

Green human resource management and corporate social responsibility

Evidence from Brazilian firms

GHRM and
CSR

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Wesley Ricardo de Souza Freitas

Universidade Federal de Mato Grosso do Sul, Paranaíba, Brazil

Jorge Henrique Caldeira-Oliveira

Faculdade de Economia, Administração e Contabilidade de Ribeirão Preto, Ribeirão Preto, Brazil

Adriano Alves Teixeira

Department of Administration, Universidade Federal de Mato Grosso do Sul, Paranaíba, Brazil

Nelson Oliveira Stefanelli

FUCAPE Business School, Vitória, Brazil and Universidade Santa Ursula, Rio de Janeiro, Brazil, and

Talita Borges Teixeira

Department of Production Engineering, São Paulo State University, Bauru, Brazil

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Abstract

Purpose – In the past, simply fulfilling economic performance alone was critical to ensuring the success of companies and their shareholders, but this traditional perspective is not compatible with society's current demands, as there is increasing social pressure on organizations to become more sustainable and reduce impacts on the environment, promoting sustainable results in their business processes. In this context, the specialized literature states that human resources management (HRM) is considered a central aspect for building sustainable organizations, in particular, the area of green human resources management (GHRM). Thus, this study analyzes the relationship between GHRM and corporate social responsibility (CSR) in Brazilian companies. Company's age, size, ISO 9001 and 14001 certifications are the control variables.

Design/methodology/approach – The authors adopted a quantitative approach in conducting the survey. Four waves of email were sent to HR and CSR managers from 853 Brazilian companies from the metallurgical, automotive and chemical industries. In total, 79 questionnaires were fully answered, higher than the minimum sample calculated by the G*Power 3.1 software, which corresponds to a return rate of 9.26%. For the analysis of the results, the partial least squares method was used.

Findings – This research identifies that GHRM practices, in fact, positively influence CSR practices. The findings evidence that practices of performance evaluation, teamwork and recruitment and selection are the most important for a better CSR performance. The research results indicate that the "ISO 9001 certification" control variable also has a positive and significant effect on CSR and that the size of the company, the age of the company and the ISO 14001 certification, in the analyzed sample, were not relevant (as control variables) for CSR.

Originality/value – Current literature highlights the gap between GHRM and CSR. This relationship is not explored in Brazil. The study uses a new theoretical model, and it fills the gap identified in the literature. This paper brings important theoretical and managerial contributions. It is the first in the literature to show, in an empirical way, the positive relationship between GHRM and CSR, contributing in an original way to the state of



the art of the GHRM and CSR theme. In addition, this research adds empirical evidence on GHRM and CSR in Latin America/South America/Brazil.

Keywords Human resource management, Environmental management, Sustainability, Sustainable development goals, Structural equation modeling

Paper type Research paper

1. Introduction

In the past, fulfillment of economic performance was key to ensuring the success of companies and their shareholders; however, recent results present a new perspective (Kumar and Gupta, 2018). Organizations experience a growing social pressure to become more sustainable by reducing their impact on the environment and society (Yusliza *et al.*, 2017; Levkivska and Levkovych, 2017).

Thus, companies are recently adopting socially responsible business practices (Mishra, 2017; Tiba *et al.*, 2018) to generate sustainable results in their business processes (Fiandrino *et al.*, 2019), fulfilling their function as social systems and part of a wider society (Voegtlin and Greenwood, 2016).

In this context, true sustainable organizational strategy is considered vital for global organizations (Gholami *et al.*, 2016), and this scenario increases the challenges for human resources (HR) to act strategically (Yong and Mohd-Yusoff, 2016) on behalf of sustainability and act on the frontier between knowledge frontier.

Traditional studies on human resource management (HRM) introduce different perspectives on the financial and operating performance of businesses (Becker and Gehart, 1996; Delaney and Huselid, 1996; Huselid *et al.*, 1997; Guest, 2011). However, few studies have shown the integrative relationship between HRM and corporate social responsibility (CSR), though the current business environment stimulates value creation for these two areas (Jamali *et al.*, 2015). Thus, a comprehensive examination of the relationship between these two constructs is necessary (Voegtlin and Greenwood, 2016) since HRM has become the core aspect of organizational sustainability (Jabbour and Santos, 2008; Renwick *et al.*, 2013).

Therefore, HRM has a crucial role in helping companies expand their CSR efforts to achieve sustainable results (Jamali *et al.*, 2015). In this conjecture, Yusliza *et al.* (2017) recommend that future research should include the relationship between CSR and green human resource management (GHRM), because GHRM research field is extremely important for building sustainable organizations (Ren *et al.*, 2018).

GHRM includes not only awareness of environmental issues but also a wider perspective that considers the social and economic well-being of the organization and employees (Ahmad, 2015). This concept involves employees in CSR practices to benefit them, the organization and other interested parties (Voegtlin and Greenwood, 2016).

GHRM refers to the integration of HR practices with environmental management and has been the subject of several recent studies (Renwick *et al.*, 2012; Gunasekaran and Gallear, 2012; Kramar and Maiappanadar, 2015; Roca-Puig, 2019).

