Sign	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
Constant		**54.928** (0.6202)	0.000	**55.040** (0.8026)	0.000	**54.461** (0.8216)	0.000	**54.9984** (1.0244)	0.000
FCF(t)	+	**4.40e-10** (1.34 e-10)	0.001	**6.05e-10** (1.73 e-10)	0.000	**4.07e-10** (1.77e-10)	0.022	2.78e-10 (2.21e-10)	0.208
FCF(t-1)	+	**4.60e-10** (1.39 e-10)	0.001	**7.10e-10** (1.80 e-10)	0.000	**6.05e-10** (1.84e-10)	0.001	1.12e-10 (2.29e-10)	0.626
Tobin´s Q(t)	+	-0.0405 (0.1552)	0.794	-0.1003 (0.2008)	0.618	-0.0929 (0.2056)	0.651	0.1295 (0.2563)	0.613
Tobin´s Q(t-1)	+	**0.3142** (0.1570)	0.045	-0.1146 (0.2032)	0.573	**0.5854** (0.2080)	0.005	0.2358 (0.2593)	0.363
SIZE	+	**1.13e-10** (1.13 e-11)	0.000	**1.38e-10** (1.47e-11)	0.000	**1.23e-10** (1.50e-11)	0.000	**7.30e-11** (1.87e-11)	0.000
BETA	-	0.1870 (0.4501)	0.678	**1.3040** (0.5825)	0.025	0.2848 (0.5962)	0.633	-0.9758 (0.7434)	0.189
Fixed effects									
Firm		Yes		Yes		Yes		Yes	
Industry		Yes		Yes		Yes		Yes	
Country		Yes		Yes		Yes		Yes	
Year		Yes		Yes		Yes		Yes	
# Obs.		6690		6690		6690		6690	
R-sq.		0.1103		0.1015		0.0931		0.0316	

To interpret the results of the financial proxies, FCF*(t)* and FCF*(t-1)* reveal a positive and statistically significant association (*p*-value < 0.01) with the overall ESG score and with each segregate dimension except for GOV. This provides **support to hypothesis H1**. These findings propose that both current and one-year lag of FCF are perceived as a pre-requisite of higher overall ESG score. Organizations with higher cash liquidity tend to invest more in sustainability practices, in particular in ecological and social projects. These findings confirm the results of Bansal (2005) and Waddock and Graves (1997). They state that organizational slack and financial capacity enable firms to engage in ESG practices. While, Artiach et al. (2010) do not find any significant result in this regard, other study reveals negative association between FIN and corporate social responsibility spending in the African context (Julian and Ofori-Dankwa, 2013). Additionally, Tobin´s Q*(t)* reveals non-significant results in all the four estimation models. From this analysis, we cannot make any inference in terms of the association between firm value and its effect on sustainability performances. Hence, **hypothesis H2 is not supported.** However, Tobin´s Q*(t-1)* shows positive and statistically significant effect with overall ESG score (*p*-value < 0.05) and SOC dimension (*p*-value < 0.01).

thus, this finding can be interpreted as high valued organizations (for one-year lag Tobin's Q*(t-1)*) tend to have higher ESG scores which are mainly driven by the social dimension (SOC).

To capture the effect of the control variables, the findings indicate a positive and statistically significant coefficients of SIZE in all the four models (p-value < 0.01). The positive association between SIZE and ESG confirm the findings of prior studies (Artiach et al., 2010; Ortas et al., 2015) indicating that larger organizations tend to invest more in ESG practices and implement higher sustainability performance. In contrast, BETA does not reveal any statistically significant association with ESG, except for Model 2 for ENV dimension (p-value < 0.05). As a robustness check, ordinary least squares regression (OLS) is conducted, revealing consistent results with the above analysis, except for Tobin´s Q measures. Opposite to the fixed effects model, OLS reveals negative and significant association between Tobin´s Q*(t)* and overall ESG, ENV and SOC dimensions (Appendix A).

