



INTERDEPARTMENTAL POSTGRADUATE PROGRAM
IN BUSINESS ADMINISTRATION

Master Thesis

**THE EFFECT OF ORGANIZATIONAL ENVIRONMENTAL
PERFORMANCE ON CORPORATE SOCIAL RESPONSIBILITY: THE
ROLE OF BUILDING EMPLOYEE SOCIAL CAPITAL**

of

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Submitted as a prerequisite for the acquisition of Master's degree in Business Administration

January 2024

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ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my Supervisor, Professor George Tsiotras, for his unwavering support and guidance throughout my Master's journey and for inspiring me with his teaching perspective, reflecting his market experience. Being concurrently engaged in doctoral studies at the Aristotle University of Thessaloniki, I faced the challenge of balancing the demands of both programs. I therefore thank Professor Tsiotras for his understanding and for accommodating my commitments during times when I was immersed in the responsibilities associated with my PhD.

I am also grateful to my PhD Supervisor, Professor Nikolaos Michailidis, of the Aristotle University of Thessaloniki, who trustfully encouraged my excitement for this Master's program, even though he knew it would absorb much of the time I devoted to my PhD. Being a firm believer of manifold education and continuously bridging engineering research to business and entrepreneurship, he has definitely been a role model for me.

I am deeply grateful to my parents, Zoi Disli and Orestis Dimitriou, for their unconditional love, encouragement and sacrifices that have made my educational pursuits possible, and to my uncle, Dimitrios Karolidis, PhD graduate of the University of Macedonia, whose mentorship has been a guiding light throughout my Master's studies. Their belief in my abilities has been a constant source of motivation.

I am thankful to the HELLENiQ ENERGY Group of Companies for awarding me the scholarship that has financially supported my Master's studies and for its commitment to fostering education through the "Proud of Youth" initiative. This scholarship has not only been a financial aid but also a symbol of recognition and encouragement, for which I am truly grateful.

Additionally, I am deeply appreciative of the Thessaloniki Chamber of Commerce and Industry for kindly supporting the implementation of this research and facilitating my contacts with the participants of the survey forming the foundation of this thesis.

Finally, I extend my heartfelt thanks to the participants themselves. Their willingness to contribute their time and insights has been instrumental in the successful completion of this research. Without their valuable input, this study would not have been possible.

ABSTRACT

This study aims at investigating the relationship between organizational environmental performance (EP) and corporate social responsibility (CSR) and the moderating effect of building employee social capital (SC) in this relationship. This study is quantitative in nature, using the responses of employees in Greek heavy industries (i.e., chemicals – oil & gas, power, cement, metals and steel production companies) through a survey approach to gathering data and the implementation of a series of statistical analyses for interpreting the results. The findings indicated a strong relationship between EP and CSR, and specifically in the three dimensions of the latter, namely the social, the economic and the environmental dimension. Although the moderation effect of SC was not statistically significant, important guidelines for future research are proposed, for further examining CSR in relation to SC. While the relationship between EP and CSR has been investigated elsewhere at the corporate level of analysis, this research extends the current literature by investigating the relationship between the two variables at the individual level of analysis. This relationship is crucial because it elucidates the importance of integrating and implementing ESG (Environmental, Social and Governance) actions and initiatives as a priority in contemporary corporate strategy for the creation of added value, with an emphasis to internal stakeholders.

KEYWORDS

environmental performance, corporate social responsibility, social capital, heavy industry, ESG

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1. Introduction

Over the past two decades, global population has increased by 25% and global GDP has doubled, resulting in a dramatic increase of 80 – 150 % in the demand for key bulk materials, like chemicals, steel and cement (*Energy Technology Perspectives 2020*, 2020). During this period, some progress has been made in lowering the numbers describing energy and emissions intensities of production. This progress is primarily attributed to government policies that endorse energy efficiency, as well as the economic motivation to minimize expensive energy inputs in fiercely competitive industries. However, growing material demand resulted in an increase in industrial energy use and CO₂ emissions by 60% and 70%, respectively, since 2000. Energy-intensive “heavy” industries, namely chemicals, steel and cement production industries, deserve particular scrutiny, as they account for approximately 60% of industrial energy use and 70% of industrial emissions (*Energy Technology Perspectives 2020*, 2020). These enterprises are more likely to cause environmental problems, and consequently attract public dissatisfaction (Alakkas et al., 2022). However, their involvement in social responsibility activities is more likely to gain public support, thereby promoting firm performance and improving brand value (Zhang & Liu, 2023).

Businesses are the building blocks of society, since they depend on it to attain their economic goals (Crane et al., 2008). Market stakeholders (e.g. employees, customers, suppliers, creditors) can directly influence economic trends by making unfavorable economic decisions (Delmas Michael W.; Bren, Donald, 2008). Non-market stakeholders (e.g. the general public, the media, NGOs) indirectly affect businesses by conveying information (Henriques & Sadorsky, 1999). Despite the different transmission mechanisms, the dissatisfaction of any stakeholder group can trigger a shortfall in economic trends and even compromise a company's future (M. Clarkson, 1995). The better an organization manages its relationships with its stakeholders, the higher its success will be over time (Barnett & Salomon, 2018). Since society by itself is a stakeholder, organizations should include social responsibility in their business operations. However, this belief has not always been part of businesses' and theorists' core values.