However, this relationship between GHRM and CSR remains unexplored and thus constitutes an invaluable research avenue for researchers (De Stefano-Bagdadi and Camuffo, 2018). Furthermore, this is the first study that empirically tests this framework with firms in Brazil, an emerging country and an important player for global sustainability

Thus, this research aims to determine whether GHRM positively influences the adoption of CSR practices using a sample of companies located in Brazil.

To achieve these objectives, this paper is thus divided: in addition to this introduction, Section 2 presents the conceptual framework and assumptions, Section 3, the methodological procedures, Section 4, the results and finally, Section 5, discussions and final remarks.

2. Conceptual framework and assumptions

2.1 Green human resource management (GHRM)

In recent years, GHRM has attracted the attention of academia and professionals worldwide (Yong *et al.*, 2019). It is seen as a current research trend capable of contributing to the organizations' sustainable development strategies, since it can improve both sustainability and competitiveness through the organizational and individual involvement of employees (Pham *et al.*, 2019), which enables a positive and significant performance (Dubey and Gunasekaran, 2015).

GHRM uses all contact points of the employees, whether within or outside the company, to promote sustainable practices and increase their commitment to sustainability (Kumar and Gupta, 2018). HR managers act as business partners that influence the adoption and implementation of environmental initiatives (Yusliza *et al.*, 2017). Thus, organizations must implement innovative GHRM practices that are compatible with their environmental objectives. By doing this, HR professionals understand and adjust to organizational values (Yong and Mohd-Yusoff, 2016) that help the organization meet the basic elements of environmental management and HRM integration. These elements include reduction in environmental impacts (Cheema and Javed, 2017) and in natural resources consumption. GHRM operates through functional HR practices such as recruitment, selection, training, performance evaluation and rewards (Table I) as well as strategic actions such as the organizational culture, teamwork and empowerment (Jabbour *et al.*, 2013a, b; Renwick *et al.*, 2013; Jabbour and Jabbour, 2016).

Among the GHRM practices, training (GHRM 1) practice is essential (Jabbour *et al.*, 2013a, b; Teixeira *et al.*, 2016) in improving environmental management in organizations (Perron *et al.*, 2006), as it highlights safety issues to employees regarding their ability to perform their work (Gruman and Saks, 2011).

Environmental training, according to Jabbour *et al.* (2009) and Teixeira *et al.* (2016), should involve all the employees of an organization, including outsourced employees, and should emphasize the environmental aspects inherent to each position, providing information on the company's environmental policy, practices and attitudes needed to accomplish it. Therefore, managers should determine the organizational changes that are required for GHRM training and the developmental activities that should be given priority to accomplish HRM involvement in environmental management (Jackson *et al.*, 2011).

According to Gruman and Saks (2011), performance appraisal (GHRM 2) should consider employee commitment and performance at work, as well as providing feedback and allowing managers and employees to assess the achievement of performance goals from an employee-based planning perspective. It includes factors such as knowledge of environmental regulations, responsibilities for decisions on environmental potential and environmental consequences (Jackson *et al.*, 2014).

Nevertheless, the performance appraisal should be structured with environmental performance indicators such as the responsibilities involved, feedback of the results achieved

GHRM1	Training and development	Madsen and Ulhoi (2001), Massoud <i>et al.</i> (2008), Jabbour <i>et al.</i> (2009), Jackson <i>et al.</i> (2011), Mandip (2012) and Jabbour <i>et al.</i> (2013a, b), Teixeira <i>et al.</i> (2016)
GHRM2	Performance evaluation	Renwick <i>et al.</i> (2013), Jabbour <i>et al.</i> (2009), Jackson <i>et al.</i> (2011) and Jabbour <i>et al.</i> (2013a, b)
GHRM3	Rewards	Daily and Huang (2001), Jabbour <i>et al.</i> (2009), Liebowitz (2010), Jackson <i>et al.</i> (2011), Dutta (2012), Mandip (2012) and Jabbour <i>et al.</i> (2013a, b)
GHRM4	Teamwork	Daily and Huang (2001), Jabbour <i>et al.</i> (2009) and Daily <i>et al.</i> (2007)
GHRM5	Recruitment and selection	Jabbour <i>et al.</i> (2009), Liebowitz (2010), Mandip (2012), Jabbour <i>et al.</i> (2013a, b) and Renwick <i>et al.</i> (2013)

Table I.
Green human resource management construct

and the goals and objectives (Renwick *et al.*, 2013). It includes factors such as regulatory knowledge, environmental responsibilities, decision-making responsibilities and environmental consequences (Jackson *et al.*, 2014).

Dutta (2012) points out that the performance evaluation against environmental criteria presents the challenges of how to measure environmental performance standards in different units of the company and how to obtain useful information on the environmental performance of managers. One way in which performance appraisal systems can be successfully initiated within an organization is to develop performance indicators for each area of environmental awareness and education.

The relationship between a reward system (GHRM 3) and environmental management is rarely shown in the literature (Renwick *et al.*, 2013), which shows that industries hardly use this practice (Masri and Jaaron, 2017), despite its essential role in achieving environmental goals and objectives by stimulating people with financial bonuses and other forms of rewards (Jackson *et al.*, 2014).