4.5.2 The moderating role of TQM

Table 5 displays the results of the estimation of equation Eq. (A.2) which examines the moderating effect of TQM on the relationship between FIN indicators and ESG scores. Model 1 represents the results with fixed effects and for robustness check, Model 2 includes country, industry, and year fixed effects. Model 1 shows that when we include the moderating effect of TQM in the equation, FCF*(t)* and FCF*(t-1)* maintain a positive and significant effect on the overall ESG score (p-value < 0.01). Besides, the effect of Tobin´s Q*(t)* is non-significant, and the effect of Tobin´s Q*(t-1)* remains positive and marginally significant (p-value < 0.1). Furthermore, both models 1 and 2 reveal statistically significant and positive association between TQM and ESG (p-value < 0.01). Prior studies show similar findings providing evidences to support a positive relation, first between ISO 9000 and overall firm performance (Kumar et al., 2009) and second between ISO 9000 and corporate environmental practices (King and Lenox, 2009). Regarding the moderator effect, the results show that, as anticipated, TQMFCF has a negative and significant effect on the overall ESG score (p-value < 0.01). Hence, organizations that implement TQM have, on average, a lower effect of FCF on ESG score than organizations that do not implement TQM; thus, **giving support to hypothesis H3**. As argued previously, companies that implement TQM, reduce the need

to rely on financial capital to improve their ESG scores, due to the fact that TQM enables the development of sustainability initiatives within organizations (Curkovic, 2003; McAdam and Leonard, 2003; Withanachchi et al., 2007). Moreover, TQM certification requires some investments and increases costs (Hendricks and Singhal, 2001), leading to a negative impact on ESG investments.

Additionally, TQMtobin´s Q has positive and significant relationship with the overall ESG score (p-value < 0.01), indicating that Tobin´s Q*(t)* has a greater effect on the ESG score for organizations that are implementing TQM, **giving support to hypothesis H4**. The importance of the result revealed in Model 1 emphasizes the crucial role of TQM as a moderator factor mitigating the negative association between Tobin´s Q and ESG and improving its statistical significance. The latter highlights interesting managerial implications, such as the positive contribution of TQM certification to firm market value. ISO 9000 standards are perceived by investors as "internal benefit" influencing positively Tobin´s Q measure (Corbett et al., 2005).

Model 2 confirms the results for the effects of FCF*(t)*, FCF*(t-1)* and TQMFCF on the overall ESG scores. However, results regarding Tobin´s Q*(t)*, Tobin´s Q*(t-1)* and TQMtobin´s Q remain inconclusive, as they depend on the estimation method. As for control variables, the findings remain consistent for both models with respect to the general analysis, showing significant results only for SIZE (p-value < 0.01) with the expected positive sign.

Table 5. Distributed lag estimation for TQM moderator effect with standard errors in parentheses

Variables		**Model 1**		**Model 2**	
ESG	Sign	Coef.	p-val.	Coef.	p-val.
Constant		**53.886**	0.000	**62.543**	0.000
		(0.6476)		(5.3974)	
FCF(t)	+	**6.69e-10**	0.000	**8.78e-10**	0.000
		(1.62e-10)		(1.91e-10)	
FCF(t-1)	+	**4.55e-10**	0.001	**4.67e-10**	0.000
		(1.38e-10)		(1.22e-10)	
Tobin´s Q(t)	+	-0.2278	0.173	**-0.4115**	0.043
		(0.1674)		(0.2033)	
Tobin´s Q(t-1)	+	**0.3048**	0.051	-0.1554	0.324
		(0.1561)		(0.1574)	
SIZE	+	**1.10e-10**	0.000	**7.35e-11**	0.000
		(1.13e-11)		(7.43e-12)	
BETA	-	0.1783	0.690	0.4220	0.340
		(0.4475)		(0.4225)	
Moderator					
TQM	+	**2.7765**	0.000	**4.0291**	0.000

		(0.6575)		(0.7429)	
TQMFCF	-	**-5.63e-10**	0.009	**-7.53e-10**	0.002
		(2.15e-10)		(2.44e-10)	
TQMtobin´s Q	+	**0.8164**	0.004	0.1848	0.582
		(0.2863)		(0.3361)	
Fixed effects					
Firm		Yes		No	
Country		Yes		Yes	
Industry		Yes		Yes	
Year		Yes		Yes	
# Obs.		6690		6690	
R-sq.		0.1506		0.3025	