The economy of the 18th century did not rely on the entrepreneur's motivation to be socially beneficial; Adam Smith's system is rooted in the presence of competitive forces within the system, serving as a means of social control that guides the self-interest of the entrepreneur toward socially useful channels (Smith, 1977). Consequently, as competition prevents excessive long-term profits by regulating the market, long-term profits serve as an indicator of

the entrepreneur's efficiency and cost minimization. Being socially responsible is deemed incompatible with this entrepreneurial model because it may not lead to the minimization of costs.

According to the neoclassical economic theory, a company's mission is to maximize profits. Additionally, this theory considers that addressing environmental, social or corporate governance issues may become a tool serving managers' interests, cause a waste of resources and lower corporate performance (Di Tommaso & Thornton, 2020; Do & Kim, 2020; Friede et al., 2015; Grisales & Caracuel, 2021). According to Alan Friedman, the notion that corporate officials should prioritize social responsibility reflects a fundamental misunderstanding of the nature of a free economy (Friedman, 2002). In such an economy, the sole social responsibility of business is to utilize its resources and invest in activities aimed at increasing profits, as long as it abides by the rules of the game. Pursuing any other objective is considered a fundamentally subversive doctrine (Friedman, 2002).

According to John Davis (1973) and in contrast to the above, the prerequisite for social responsibility is the consideration of aspects beyond the narrow economic, technical and legal requirements of a company; the interests of other stakeholders, apart from those of shareholders are also important (Crane et al., 2008; Galant & Cadez, 2017).

Opinions endorsing corporate social involvement were often related to an open-systems model that interprets organizational behavior based on real or anticipated external influences. This model has been highlighted in John Narver's thesis on corporate responsibilities and firm welfare (Narver, 1971). According to this thesis, a rational decision-maker aiming to maximize the long-term well-being of the firm must align with the expectations placed on the corporation to enhance the current market value of its stock. To achieve maximum market value, it is crucial for investors to have confidence that the firm will not face long-term repercussions, especially from governmental entities, due to violations related to pollution and other social involvement issues. By sacrificing short-term profits, the firm is actively contributing to its long-term welfare (Narver, 1971). Consequently, the distinction between Friedman and proponents of social involvement, such as Narver, may revolve around the consideration of short-run versus long-run timeframes.

Recently, the demand for environmental, social and ethical responsibility of business has increased, following climate change, depleting of natural resources, poor work conditions and corporate scandals. Both investors and consumers value corporate social responsibility and sustainability, and expect organizations to meet social values (Galbreath, 2013).

The United Nations Commission on Environment and Development addressed these issues by releasing the “Brundtland Report”, which proposed the concept of sustainable development (Brundtland, 1987). The ESG concept is based on sustainable development, and organizations, as blocks of human economic and social operation, play a critical role in the latter. Therefore, organizations need to integrate ESG values in order to ensure sustainable economic and social development (Buallay, 2019; Tarmuji et al., 2016).

Despite the early unpopularity of corporate social responsibility, the origin of ESG values can in reality be identified in the 1960s, when the concept of socially responsible investment was introduced (*Who Cares Wins Conference Report: Investing for Long-Term Value*, 2005). It was not until 2001, when the United Nations Global Compact issued its report, introducing ESG.

ESG is an acronym for environmental, social and governance. It offers organizations guidelines on addressing environmental, social and corporate governance concerns (Gillan et al., 2021). Examples of environmental concerns are pollution control, renewable energy use, greenhouse gas emissions and other issues, as well as the overall environmental output (T. T. Li et al., 2021). The social dimension reflects the responsibility of the organization to its stakeholders, both internal and external (i.e., employees, consumers, communities, suppliers etc.) while maximizing profits in compliance with the law (Lindgreen & Swaen, 2010). Governance includes business ethics, anti-competitive disposition, protection of shareholder’s rights, efficient self-management and decision-making, compliance with law and regulations and addressing of external stakeholder’s expectations (Henisz et al., 2019).

ESG pivots the concept of “profit maximization” towards “sustainable development” and redefines the way organizations strategize and use their resources (Drempetic et al., 2019). Additionally, by integrating ESG values, organizations become examples of high-quality economic growth and promote sustainable development (Broadstock et al., 2021). In a global economy and in the increasing market competition, addressing environmental, social and corporate governance concerns becomes a competitive advantage (Avramov et al., 2022).

Today it is becoming increasingly important for organizations to report on their ESG. A growing number of regulators and investors endorse ESG reporting, while stock exchanges worldwide provide ESG disclosure guidelines for listed organizations in the United States of America, the United Kingdom, France, Germany, Italy, Brazil, Canada, India, Malaysia, Norway, South Africa, the Philippines, and Singapore (Zhao et al., 2018). After the COVID-19 pandemic, many countries integrated sustainability goals, to be resilient against systemic

risks such as climate change and health crises and to promote green economy (Bahadori et al., 2021).