The practice of rewarding based on environmental criteria is beneficial to environmental management (Massoud *et al.*, 2008), especially if the reward systems are structured based on environmental performance, that is, a part of managers' monthly bonuses may be related to and dependent on environmental results (Dutta, 2012). Nonfinancial environmental rewards can be a recognition at public meeting programs. (Mandip, 2012).

In reward programs based on environmental criteria, if there are strict punitive rules for poor functional performance relative to environmental performance, managers may fail to commit to future environmental actions; moreover, if the rewards are minimal, managers will not be encouraged to work toward environmental issues (Jackson *et al.*, 2011). However, Mandip (2012) states that negative reinforcements such as suspensions, criticism and warnings may be necessary to get employees to promote environmental improvements.

Green teamwork (GHRM 4) is designed to address environmental issues and is critical to the implementation of environmental management systems as it enables employees to fully utilize competencies and skills across interdepartmental boundaries (Massoud *et al.*, 2008), in addition to playing a crucial role in efforts to implement environmental management systems (Daily *et al.*, 2007).

One of the strategies for creating an environmentally oriented organizational culture is to recruit candidates who are committed to environmental issues. In this conjecture, the practice of recruitment (GHRM 5) based on environmental criteria can create and maintain an environmentally proactive organization by hiring employees who are willing to engage in environmental management activities (Renwick *et al.*, 2013).

For example, HR managers can recruit candidates with environmental education and values (Masri and Jaaron, 2017) to protect natural resources and help reduce pollution, as well as those who are adaptable to change and are willing to take risks and experiment with solutions to complex problems (Liebowitz, 2010).

Recruitment practice based on environmental criteria aims to attract applicants with environmental concerns and who seek to share their environmental values; this practice ensures that the organization hires candidates who are well informed and concerned about environmental sustainability (Jackson *et al.*, 2014).

Therefore, GHRM practices such as recruitment, training, performance evaluation, rewards and green teamwork, for instance, collaborate for the development of facilitators for a green organizational culture and have a significant relationship with environmental performance (Roscoe *et al.*, 2019).

2.2 Corporate social responsibility

CSR in the business context is not a new issue, the idea that organizations have some responsibility toward society beyond making a profit has existed for centuries (Carroll and

Shabana, 2010). CSR has several perspectives in the literature (Aguinis and Glavas, 2012) and deals with relevant topics such as social and environmental problems, demonstrating that companies are not elements extrinsic to society (Levkivska and Levkovych, 2017).

Conceptually, it can be understood that CSR corresponds to business performance above the minimum; in other words, it consists of acting proactively regardless of the legal demand, contributing to society even before the legal requirement (Kumar and Gupta, 2018), through the promotion of corporate citizenship, business ethics, stakeholder management and sustainability (Carrol and Shabana, 2010). It is even associated with efforts to reduce damage to the environment (Su and Swanson, 2019).

CSR occurs when an organization internalizes values that correspond to the desires of society and thus seeks to respect employees, the environment, the legislation and the society in which it is involved. However, it tends to be developed and implemented from the incentive to taxation, to legal rules and the perception of society (Levkivska and Levkovych, 2017), without taking into account the strategic values that it can provide. In other words, companies need to clearly understand the strategic benefits that can accrue to the organization; otherwise, they will not be involved in CSR practices (Burke and Logsdon, 1996) that really bring benefits.

CSR becomes strategic when it contributes to the company's effectiveness in fulfilling its mission (Burke and Logsdon, 1996) and is therefore significant, by generating real value to share with customers, stakeholders and employees (Kucharska and Kowalczyk, 2019), generating positive impacts on society, that is, developing organizational processes to better incorporate concerns related to the environment and society in their daily operations (Su and Swanson, 2019).

In this context, CSR theories have four dynamics (Garriga and Melé, 2004): (1) achieving goals that generate long-term profits; (2) using business power and impact responsibly; (3) integrating social demands; and (4) contributing to a more just society, doing what is ethically correct.

In this perspective, an instrument that can support organizations and provide guidelines for CSR are the sustainable development goals (SDGs). The SDGs provide guidelines for a sustainable and equitable society, reflecting on implications for short- and long-term strategic objectives for companies (Grover *et al.*, 2019; Srivastava, 2018; Gunawan, 2020). Therefore, the SDGs are directly related to CSR.

In this sense, this paper adopts the following CSR practices based on the UN Sustainable Development Goals and the literature on CSR (see Table II).

"Poverty eradication" (CSR01) is one of the major barriers to the promotion of sustainable development. Poverty can be alleviated by doing business effectively (World Business Council for Sustainable Development, 2002), that is, creating job opportunities (Grover *et al.*, 2019).

"Quality education" (CSR02) refers to programs to guarantee training, development and education; in other words, it represents the role of organizations in promoting education programs for the generation of young people, contributing to their involvement in the labor market (Scavarda *et al.*, 2019).