4.5.3 Cross-national comparative analysis: between US and non-US firms

At a cross-national level, the triple mechanism of sustainability management, financial performance, and corporate governance reveals some discrepancies among countries, and more specifically between the US, Europe, and Asia (Rubach and Sebora, 1998). Whereas the American context is known to be widely driven toward shareholders' interests, prioritizing wealth and profit maximization (Hofstede, 1980); the European paradigm takes into account a broader concern toward financial and non-financial goals in most of strategic and corporate agendas (Delbard, 2008). Similarly, in terms of TQM, ISO 9000 has been adopted all over the world for several reasons depending on the objective of each country, at a different pace (Chow-Chua, 2003). Generally speaking, the ultimate purpose of implementing quality standards is to enhance international trade and improve competitiveness (Withers and Ebrahimpour, 2000). Described as a "formal evidence", this certification is perceived as a key to enter global markets. Given that, from the US perspective, the crucial role of ISO relates to the creation of competitive advantage for business legitimacy; whereas for other settings, ISO implementation basically aims to ensure stakeholders´ satisfaction and improve environmental performances (Franceschini, 2002; Matten and Moon, 2008).

Accordingly, this additional analysis attempts to identify empirically and to highlight the potential country differences in the FIN-ESG association. The estimation relies on the same original sample, but forming two-sub groups of firms classified as US and non-US. For the sake of this analysis, the US sub-sample consists of firms headquartered in the US; whereas the non-US group comprises the remaining firms (i.e., Canada, China, EU, Japan, and Korea). Table 6 displays the results of both the general

analysis (Model 1:US and Model 2: non-US) and the moderation effect (Model 3: US and Model 4: non-US).

Table 6. Distributed lag estimation for cross-national analysis with standard errors in parentheses

		General analysis				Moderator effect			
Variables		**Model 1: US**		**Model 2: non-US**		**Model 3: US**		**Model 4: non-US**	
ESG	Sign	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
Constant		**52.533** (0.9169)	0.000	**56.801** (0.8348)	0.000	**51.776** (0.9230)	0.000	**54.487** (0.8625)	0.000
FCF(t)	+	**1.15e-09** (2.25e-10)	0.000	**5.73e-10** (1.52e-10)	0.000	**1.05e-09** (2.37e-10)	0.000	**1.15e-09** (2.01e-10)	0.000
FCF(t-1)	+	**1.31e-09** (2.36e-10)	0.000	**5.66e-10** (1.56e-10)	0.000	**1.23e-09** (2.34e-10)	0.000	**5.76e-10** (1.56e-10)	0.000
Tobin´s Q(t)	+	-0.0125 (0.1897)	0.948	**-0.5564** (0.2401)	0.020	-0.1487 (0.1997)	0.457	**-0.6340** (0.2702)	0.019
Tobin´s Q(t-1)	+	0.1417 (0.2001)	0.479	**0.3859** (0.2268)	0.089	0.1557 (0.1983)	0.433	0.3489 (0.2255)	0.122
SIZE	+	**1.01e-10** (1.14e-11)	0.000	**7.14e-11** (7.51e-12)	0.000	**1.01e-10** (1.12e-11)	0.000	**6.90e-11** (7.30e-12)	0.000
BETA	-	-0.8889 (0.5672)	0.117	**1.2391** (0.5873)	0.035	**-1.0868** (0.5624)	0.053	**1.1361** (0.5814)	0.051
Moderator									
TQM	+					**4.0239** (1.0371)	0.000	**5.5190** (0.6966)	0.000
TQMFCF	-					3.03e-10 (3.84e-10)	0.430	**-1.1e-09** (2.49e-10)	0.000
TQMtobin´s Q	+					**0.8743** (0.4169)	0.036	0.1690 (0.3459)	0.625
# Obs.		2898		3792		2898		3792	
R-sq.		0.2071		0.0843		0.2282		0.1552	