Stakeholder theory acknowledges ESG disclosure as a means to achieve transparency. ESG investments help companies develop mechanisms to increase resources by enhancing corporate reputation (Alsayegh et al., 2020; Mohhammad & Waisuzzaman, 2021; Ting et al., 2020). The responsibility of companies is not limited to shareholders; factors concerning the environment, society and corporate governance should also be included in their strategic decision-making (Bahadori et al., 2021). Organization that meet environmental, social and corporate governance requirements have stronger relationships with stakeholders, and consequently good performance (Zhao et al., 2018).

In recent years, there has been a growing interest in the significance of corporate social responsibility (CSR). According to the relevant Green paper of the European Commission, CSR is “a concept whereby firms decide voluntarily to contribute to a better society and a cleaner environment”, by integrating “social and environmental aspects into business operations and their interactions with stakeholders” (Commission of the European Communities, 2001). Additionally, “being socially responsible means not only meeting legal obligations, which no doubt every firm has to satisfy, but going beyond this by investing more in human capital, in the environment, and in its relationships with stakeholders”. Organizations are encouraged to implement CSR initiatives not only because these comprise business opportunities, but also because these initiatives target the expectations of customers, employees, society, and other stakeholders (Mark-Herbert & von Schantz, 2007). Recently, the European Commission has further clarified the concept of CSR by defining it as “the responsibility of enterprises for their impacts on society” and outlining the ways in which organizations meet that responsibility (Commission of the European Communities, 2011).

Researchers have studied CSR at both the level of the economy and that of an individual organization (Junquera et al., 2012; Weber, 2008). With regards to the economy, CSR has been found to have macro-level effects and comprise a significant determinant of economic growth (Galant & Cadez, 2017). The findings of Marinko Škare and Tea Golja (2014) show that a bigger share of socially responsible organizations in an economy is associated with higher economic growth (Škare & Golja, 2012). According to Michael Barnett and Robert Salomon (2006), the benefits for a socially responsible company include (1) ease of attracting resources, (2) ease of attracting quality employees, (3) ease of marketing products and services, (4) unforeseen opportunities, (5) competitive advantage (Barnett & Salomon, 2018). In a similar manner, Manuela Weber (2008) summarized the following benefits of CSR for companies: (1)

positive image and reputation, (2) positive effect on employees' motivation, recruitment and retention, (3) cost savings, (4) higher sales and market share leading to increased revenue and (5) lower CSR-related risk (Weber, 2008).

The development of socially responsible actions (Aguinis & Glavas, 2012) in three dimensions, reflecting the goals of an organization, namely the environmental, the economic and the social dimension, has attracted the attention of the academic community (Gallardo-Vázquez & Sanchez-Hernandez, 2014). The environmental dimension includes actions aiming at ensuring a healthy and balanced environment. Environmental matters appear to be of greatest concern to corporate thinking, which is expected to persist in the foreseeable future. This emphasis is undoubtedly driven by the threat of political repercussions associated with environmental issues (Abbot & Monsen, 1979). The economic dimension of CSR refers to aiming at harmonic development and is linked with the expectations of external stakeholders. The social aspect includes actions contributing to the elimination of inequalities. The social dimension of CSR of an organization typically extends both internally and externally. This is because employees expect that businesses caring about people also tend to care about their own employees and treat them respectfully and fairly (Chou et al., 2021).

Early CSR research has predominantly focused on the corporate level of analysis, rather than the individual level. This is an interesting omission because recent research on CSR highlights that individuals are drivers in CSR initiatives (Acosta-Alba et al., 2012; Chou et al., 2021; Shin & Hur, 2020; Suh, 2016). The present thesis addresses this research gap by investigating the relationship between environmental performance, a substantial aspect of ESG, and CSR, at the individual level of analysis.

This introduction is followed by the theoretical framework of the study, in which the research variables are introduced, along with the hypotheses of the study model. Then, the context of the study is presented. Next, the research methodology is described. Finally, the findings of the study are analyzed, followed by theoretical and practical implications, limitations and future directions.

2. Theoretical framework and hypotheses development

2.1 Environmental performance and corporate social responsibility

The term environmental performance (EP) refers to organizational initiatives aiming at meeting and going beyond societal expectations concerning the environment (Chan, 2005) in a way that exceeds compliance with rules and regulations (Chen et al., 2014). It includes

environmental outputs of organizational processes, products and use of resources matching legal environmental requirements (Dubey et al., 2015). Researchers have suggested that environmental performance relies on the quality of environmentally friendly products, green processes, product innovation and integration of ecological sustainability practices into business operations and product development and that it measures the effects of green supply chain initiatives, such as compliance with environmental standards, low air emissions, decreased use of resources and less use of hazardous materials (Chen et al., 2014; Darnall et al., 2008; Dubey et al., 2015; Laosirihongthong et al., 13 C.E.; Lotti Oliva et al., 2019).

Previous research has explored the relationship between EP and CSR (S. Li et al., 2022; Saqib et al., 2022; Singh et al., 2020). Bhat et al. (2023) concluded that CSR has a significant impact on EP and that green innovation, green capacity, environmental strategy and green transformational leadership mediate the relationship (Bhat et al., 2024).