"Diversity" (CSR03) occurs when CSR initiatives result in an improvement in demographic diversity, especially among women and minorities (Aguinis and Glava, 2012).

From the perspective of "employment" (CSR04), the quality of the workforce measures a company's commitment to providing employment and working conditions, seeking to increase loyalty (Fiandrino *et al.*, 2019).

In relation to the main natural resource, "water" (CSR05), when organizations have wastewater treatment plants they create public benefits to the whole community, avoiding the creation of pollution externalities, and also reduce costs with the consumption reduction (Burke and Logsdon, 1996).

Table II.
Corporate social
responsibility
construct

CSR01	Poverty	Zhu and Lai (2019)
CSR02	Education	Garcia-Martinez <i>et al.</i> (2019)
CSR03	Diversity	Fiandrino <i>et al.</i> (2019), Garcia-Martinez <i>et al.</i> (2019) and Zhu and Lai (2019)
CSR04	Job	Fiandrino <i>et al.</i> (2019), Garcia-Martinez <i>et al.</i> (2019), Zhu and Lai (2019), Brammer <i>et al.</i> (2007) and De Stefano-Bagdadli and Camuffo (2018)
CSR05	Water	Fiandrino <i>et al.</i> (2019), Garcia-Martinez <i>et al.</i> (2019), and Maxime <i>et al.</i> (2006)
CSR06	Energy	Fiandrino <i>et al.</i> (2019), Garcia-Martinez <i>et al.</i> (2019) and Maxime <i>et al.</i> (2006)
CSR07	Sustainable consumption and production pattern	Fiandrino <i>et al.</i> (2019) and Su and Swanson (2019)
CSR08	Climate change	Fiandrino <i>et al.</i> (2019), Garcia-Martinez <i>et al.</i> (2019) Zhu and Lai (2019); Zobel <i>et al.</i> (2002)
CSR09	Ecosystem	Garcia-Martinez <i>et al.</i> (2019), John <i>et al.</i> (2019) and Zhu and Lai (2019)
CSR10	Conscious consumption	Zhu and Lai (2019)
CSR11	Efficiency and innovation	Fiandrino <i>et al.</i> (2019)
CSR12	Financial management	Kucharska and Kowalczk (2019) and Su and Swanson (2019)
CSR13	Health and consumer safety	Fiandrino <i>et al.</i> (2019), Garcia-Martinez <i>et al.</i> (2019), Zhu and Lai (2019) and De Stefano-Bagdadli and Camuffo (2018)
CSR14	Ethic	Garcia-Martinez <i>et al.</i> (2019) and Su and Swanson (2019)
CSR15	Legislation	Tian and Robertson (2019) and Zhu and Lai (2019)
CSR16	Volunteering	Fiandrino <i>et al.</i> (2019), Garcia-Martinez <i>et al.</i> (2019), John <i>et al.</i> (2019) and Ng <i>et al.</i> (2019)
CSR17	Hunger	Ruia <i>et al.</i> (2018)
CSR18	Child mortality	Bateman (2014) and Kaur (2019)
CSR19	Child labor	Khan <i>et al.</i> (2010) and Lund-Thomsen and Nadvi (2010)
CSR20	Just reward	Williams <i>et al.</i> (2002) and Yang (2012)
CSR21	Recycling	Modak <i>et al.</i> (2019) and Ghadimi <i>et al.</i> (2019)
CSR22	Peace	Ganson (2019)
CSR23	Sustainable development	Garcia-Martinez <i>et al.</i> (2019), Ng <i>et al.</i> (2019) Tian and Robertson (2019), Zhu and Lai (2019)

The “energy” (CSR06) consists of organizations that invest in clean technology for energy generation, replacing the electric energy acquired from the local concessionaire (Burke and Logsdon, 1996).

CSR 7 are companies with proactive strategies that recognize consumers as “agents of change” and not only promote a spectrum of sustainable products and services but can also support consumers to engage in sustainable lifestyles and consumption patterns (CSR07) (Spaargaren and Van Koppen, 2009).

“Climate change” (CSR08) refers to the reduction of pollutant emissions from operational processes and production (Fiandrino *et al.*, 2019).

The “resource reduction” category assesses the business capacity to achieve an efficient use of natural resources, therefore, seeking high standards in reducing the use of raw materials, energy or water and increasing the use of eco-efficient solutions from the “ecosystem” (CSR09) (Fiandrino *et al.*, 2019).

“Conscious consumption” (CSR10) calls for the purchase and use of goods and services to meet needs while seeking to minimize environmental and social degradation (Scharf *et al.*, 2017).

The “efficiency and innovation” category (CSR11) takes into account the development of eco-efficient products or services in order to reduce environmental costs and increase durability (Fiandrino *et al.*, 2019), so that there are companies that have explored the

relationship between CSR and “financial management” (CSR12), even achieving competitive advantages (Greening and Turban, 2000).

In relation to “consumer health and safety” (CSR13), product responsibility measures the effectiveness of a company in creating value-added products, quality products and services, ensuring the safety and health of the customer (Fiandrino *et al.*, 2019).