Both estimations are globally significant at p-value < 0.01. From Table 6, the results indicate that the explanatory power of the independent variables and controls is higher for explaining the variance of ESG in the US context than in the non-US setting. Similar to the former analysis, the findings are consistent in terms of FCF*(t)*, FCF*(t-1)*, and SIZE, revealing a significant and positive relationship (*p*-value < 0.01). This result might be interpreted that for the US organizations, the liquidity factor (i.e., FCF*(t)* and FCF*(t-1)*) plays a fundamental role to explain ESG investments, whereas firm market value as Tobin´s Q measure is not significantly related to sustainable performances. The clear dissimilarity in the general analysis between the US and non-US samples is Tobin´s Q*(t)*, Tobin´s Q*(t-1),* and BETA. In contrast to the US sub-sample, Model 2 indicates a positive and slightly significant association between Tobin´s Q*(t-1)* (*p*-value < 0.1), BETA (*p*-value < 0.05) and ESG, and significant and negative association between Tobin´s Q*(t)* (*p*-value < 0.05) and ESG. The inference from these results

underlines the ambiguity of the link between firm value and ESG. From the revealed signs and the correlation coefficients (Tobin´s Q*(t)* and Tobin´s Q*(t-1)*) (in Model 2-non US firms), we might implicitly note that the shape of the nexus of Tobin´s Q and ESG is not a linear relationship rather than curvilinear. The latter shape of the link between financial performance and sustainability has been addressed in depth in the study developed by Barnett and Salomon (2012).

For the moderator estimation and regarding the non-US sub-sample, as predicted, TQM negatively moderates the association between FCF*(t)* and ESG (*p*-value < 0.01). As hypothesized previously, TQM requirements and costs might hinder ESG investments and influence short-term sustainable practices. Model 3 shows that for US firms, TQM moderates the nexus between Tobin´s Q*(t)* and ESG, first, by mitigating the negative sign of the correlation coefficient, as anticipated; and secondly by strengthening the statistical significance of the association (*p*-value < 0.05).

4.6. Conclusion

This study empirically investigates the nexus between FIN and ESG performances, examines the moderating role of TQM on this link, and sheds further light on the financial-sustainability association at a cross-national level. Extending prior studies´ findings, this analysis evaluates the impact of financial status on environmental, social, and governance practices.

4.6.1 Theoretical and practical implications

Considering the time factor (i.e., distributed lag estimation model), the findings provide robust statistical evidences supporting a stimulus effect of operational financial measure (i.e., FCF*(t)* and FCF*(t-1)*) on ESG scores. In accordance with the premises of the slack resource theory, firms' liquidity is perceived as a "trigger" or "enhancer" of ESG performances. In terms of the managerial implications, organizations with capital flush tend to score higher ESG, thus pursuing better sustainability management. In contrast, no conclusive inference can be induced in regard to Tobin´s Q and its effect on ESG performances. The theoretical implications of this study call for attention to the fact that not all financial indicators (i.e., future market performance as measured by the Tobin's Q) are able to lead to consistent sustainable investment in all instances. This double-edged inference provides grounds for further empirical investigation in terms of

present and future indicators of financial performance vis-à-vis sustainability management.

As for the moderating role of TQM on the FIN-ESG association, the above findings emphasize the conceptual contribution of the operations management discipline to the finance-sustainability literature. Quality management standards provide clearer understanding of the impact of financial performances on the implementation of sustainability investments. As for the managerial implication, companies that implement TQM alleviates the need to rely on financial capital toward improving ESG scores. In addition, the results show a dual effect of TQM on the Tobin's Q-ESG relationship, first by improving its statistical significance and secondly by modifying the sign of its correlation coefficient to a positive direction. At a broader scale, the practical inference of these findings might be implicitly translated by the interplay between tangible assets and intangible assets and their impact on ESG practices.

At a cross-national level, the results suggest a consent toward the "antecedent" role of financial status with regard to ESG practices, for both US and non-US organizations, particularly in terms of free cash flow. At a global scale, the "green" revolution and the 2030 Agenda of the United Nations for Sustainable Development tacitly might influence the strategic planning and the financial budgeting of multinational firms to further allocate slack resources dedicated to ecological and societal activities. The differential effect of Tobin's Q on sustainability performances between the US and non-US contexts calls for attention to further investigate the significance of the contingencies of governance systems and institutional mechanisms.

4.6.2 Limitations and future directions

Behind our empirical analysis, there are always some caveats to be acknowledged. First, although we believe that the inclusion of both financial operational indicators and market-based measures strengthens the analysis, we consider that there is still room for improvement to attain more accurate evidences on the FIN-ESG interconnection. Additional studies are well placed to further examine conceptually the discrepancy among financial proxies, and more specifically, firm market valuation vis-à-vis sustainability. In regard to the moderator analysis, future conceptual research might contribute to the sustainability literature by addressing the dual theoretical

frameworks of quality management theory and slack resources theory. Moreover, another limitation of this study is the number of control variables included in the analysis. Due to some limited data availability, only firm´s size and firm´s riskiness were used as controls. Future studies might rely on different control variables such as research and development intensity and advertising intensity.