Since environmental performance reflects environmental monetary and public restrictions, it is expected that EP has a significant influence on environmental CSR, in accordance to the findings of Martinez-Conesa et al. (2017) and Weng et al. (2015), suggesting that environmental monetary and public restrictions affect CSR on environmental operations (Martinez-Conesa et al., 2017; Weng et al., 2015).

EP has been previously studied by targeting environmental management representatives and by gathering data from managers and employees of SMEs (Laosirihongthong et al., 13 C.E.; Zhu & Huang, 2023). The present study does not focus on EP at an organizational level but rather on EP perceived by employees.

With regards to CSR, previous research has examined it by using corporate-level analyses and indices (Abbot & Monsen, 1979). In the late 1970s and early 1980s, numerical indicators reflected the information contained in reports (Gallardo-Vázquez & Sanchez-Hernandez, 2014). Walter Abbot and Joseph Monsen (1979) used information received from reports of Fortune magazine firms to measure CSR (Abbot & Monsen, 1979). Arie Ullman (1985) used annual reports to study the degree of social disclosure (Ullmann, 1985). Later, Clarkson et al. (2008) used a content analysis index to evaluate the extent of environmental disclosure in sustainability reports (P. Clarkson et al., 2008).

Ruf et al. (1998) evaluated the relative significance of parameters included in reputation indices while Isabelle Maignan and O.C. Ferrel (2000) explored the economic, legal, ethical and discretionary dimensions of responsibilities imposed by stakeholders (customers, employees and public) (Maignan & Ferrel, 2000; Ruf, 1998).

Aupperle et al. (1985) measured individual managers' values and attitudes towards CSR (Aupperle et al., 1985). Singhapakdi et al. (1996) studied managers' idea of the role of ethics and CSR in the effectiveness of their institution, while Ali Quazi and Dennis O'Brien (2000) investigated attitudes to CSR and the outcome of integrating socially responsible actions (Quazi & O'Brien, 2000; Singhapakdi et al., 1996).

Additionally, various researchers have targeted the industry sector. Vesela Veleva and Michael Ellenbecker (2001) developed a mechanism for promoting business sustainability relying on indicators of sustainable production (Veleva & Ellenbecker, 2001). Adisa Azapagic (2004) developed a set of sustainability indicators to assess the performance of some sectors, i.e., metallic, construction and industrial minerals (Azapagic, 2004). Eirik Nordheim and Grace Barrasso (2007) presented a framework of sustainable indicators for the aluminum industry (Nordheim & Barrasso, 2007). Aidil Chee Tahir and Richard Darton (2010) measured the extent to which particular business operations are sustainable (Chee Tahir & Darton, 2010). Acosta-Alba et al. (2012) studied how to pivot dairy farmland towards sustainable practices by investigating new configurations of agricultural land use (Acosta-Alba et al., 2012).

Recently, researchers have been focusing their interest on the individual level of the effect of CSR activities in an organization (Acosta-Alba et al., 2012; Chou et al., 2021). However, these studies are less common in comparison to organization-level studies (Shin & Hur, 2020; Suh, 2016). Puygu Turker (2008) studied the relationship of CSR to organizational commitment based on perceptions of employees, customers and government, representing the responsibilities of organizations towards all their stakeholders (Turker, 2008). Qing Tian and Jennifer Robertson (2019), and Sungwon Shin and Pong-Soo Hur (2020) underlined the significance of investigating the underlying mechanisms of perceived CSR at the employee level (Shin & Hur, 2020; Tian & Robertson, 2019). Therefore, the present study addresses this need by focusing on the CSR perceived by employees rather than organizational and external metrics of evaluating the implementation of CSR.

Additionally, in the present work, CSR is considered to comprise the three blocks of Elkington's theoretical framework, known as Triple Bottom Line (Elkington, 1998): the economic, social and environmental dimensions. This approach serves the extension of the findings to the three dimensions of ESG, the environmental, corresponding to environmental CSR, the social, reflecting the social CSR, and the corporate governance, corresponding to the economic CSR.

Along this line of thinking, the following hypotheses are proposed:

H1: EP has a direct positive effect on the social dimension of CSR.

H2: EP has a direct positive effect on the economic dimension of CSR.

H3: EP has a direct positive effect on the environmental dimension of CSR.

2.2 The moderating role of employee social capital

Intellectual capital (IC) is one of the most important resources at both organizational and individual levels. The term IC is defined as the different forms of intangible resources in an organization that are critical in its value-creation processes (Paoloni et al., 2020). Often subcategorized to organizational, human and social capital (SC), IC has been used to determine how organizations create value (Castro et al., 2019) and to improve innovation (Berraies, 2019). Researchers have proposed that more research needs to be carried out to identify its role in both organizational and individual outcomes (Dabić et al., 2020; Gu et al., 2023). IC influences organizational capabilities through the interaction of relationships and networks (Inkinen, 2015).

In recent years, SC has garnered growing interest as a vital element of IC (Berraies, 2019). The connection between CSR and IC has been reported in the literature (Demartini & Paoloni, 2013; Reguera-Alvarado & Bravo-Urquiza, 2022).