Under the perspective of “Ethics” (CSR14), the company must have an ethical business behavior toward society. The adoption of ethical principles can have an impact on the image, the attraction of new partners and new investors, generating positive effects on the financial performance (Mili, 2019).

“Volunteering” (CSR16), which is closely linked to proactivity, consists in actions that presuppose the absence of legal obligations (Burke and Logsdon, 1996).

Technological innovation and the conduct of innovative companies are fundamental weapons in the fight against “hunger” (CSR17) and in the search for food security worldwide (Giannakas, 2014). The eradication of hunger, extreme poverty and “infant mortality” (CSR18) is the preferred activity by organizations from the perspective of CSR (Kaur, 2019).

“Child labor” (CSR19) can be noticed when the company has policies to combat and prevent child labor (Tang *et al.*, 2017).

The “fair reward” (CSR20) establishes a positive connection between an organization and its employees. This can reduce conflict in the workplace, improve productivity, increase efficiency and employee loyalty (Su and Swanson, 2019).

“Recycling” (CSR21) is the methodology for processing used materials (waste) into new products, reducing the use of raw materials that would be used to produce new products (Ahmad, 2015).

In relation to “peace” (CSR22), companies are actors who must encourage the promotion of peace and inclusive development (Ganso, 2019).

Finally, “sustainable development” (CSR23) must combine economic development with social inclusion and environmental sustainability (Sachs, 2015).

2.3 GHRM, CSR and control variables

Environmental initiatives within the scope of HRM are a part of broader CSR programs because the role of HR is key to achieving financial and sustainability results in any business (Ahmad, 2015).

HR practices such as recruitment and selection, training and development, performance management, rewards and compensation, talent management, career planning and retention management can provide the necessary support in the development and implementation of CSR actions, creating synergy between CSR and HRM (Jamali *et al.*, 2015). In many organizations, CSR functions are carried out by an HR team or another team in close association with the HR department (Mishra, 2017). This approach provides the management structure to support organizational efforts in translating CSR strategies into practical actions (Jamali *et al.*, 2015).

The connection between GHRM and CSR will bring clarity about (1) the meaning and importance of greening for the organization, (2) the promotion of changes in HR practices and (3) employee involvement (Mishra, 2017). CSR can contribute to improvements in the strategic HRM (Voegtlin and Greenwood, 2016).

Employees’ perceptions of CSR have a major impact on organizational commitment (Brammer *et al.*, 2007), shaping organizational behavior, company development and improving performance (Kucharska and Kowalczyk, 2019).

CSR-related research could explore impacts on the workplace (Aguinis and Glava, 2012; Jamali *et al.*, 2015); thus, HRM can potentially provide strategic and operational support for CSR. A closer integration of both can produce synergistic results (Jamali *et al.*, 2015).

The growing demand for CSR leads to the application of GHRM tools (Chemma and Javed, 2017), so that future GHRM research should include CSR (Yusliza *et al.*, 2017).

It is in this sense that this paper explores the following research hypothesis:

H1. GHRM positively influences CSR.

Additionally, several papers indicate that large companies have sufficient resources to deal with environmental issues (Pimenova and Van Der Vorst, 2004; Surroca *et al.*, 2010; Luu, 2019). Thus, the size of an organization can influence CSR practices, even as its years of existence can determine the strength and structure of its management (Lee, 2008), and ISO 14001 certification can provide the development of specific capabilities, which can provide significant impacts on the results of any company (Jabbour *et al.*, 2014; Jong *et al.*, 2014). Therefore, the size of the company, its years of existence (firm age) and ISO 14001 certification can somehow influence the proposed research hypothesis, so these variables (control variables) will be included in the model, closing the proposed relational framework (Figure 1).

Therefore, GHRM practices, when well implemented, can improve environmental performance (Singh *et al.*, 2020; Yong *et al.*, 2019; Pham *et al.*, 2019; Teixeira *et al.*, 2016). Thus, by analogy, they will be important for the effectiveness of CSR.

In this context, despite the importance of GHRM and the advancement of research, there are still notable gaps in the literature: research that empirically explores the relationship between GHRM and CSR practices as proposed in this paper.

3. Methodological procedures

This research adopted a quantitative approach with the survey technique to meet its objectives. Questionnaires were used for data collection directly with respondents (HR and CSR managers). The questionnaire, whose construction followed all steps proposed by Synodinos (2003), explored issues arising from the literature specialized in GHRM and CSR. This research method is the most recommended for this research along with the survey method (Synodinos, 2003). We used the Likert five-point scale ranging from “agree” to “strongly disagree.”

The questionnaire was adjusted and validated based on the feedback of four experts: two researchers from the HR area and two from environmental sustainability area. 853 companies were invited to participate in the e-survey. Of these, 79 companies correctly completed the questionnaire that was sent in three waves of emails in the months of January, February and March (2019). The sample population consisted of 79 companies in Brazil from the metallurgical, automotive and chemical industries.