Second, we recognize that the Thomson Reuters ESG index might not reflect a "holistic" proxy for sustainability performances. The reliability of the index and the assessment process cannot be demonstrated, which indicate certain constraints hindering the assertion of our conclusion. Therefore, future work would be recommended to replicate this study adopting alternative indices or relying on primary data to improve the internal validity of the findings revealed. In addition, based on the results obtained in our analysis, the governance dimension (GOV) of the ESG score does not reveal any significant findings. Therefore, future research is recommended to further investigate first the assessment criteria of the governance measure in sustainability indices, and second their impact on ESG practices.

Notwithstanding the abovementioned limitations, this study highlights new insights into the synergetic effect between FIN and ESG and documents the important role of TQM in moderating this relationship. It encompasses the theoretical framework of the slack resources paradigm, bridging the impact of firm's quality management and liquidity on sustainability. Finally, a rhetorical inference that accentuates the corporate gap between "large" and "small" organizations toward sustainability adoption. This could be due either to scarcity of financial resources or reliance on other organizational factors, restraining and/or replacing the acquirement of TQM certification, and by modifying organizational strategic agenda prioritizing financial survival over environmental, social, and governance investments.

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Appendix A

OLS linear simple regression with robust standard errors

		General analysis							
Variables		***ESG***		***ENV***		***SOC***		***GOV***	
	Sig	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
Constant		**62.523** (3.1624)	0.000	**62.931** (4.1186)	0.000	**65.563** (3.8643)	0.000	**63.415** (4.2630)	0.000
FCF(t)	+	**2.14e-09** (2.46e-10)	0.000	**2.47e-09** (3.21e-10)	0.000	**2.35e-09** (3.01e-10)	0.000	**1.51e-09** (3.32e-10)	0.000
FCF(t-1)	+	**1.81e-09** (2.53e-10)	0.000	**2.21e-09** (3.29e-10)	0.000	**2.19e-09** (3.09e-10)	0.000	**1.12e-09** (3.41e-10)	0.001
Tobin´s Q(t)	+	**-1.3480** (0.3078)	0.000	**-1.5383** (0.4008)	0.000	**-1.7296** (0.3761)	0.000	-0.6278 (0.4149)	0.114
Tobin´s Q(t-1)	+	-0.1838 (0.3141)	0.549	-0.3248 (0.4091)	0.423	0.1821 (0.3838)	0.631	-0.5402 (0.4234)	0.191
SIZE	+	**5.51e-11** (5.09e-12)	0.000	**7.06e-11** (6.63e-12)	0.000	**6.51e-11** (6.22e-12)	0.000	**3.31e-11** (6.87e-12)	0.000
BETA	-	-0.3453 (0.5023)	0.514	0.2139 (0.6541)	0.751	0.0596 (0.6137)	0.929	**-1.270** (0.6770)	0.069
Fixed effects									
Country		Yes		Yes		Yes		Yes	
Industry		Yes		Yes		Yes		Yes	
Year		Yes		Yes		Yes		Yes	
# Obs.		6690		6690		6690		6690	
R-sq.		0.3103		0.3124		0.3131		0.1349	

Chapter 5. Conclusion

To recapitulate, Chapters 2, 3 and 4 constitute the main body of this investigation. This final section draws the main conclusions derived from the three studies and highlights the managerial and practical implications related to the nexus between sustainable human resources, corporate governance and sustainability practices, which have been addressed independently in each of the abovementioned chapters. We consider that our research contribute to the ongoing debate of sustainability management literature, by combining both qualitative (Chapter 2) and quantitative (Chapters 3 and 4) research designs.