SC is believed to have a positive effect on the organization level, as it increases the trust of engaging stakeholders, thus lowering transaction costs (Han et al., 2020). With regards to SC in the theory of Nahapiet and Ghoshal (1998), organizations host various initiatives that promote social interaction and exchange of ideas among employees (Nahapiet & Ghoshal, 1998). SC facilitates access to information and resources across employees, development of network ties, sharing of values etc. (Rezaei et al., 2020).

Employees who have a greater perception of SC share confidence, common goals and standards within an organization and are more likely to take part in actions that are beneficial to the organization (Gu et al., 2023), such as the implementation of CSR activities. Crilly et al. (2008) proposed that individual attributes, such as personal values and reasoning influence employees' willingness to engage in socially responsible behaviors (Crilly et al., 2008). Although these findings are significant, according to the SIP theory (Salancik & Pfeffer, 1978; Thomas & Griffin, 1989), individual attitudes and behaviors are influenced by their proximal social environment. This means that employees will scrutinize and cognitively process informational stimuli deriving from their work environment to decide on the most appropriate behaviors to adopt in the workplace (Maheswaran & Chaiken, 1991; Salancik & Pfeffer, 1978).

With regards to the social dimension of CSR, employees who have developed relationships of trust, thus a strong SC will be more open to extending their trust to others in the organization.

Companies with stronger SC are more likely to exchange technical and operational information within the network (Zhang & Liu, 2023). Compared to companies with weak SC, they possess a unique competitive advantage and, combining the exchange of information with the trust and reputation built among social relationships, they make SC into a strategic resource in the implementation of CSR activities.

Following this line of thinking, SC can be seen as moderating rather than as mediating variable in the relationship between EP and CSR. As a mediator, SC would account for the relationship between EP and CSR (i.e., to explain why there is such a relation). Since EP originates from environmental management policies, this option is doubtful. That is, even if the SC of an organization was weak, EP could still influence the implementation CSR activities, i.e., to enhance reputation, to comply with government guidelines, to satisfy stakeholders etc. In contrast, SC as a moderator may have potential to strengthen the importance of good EP and drive the organization to implement CSR practices to a greater extent. Bhat et al. (2023), having studied the relationship between CSR and EP and the mediating roles of green innovation, green capacity, environmental strategy, and green transformational leadership concluded that CSR and EP have a direct relationship as well and that the concepts of green innovation, green capacity, environmental strategy and green transformational leadership enhance this relationship (Bhat et al., 2024). Xianchu Zhang and Zhiyong Liu (2023) studied the moderating role of external SC in the relationship between CSR and financial performance, as well as brand value (Zhang & Liu, 2023). The researchers divided their sample of industries into heavy-polluting and non-heavy-polluting companies, to explore the differences in the findings among different subgroups. Their study confirmed the moderating role of external SC and reported that previous research had suggested that stronger social capital enabled firms to obtain greater financial performance improvements through social responsibility. To study the moderating effect of SC, the following hypothesis will be tested.

H4: SC moderates the relationship between EP and CSR, with regards to the social dimension of the latter.

H5: SC moderates the relationship between EP and CSR, with regards to the economic dimension of the latter.

H6: SC moderates the relationship between EP and CSR, with regards to the environmental dimension of the latter.

The theoretical model and research framework of the study are presented in Figure 1.

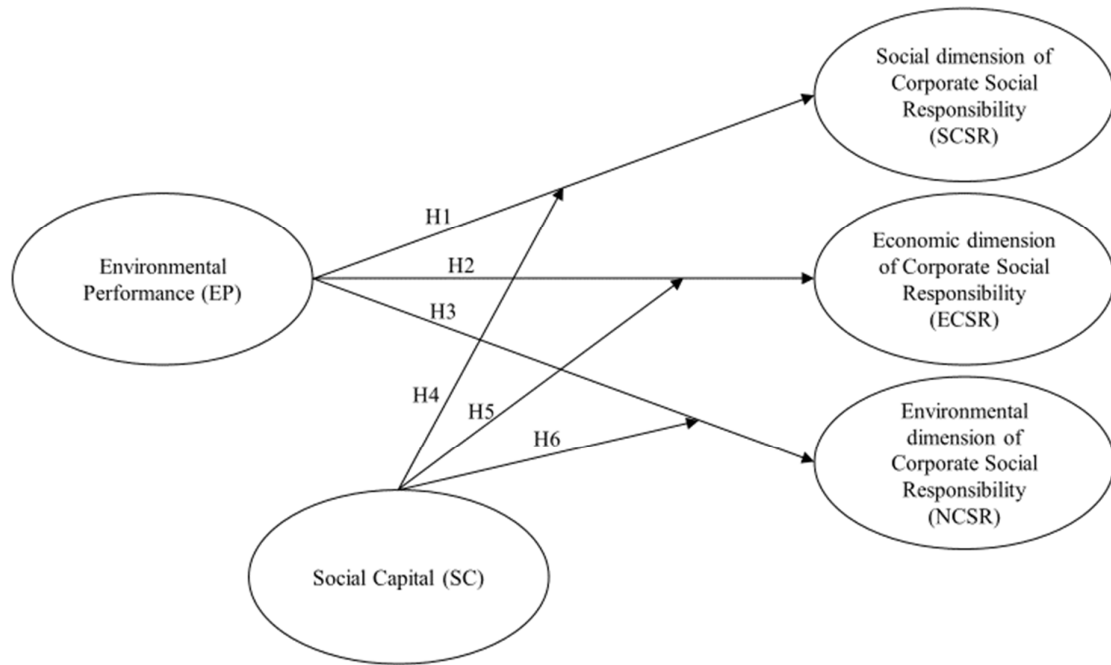


Figure 1. Theoretical model and research framework.