G*Power 3.1 software was used for statistical analysis (Faul *et al.*, 2007) using the following parameters: (1) *t*-tests; (2) regression and correlation tests and multiple linear regressions, fixed model including R^2 deviation from zero; (3) *a priori* sample size required to compute the given power and effect size; (4) effect size of 0.15 (Cohen, 1988); (5) maximum permissible error of 0.05; (6) Hair *et al.* (2009) recommended minimum error of 0.80; and (7)

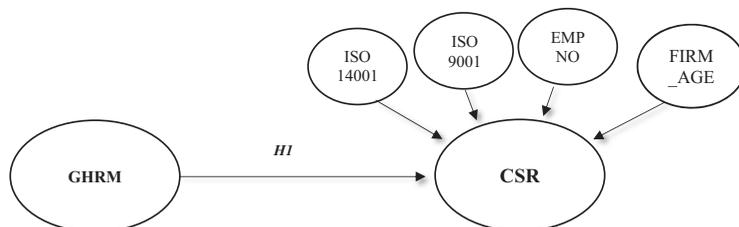


Figure 1.
Conceptual model
relating the GHRM
with CSR

number of predictors (four arrows that reach the dependent variable). Results showed that a minimum of 74 questionnaires was required. We obtained a sample of 79 companies, which correspond to a return rate of 9.26%. This is an acceptable number of respondents for this study since other papers in related areas published in top journals worked with smaller samples than ours: (1). [Jabbour et al. \(2016\)](#) – p. 75; (2). [Holt and Ghobadian \(2009\)](#) – p. 60; (3). [Rao \(2002\)](#) – p. 52, [Klassen and Whybark \(1999\)](#) – p. 70.

The data were analyzed using partial least squares path modeling (PLS-PM), a multivariate statistical approach that allows the analysis of more complex conceptual models ([Hair et al., 2011](#)), with the support of the SmartPLS 3.0 software. This technique was recommended for data analysis when the theory is still in the initial stage of development ([Jabbour et al., 2013a, b](#)) and samples are small ([Latan and Ramli, 2013](#); [Henserler et al., 2009](#); [Hair et al., 2011](#)).

As the proposed model is reflective, internal consistency and validity were assessed. Specific measures such as composite reliability, convergent validity and discriminant validity were calculated ([Hair et al., 2017](#); [Latan and Noonan, 2017](#)).

Subsequently, the processed structural model and the research hypotheses tested with the Bootstrapping technique with 2000 subsamples and a significance level of 5% were performed. Finally, findings were compared with the literature.

4. Results

4.1 Initial research data

As previously mentioned, the 79 companies participating in this study were from the metallurgical, automotive and chemical industries. 5.06% were micro companies, 20.25% small companies, 43.04% medium companies and 31.65% large companies based on the SEBRAE classification (2017), which considers the number of employees (above 500 is large, 100–499 medium, 20–99 small and 1–19 microenterprise). Still regarding the sample, 68.35% of the companies were more than 25 years old, 6.33% were between 11 and 15 years old, 8.87% between 21 and 25 years old, 10.13% between 16 and 20 years old and 3.79% between 6 and 10 years old. In addition, 81% had ISO 9001 certification and 58% had ISO 14001 certification.

4.2 Measurement model assessment

To process the data, a path diagram was created ([Figure 1](#)) and then transformed into a measurement model ([Hair et al., 2014](#)) to analyze whether the coefficients obtained are significant and indicate internal consistency and data validity.

Initially, after the first data processing, it was found that variables CSR06, CSR07, CSR08 and CSR20 showed lower load factor < 0.6 ([Chin, 1998](#); [Latan and Ghozali, 2012](#); [Hair et al., 2016](#)) and were, therefore, excluded from the proposed original model, then a second data processing was performed. [Figure 2](#) shows the second data processing after the exclusions. In this second processing, all external loads were greater than 0.6, the GHRM and CSR AVEs greater than 0.5 and the composite reliability greater than 0.9 ([Figure 2](#) and [Table III](#)), being above the recommended and indicating that the model has convergent validity and good internal consistency ([Hair et al., 2017](#); [Latan and Noonan, 2017](#)).

In addition, we tested the reliability of the internal consistency, including Cronbach's alpha, which should be between 0.8 and 0.9 ([Hair et al., 2017](#); [Latan and Noonan, 2017](#)). The results are shown in [Table III](#) and show that the model meets this rule.

It is necessary to determine the discriminant validity of the model. For this, we use the HeteroTrait–MonoTrait (HTMT) ratio. [Franke and Sarstedt \(2019\)](#) state that HTMT is a