While the bulk of sustainability research address one level of analysis, this investigation adopts a multi-dimensional approach. The outcome of Chapter 2 provides 1) a triple model at individual, organizational, and national levels identifying the attributes of sustainable development; 2) definition of all green HRM functions; 3) assessment of the impact of SHRM on the three pillars of sustainability: economic, social and environmental. In Chapters 3 and 4, we provide robust and significant statistical evidences indicating that the characteristics of the board of directors play a key role toward sustainability practices. Moreover, we identify two distinctive "green profiles" of board of directors: in European firms, we reach to a conclusion that demographic determinants (age and gender) enhance sustainability performance; whereas in non-European context, structural characteristics (size and composition) are the catalyst of sustainability practices. In addition, tackling the interconnection between finance, total quality management and ESG (Chapter 4), we propose that firms with higher capital flush and higher liquidity have better sustainable practices. The distinctive feature of our research is that we provide a holistic analysis of sustainability discipline, relying on diverse theoretical frameworks under the umbrella of the "deontological obligation" view and reveal sound results using two different proxies of sustainability to mitigate the reliability issue and internal validity of our measures.

5.1. Managerial and practical implication

The implication of assessing the antecedents and outcomes of SHRM clearly reveals the benefits behind transforming organizations to "green" organisms at various levels such as addressing governmental pressures, fulfilling interests of social communities and

customers. However, from our systematic literature review (chapter 2), we couldn't explicitly highlight the added value of SHRM at employee level. We have noticed a clear absence of a green business systems, in particular for trade unions, that take into account the working force interests. Therefore, we consider that there is an emergent need to encompass human resources policies and regulations taking into account employees´ welfare and supporting the attainment of sustainable development goals. Moreover, the second implication is focused on accentuating the dynamic association between governance systems, board of directors and sustainability. From our analysis in Chapter 3, we can highlight a theoretical implication based on the premises of the stakeholder theory confirming the symbiotic effect between the dual goal of corporate governance of maximization of profit and stakeholders´ value. As for the practical implication, future corporations are encouraged to build a sustainable governance systems encouraging female participation, increasing the size of the board and the formation of committees, and assigning mid-aged directors. The discrepancies of the board determinants between EU and non-EU contexts are translated as re-shaping the corporate and strategic priorities of companies, by synchronizing the following components: board structure, stakeholders' management, and public policies perceived as a pre-requisite to improve sustainability practices. In Chapter 4, we suggest both theoretical and managerial implications. This study highlights a conceptual inference indicating a discrepancy between financial indicators (i.e., liquidity and firm value) toward sustainability performances. While, we can explicitly state that firm´s liquidity (free cash flow) plays a keen role in sustainability management, this cannot be assertive for firm´s valuation (Tobin´s Q). This two-edged implication calls for attention to further investigate the present and future financial proxies and their association with environmental and social practices. Moreover, in Chapter 4, we clearly emphasize on the theoretical contribution of the operations management discipline to the finance-sustainability nexus. Organizations with total quality management standards lessen their need to rely on financial capital to improve sustainability.

5.2. Limitations and future direction

Although sustainability management has become a common language among scholars and has been widely investigated through various studies and by several theoretical premises, there is still room for further lines of research to better articulate this concept. Firstly, there is a lack of a "unified" theory engendering the whole phenomenon of

sustainability. Future research might consider to build new theoretical framework combining Bandura's Social Learning Theory and Parson's Social System Theory to better translate the transformation of sustainable organizations. In addition, there is a need to identify an assessment tool to evaluate the post-implementation of sustainability management to improve its applicability and to monitor its outcome at corporate level. To mitigate the complexity of sustainability, experimental designs are recommended to provide further evidences related to a cause-effect relationship between human resources, corporate governance, and sustainability performances. In the same vein, in addition to the examination of the board characteristics and financial indicators, future research may address the underlying effect of chief executive officers and chief financial officers on sustainability practices. Additional research are well placed to conceptually investigate the inconsistency among financial proxies, and in particular, firm market valuation vis-à-vis sustainability.

The main limitations of this investigation are articulated as follow. In Chapter 2, the qualitative design and the limited sample of articles included in the content analysis might be perceived as a constraint influencing the external validity of our inferences. Therefore, conducting further empirical and statistical research might strengthen our findings on elaborating on the role of sustainable human resources management and "greening" of organizations. In Chapters 3 and 4, the main shortcoming is the reliability of the two indices DJSI and the Thomson Reuters ESG used as proxies of sustainability. Although they are widely used in previous studies, we cannot extrapolate our conclusions due to the existence of other sustainability metrics.

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