In the model suggested above, EP is considered as independent and CSR as dependent variable. The latter is analyzed in its three dimensions, namely Social (SCSR), Economic (ECSR) and Environmental (NCSR). SC is regarded a moderating variable. H1-6 stand for the study hypotheses.

2.3 The context of the study

For the purposes of the study the industries of chemicals – oil & gas, energy, power plants, cement, metals and steel production in Greece were selected. These industries share a commonality in their classification as heavy industries, characterized by resource-intensive processes and significant environmental impact.

These sectors are integral components of the global industrial landscape, playing pivotal roles in meeting energy demands, fueling economic growth, and providing essential materials for infrastructure development. Despite their indispensable contributions to societal progress, these industries face heightened scrutiny due to their environmental footprint. The extraction, production, and utilization of resources in oil & gas, energy, and manufacturing processes in power plants, cement, and steel production often result in substantial ecological consequences. As a result, the environmental performance of these industries has become a focal point for stakeholders, including regulatory bodies, investors, and the public, emphasizing the imperative for sustainable practices.

According to the IEA Energy Balance sectoral boundaries, “chemicals” refers to the chemical and petrochemical sector, including non-energy use for chemical feedstock, “steel” refers to the iron and steel sector, including energy use in blast furnaces and coke ovens, “cement” describes a portion of the non-metallic minerals sector (*Energy Technology Perspectives 2020*, 2020).

There are specific characteristics which are common across heavy industries (*Energy Technology Perspectives 2020*, 2020):

- (1) The technologies promising to mitigate their emissions still lack maturity. While renewable energy sources are widely in use today, the same cannot be said for technologies aiming at lowering emissions in heavy industry (i.e., carbon capture, utilization and storage technologies).
- (2) Heavy industry requires high temperatures for many of its processes, which is ultimately achieved by burning fossil fuels. Achieving high temperatures using electricity is impractical and expensive, while the availability of biomass as substitute is limited.
- (3) Many industrial processes producing emissions are inherent in today’s production. For example, the calcination reaction producing clinker, the active ingredient of cement, inherently produces substantial amounts of CO₂ emissions.
- (4) These industries possess long-lived capital assets. Industrial plant infrastructure has a long life cycle; typically, 30-40 years. Replacing them with alternative technologies would entail very large costs. Therefore, emitting processes are “locked-in” unless it is possible to modify them to reduce emissions intensity.
- (5) Their products are traded in highly competitive global markets (i.e., steel, aluminum). This makes it difficult for individual producers or regions to choose alternative production pathways to reduce environmental output without being undercut on price. Low profit margins add to this challenge, making it difficult to fund the large upfront investments of integrating near-zero emission technologies.

Agan et al. (2014), studied the relationship between environmental supplier development, which is the development of suppliers to manufacturers for the purpose of EP, and CSR, in different sectors, such as finished goods (including machinery, automotive, appliances and electronics), heavy industries (including metal and construction companies), textile and apparel companies and chemical and plastic manufacturers (Agan et al., 2014). According to the researchers, the relationship between CSR and ESD was not significant in heavy industries, in comparison to the sectors of consumer products, textiles and chemicals. The researchers proposed as possible explanation for this weak relationship between CSR and

ESD that heavy industries are somewhat away from consumers in the supply chain, that they put little effort towards CSR, as they are likely to be motivated by regulations instead, or that they have different mechanisms in developing suppliers (Agan et al., 2014).

However, in addition to industries closer to consumers, industries that involve either the exploitation of natural resources or industries with the potential to cause great harm to human life are targeted by stakeholders. This is because the actions of these industries often harm entire communities or destabilize complete ecosystems. Such harm attracts the attention of important stakeholders, such as the media, government and class action lawyers enabling broader stakeholder action (Zu, 2009).

Undoubtedly, daily lives would be hard to imagine without essentials produced by heavy industries, necessary for the construction and heating of buildings, for fueling vehicles and transportation, for everyday energy needs etc. (*Energy Technology Perspectives 2020*, 2020). Additionally, since heavy industries address fundamental needs of everyday life, they are inextricably linked to stakeholders at a regional level, such as regional administration, citizens, employees etc. Besides responding to everyday needs through their products, at a regional level, heavy industries create employment opportunities, affect the natural environment, and are directly influenced by administration. At the same time, their influence extends at a national and international level, with regards to the natural environment, national and global economy and politics (the reader may contemplate, for example, how the energy industry was affected by the Ukrainian war and reshaped the way industries work, as well as daily life globally).

For the abovementioned reasons, the industries selected, characterized by resource-intensive processes, significant environmental impact and strong relationship with stakeholders, provide a great setting for the present study.