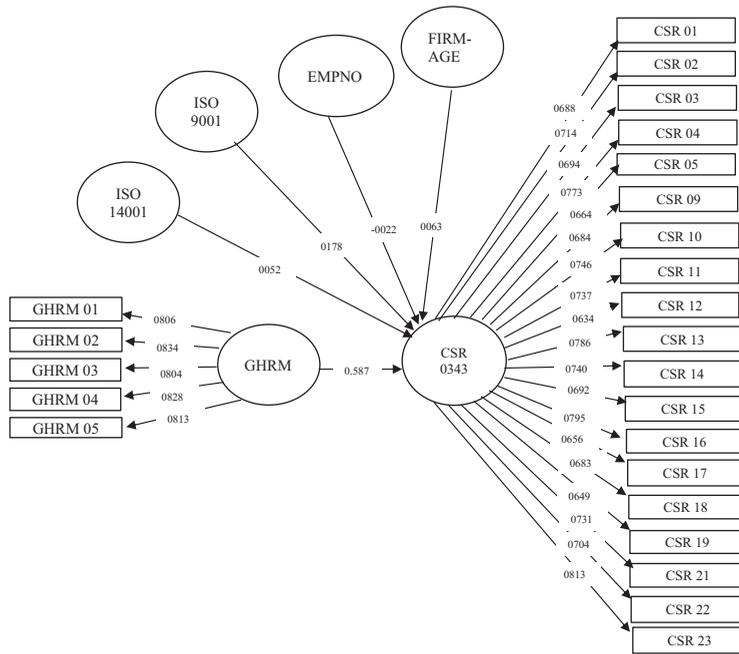


Figure 2.
Measurement model
with exclusions

Construct	AVE	Composite reliability	Cronbach's alpha
GHRM	0.668	0.909	0.876
CSR	0.514	0.952	0.947

Source(s): Data generated automatically in SMART PLS 3.0

Table III.
Model-fit quality
values

perfectly reliable estimator of disattenuated correlations between constructs. The rule is that the HTMT value must be < 0.90 or < 0.85 for all constructs in the model. Table IV shows that there is discriminant validity in the proposed model.

4.3 Structural model assessment

After processing the measurement model, the structural model must be estimated. The structural model consists of a set of equations that mathematically represent the structural relationship between the variables (Hair et al., 2017; Latan and Noonan, 2017).

For this procedure, we included the coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2) and the variance inflation factor (VIF). R^2 indicates the quality of the adjusted model, f^2 evaluates how favorable each construct is for fitting the model, Q^2 measures how close the model is compared to the expected and VIF is an indicator of the effect that other independent variables have on the regression coefficient error (Hair et al., 2014).

Table V presents the results of the evaluation of the structural model. The R^2 and adjusted R^2 are good with values ranging between 0.298 and 0.343, being considered between medium and large category (Cohen, 1992).

The f^2 (0.358) indicates a large effect and, therefore, can be considered a good predictor of the model (Hair *et al.*, 2014). In addition, we obtained a good predictive relevance of the model, $Q^2 = 0.145 > 0$ (Hair *et al.*, 2014) and the VIF values were below 3.3 indicating no collinearity between the independent and dependent variables (Kock and Lynn, 2012).

4.4 Hypotheses testing

Hypothesis testing was conducted through the bootstrapping approach, with a 95% significance interval and 2000 subsamples (Henseler *et al.*, 2009). Figure 3 and Table VI demonstrate that the H1 research hypothesis is supported with p value = 0.000 < 0.05 from 95% bias-corrected and accelerated (BCa) CI. In other words, it can be said that GHRM positively influences CSR.

Furthermore, we found that the “ISO 9001 certification” control variable is significant in the proposed model with a p value = 0.051 from 95% BCa CI and the variables “ISO 14001 certification”, “company size” (EMPNO) and “company age” (FIRM_AGE) do not influence the proposed model.

5. Discussions and final remarks

5.1 Managerial and theoretical contributions

This paper presented a relational framework using the e-survey technique not yet explored in the specialized literature. The objective was to determine whether GHRM positively influences the adoption of CSR and to evidence whether the age of the companies, their size and whether the ISO 9001 and ISO 14001 certifications are important in this relationship in a sample of companies in Brazil.

Based on the results presented in section 4, with data from 79 companies in the Brazilian metallurgical, automotive and chemical industries, analyzed in the light of structural equation modeling (SEM), it can be concluded that the coefficients are significant and indicate good internal consistency and data validity. In addition, the

	CSR	FIRM_AGE	GHRM	ISO 14001	ISO 9001	EMPNO
CSR						
FIRM_AGE	0.102	–				
GHRM	0.577	0.053	–			
ISO 14001	0.190	0.096	0.569	–		
ISO 9001	0.185	0.010	0.074	0.344	–	
EMPNO	0.171	0.224	0.336	0.270	0.045	–

Table IV. Discriminant validity based on HTMT

Source(s): Data generated automatically in SMART PLS 3.0

Construct	R^2	Adjusted R^2	f^2	Q^2	VIF
CSR	0.343	0.298	0.358	0.145	
FIRM_AGE					1,058
GHRM					1,465
ISO 14001					1,623
ISO 9001					1,166
EMPNO					1,179

Table V. Results of the structural model

Source(s): Data generated automatically in SMART PLS 3.0

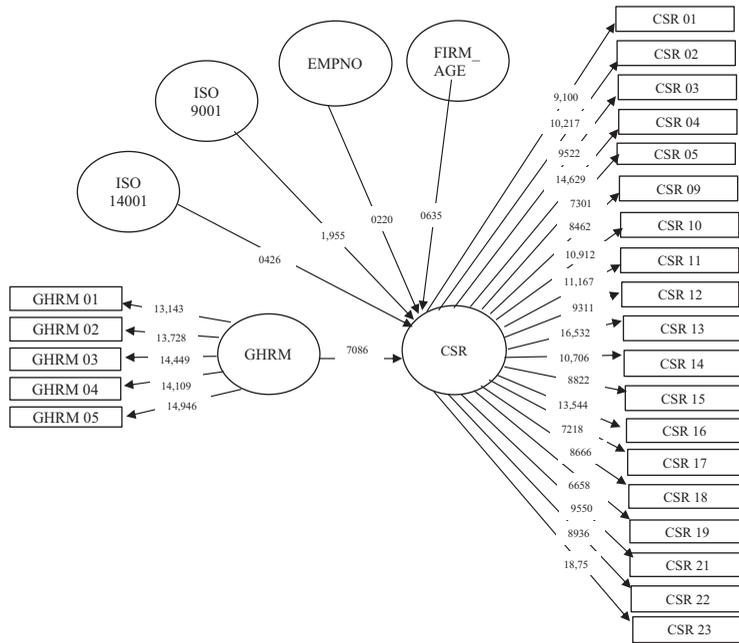


Figure 3.
Bootstrapping
obtained through the
SmartPLS 3.0

Assumptions	Sample original	Sample average	Standard deviation (SD)	t' student	p Values	
GHRM →CSR	0.587	0.601	0.083	7,086	0.000	Confirmed
ISO 14001→CSR	0.052	0.055	0.123	0.426	0.670	Rejected
ISO 9001→CSR	0.178	0.180	0.091	1,956	0.051	Confirmed
EMPNO→CSR	-0.022	-0.020	0.100	0.220	0.826	Rejected
FIRM_AGE→CSR	0.063	0.053	0.099	0.635	0.526	Rejected

Source(s): Data generated automatically in SMART PLS 3.0

Table VI.
Bootstrapping
parameters

hypothesis tests demonstrated that H1 was supported. Therefore, GHRM is positively related to CSR.

Thus, this paper brings important theoretical and managerial contributions. It is the first in the literature to show, in an empirical way, the positive relationship between GHRM and CSR, contributing in an original way to the state of the art of the GHRM and CSR theme as requested by [Jamali et al. \(2015\)](#), [Yusliza et al. \(2017\)](#) and [De Stefano-Bagdadli and Camuffo \(2018\)](#) and also by [Jackson et al. \(2014\)](#) regarding HRM. In addition, this research adds empirical evidence on GHRM and CSR in Latin America/South America/Brazil.

This research also contributes to the state of the art of the theme and to the managerial practice. The findings evidence that practices of performance evaluation (GHRM2), team work (GHRM04) and recruitment and selection (GHRM05) are the most important, in this order, for a better CSR performance, demonstrating that GHRM is important for building sustainable organizations ([Ren et al., 2018](#)). The role of GHRM is essential for the implementation of a management system that allows employees the (1)

full use of their skills (Massoud *et al.*, 2008), (2) greater employee involvement (Renwick *et al.*, 2013) and (3) the inclusion of new workers capable of maintaining a company's economic, social and environmental sustainability.

This confirms not only the relevance of GHRM for organizations (Jackson *et al.*, 2014; Renwick *et al.*, 2013) but also the importance that each GHRM practice plays in the context of CSR.

Additionally, our results indicate that the "ISO 9001 certification" control variable also has a positive and significant effect on CSR and that the size of the company (EMPNO), the age of the company (FIRM_AGE) and the ISO 14001 certification, in the analyzed sample, were not relevant (as control variables) for CSR. It contradicts similar research in the area of environmental sustainability ((1) Size of the company (see Pimenova and Van Der Vorst (2004), Surroca *et al.* (2010) and Luu (2019), (2) age of the company (see Lee, 2008), (3) ISO 14001 (see Jabbour *et al.*, 2014; Jong *et al.*, 2014)), which can be a relevant research avenue.

Finally, the results also allow companies and their professionals to plan, prioritize and invest in practices that bring more expressive results in CSR.

5.2 Limitations and future research

This paper has six main limitations, which show future research opportunities: (1) the sample corresponds to the metallurgical, automotive and chemical industries – research in other industries could bring different results and insights; (2) the focus was a single emergent economy: Brazil – research in other emergent countries or even comparing different realities should be performed. It is also suggested that the proposed model should be tested in other industrial and service sectors in other developing and developed countries, with different methodologies; (3) despite our efforts, the sample size was smaller than in similar studies; however, it meets the statistical and methodological requirements of the specialized literature; (4) the adoption of CSR in companies may depend on other factors, such as legal and regulatory requirements; therefore, future research may test other types of research; (5) restrictions related to an e-survey study; thus, further research is needed to determine how and why HR management contributes to CSR. It is also suggested that the proposed model should be tested in other industrial and service sectors in other developing and developed countries, with different methodologies; (6) social desirability bias where respondents try to execute what they believe the interviewers expect, so less accurate answers can be obtained (Roxas and Lindsay, 2012).

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Corresponding author

Wesley Ricardo de Souza Freitas can be contacted at: wesley.freitas@ufms.br