3. Methodology

3.1 Data collection and sampling

A survey questionnaire was employed to gather data in the research context. The questionnaire was administered in the summer of 2023 in online form to Human Resources Directors of thirty (30) heavy industries in Greece. The Human Resources Directors forwarded the questionnaire to employees of the industries. The questions were back-translated to English to ensure that the Greek versions reflected the same constructs as the original versions and were clear and meaningful to the target group. The questionnaire collected essential information,

such as position in the organization and education level and included 48 constructs that could be responded to using a Likert scale, from 1 (strongly disagree) to 5 (strongly agree).

3.3 Measures

Position and education level were selected as control variables, as they have been shown to influence the study constructs (Bhat et al., 2024; Laosirihongthong et al., 13 C.E.). The operationalization of the control variables is presented in Appendix 1.

The measures used in this study were selected from well-established international scales. All items were measured using a 5-point Likert scale, with 1 corresponding to “strongly disagree” and 5 to “strongly agree”.

EP consists of six measures, adopted from Yongbin Zhu and Ruoqi Huang (2023), who combined the scale developed by scholars such as Kenneth De Roeck and Omer Farooq (2018), and Li et al. (De Roeck & Farooq, 2018; J. Li et al., 2019; Zhu & Huang, 2023). In comparison to scales used by other scholars for measuring EP, such as Bhat et al. (2024), who targeted employees in manufacturing industries, and Laosirihongthong et al. (2013), who targeted environmental management representatives, the scale used in the present study was considered a better fit for industry employees, since it does not require specialist knowledge in EP (Bhat et al., 2024; Laosirihongthong et al., 13 C.E.).

SC was measured using a seven-item scale adopted from the literature (Bhatti et al., 2023). Wu et al. (2008) had designed a preliminary version of this questionnaire, which was thoroughly tested for its validity and reliability via expert interview and a pilot study, resulting, after refining, to the final version (Wu et al., 2008). Bhatti et al. (2023) modified it by changing the Likert scale from 1-7 to 1-5 (Bhatti et al., 2023). Since the definition of SC varies in the literature, leading to different scales (Vveinhards et al., 2014; Zhang & Liu, 2023), the construct used in this study bases SC at the level of employees and on information and resource sharing across employees (i.e., “Employees often exchange information in an informal way.”), development of network ties (i.e., “Our company is characterized by personal friendship among the colleagues at multiple levels.”) and sharing of values (i.e., “Our colleagues share the same ambitions.”).

CSR was measured using a thirty-five-item scale adopted from the literature (Gallardo-Vázquez & Sanchez-Hernandez, 2014). The perceived orientation of CSR was analyzed in the three axes of the Triple Bottom Line, the social (14 items), the economic (12 items) and the environmental dimension (9 items).

4. Results

Upon completion and gathering of the questionnaires from the respondents, a statistical analysis was conducted in order to process and evaluate the research data and present them in an interpretable format. Initially, scale reliability analysis was performed to assess the reliability of the research measures. Then, the respondents were demographically profiled and a descriptive analysis of the sample was performed in order to screen the collected data. A Pearson's correlation analysis followed, as a means to find the strength and direction of the relationship between EP and the three aspects of CSR. Finally, hierarchical multilevel regression analyses were performed to identify interventions and alterations in the strength of any causal association between the explanatory variables and the dependent variables of CSR. The statistical analysis of this study was conducted with the use of the "IBM® SPSS® Statistics 23" comprehensive system and the detailed steps of this analysis are presented in Appendix 2.

4.1 Reliability analysis

As a first step to the statistical analysis the coefficient of Cronbach Alpha was evaluated for the scales used in this study to ensure scale reliability. Cronbach Alpha is a measure of the internal consistency of a scale and is widely used as a means of assessing the reliability of a scale (Hair et al., 1998). A Cronbach Alpha value of 0.70 or above is generally accepted to demonstrate a high level of homogeneity within the scale and to determine that the items do reflect a single dimension. The reliability tests which conducted for each scale indicated that the reliability coefficients exceeded the recommended significant level of 0.70 for both the majority of the scales and the questionnaire as a whole (Tables 1 and 2, respectively).

Table 1. Reliability statistics.

| Variables | Cronbach's alpha | No. of items |
|-------------------|------------------|--------------|
| EP | 0.875 | 6 |
| SC | 0.635 | 7 |
| Social CSR | 0.936 | 14 |
| Economic CSR | 0.928 | 12 |
| Environmental CSR | 0.929 | 9 |

Table 2. Overall reliability statistics.

| Cronbach's alpha | No. of items |
|------------------|--------------|
| 0.867 | 48 |

4.2 Frequencies

Sample characteristics are presented in Table 3. The data of one hundred twenty-two (122) employees were analyzed. Employees with less than five years of experience in the organization were thirty-one (31) and accounted for 25.4% of the sample, while employees with more than five-year experience were thirty-nine (39), comprising the second largest group (32.0%). The largest group were Department Heads, who were forty-one (41) and accounted for 33.6% of the sample. Eleven (11) respondents were General Directors, corresponding to 9.0% of the sample. The education distribution from elementary to doctorate education seemed to skew to the right, since 2 (1.6%), 63 (51.6%), 55 (45.1%) and 2 (1.6%) of the respondents held a doctoral, a Master's, an undergraduate and a post-secondary non-university degree, respectively.

Table 3. Sample characteristics in absolute numbers and percentages.

| Variables | N | % |
|---|----|------|
| <i>Position</i> | | |
| General Director | 11 | 9.0 |
| Department Head | 41 | 33.6 |
| Employee with > 5 years of experience in the organization | 39 | 32.0 |
| Employee with < 5 years of experience in the organization | 31 | 25.4 |
| <i>Education</i> | | |
| Postgraduate doctoral degree | 2 | 1.6 |
| Postgraduate degree – Master's | 63 | 51.6 |
| Undergraduate degree – Bachelor/Diploma | 55 | 45.1 |
| Post-secondary non-university degree | 2 | 1.6 |
| Higher secondary education – High school | - | - |
| Lower secondary education | - | - |
| Primary education – Elementary school | - | - |

4.3 Descriptive statistics

Descriptive statistics (i.e., Mean M, and Standard Deviation SD) were reported for all the scales and subscales as well as their items. Items were measured via a 5-point Likert-type scale where 1 equaled to “Strongly disagree” and 5 to “Strongly agree”. The sums of the mean values of responses to all questions were used to measure scores.

The 6 items of EP are presented in Table 4. All estimated means were above 3.6. The lowest mean value (3.64) is scored on the item “Our organization uses clean energy and fuels”. This value indicates that the perceived employment of clean energy and fuels in the Greek heavy industries studied is neither low nor extensive. The highest mean value (4.25) appears for the item “Our organization takes initiatives to employ low-carbon energy-saving products

and equipment.”. The mean values are close to 4 for all items, which represents a high perceived EP.

Table 4. Descriptives for EP.

| Item | Mean | Std. Deviation |
|--|------|----------------|
| Our organization takes initiatives to employ low-carbon energy-saving products and equipment. | 4.25 | 0.753 |
| Our organization uses clean energy and fuels. | 3.64 | 0.963 |
| Our organization uses a comprehensive energy-saving system and measures for energy conservation, comprehensive recycling of resources, green office, etc., and has implemented them effectively. | 4.03 | 0.812 |
| Our organization has built a perfect environmental protection organization management system and environmental management system. | 4.15 | 0.768 |
| Our organization reduces environmentally harmful behaviors. | 3.93 | 0.960 |
| Our company actively participates in various social environmental causes and environmental protection acts such as ecological protection. | 3.80 | 0.444 |
| TOTAL | 3.97 | 0.629 |

The SC scale contains 7 items, which are summarized in Table 5.

Table 5. Descriptives for SC.

| Item | Mean | Std. Deviation |
|---|------|----------------|
| Employees often exchange information in an informal way. | 3.16 | 1.106 |
| Our organization is characterized by personal friendship among the colleagues at multiple levels. | 3.66 | 0.889 |
| In this relationship both sides avoid making demands that can seriously damage the interests of the other. | 3.61 | 0.876 |
| Our colleagues always keep their promises to us. | 3.66 | 0.811 |
| Our colleagues clearly understand the goal and vision in our organization. | 3.57 | 0.822 |
| Our colleagues share the same ambitions. | 3.17 | 0.897 |
| People in our unit are enthusiastic about pursuing the collective goals and missions of the whole organization. | 3.61 | 0.913 |
| TOTAL | 3.49 | 0.508 |

All estimated means were above 3.1, with the highest value of 3.66 appearing for the items “Our organization is characterized by personal friendship among the colleagues at multiple levels.” and “Our colleagues always keep their promises to us.”. The lowest mean appeared for the item “Employees often exchange information in an informal way.”, which possessed the highest standard deviation of 1.106, meaning that the score varied significantly from response to response. The mean values are suggestive that SC is on the positive side but not high among employees.

Tables 6, 7 and 8 summarize the 14, 12 and 9 items of the social, the economic and the environmental dimension of CSR, respectively.

In the subscale of SCSR, the highest mean value (4.20) was scored for the item “Our organization has standards of health and safety beyond the legal minimum.” and the lowest (3.12) for the item “Employee compensation is related to their skills and their results.”. The means for all items is higher than 3, which is indicative that SCSR perceived by employees is on the positive side, but cannot be considered high.

Table 6. Descriptives for SCSR.

| Item | Mean | Std. Deviation |
|--|------|----------------|
| Our organization supports the employment of people at risk of social exclusion. | 3.39 | 0.876 |
| Our organization values the contribution of disabled people to the business world. | 3.64 | 0.937 |
| Our organization is aware of the employees’ quality of life. | 3.90 | 1.007 |
| Our organization pays wages above the industry average. | 3.48 | 1.108 |
| Employee compensation is related to their skills and their results. | 3.12 | 1.001 |
| Our organization has standards of health and safety beyond the legal minimum. | 4.20 | 0.862 |
| Our organization is committed to job creation (fellowships, creation of job opportunities in the firm etc.). | 3.63 | 0.893 |
| Our organization fosters employees’ training and development. | 3.83 | 0.977 |
| Our organization has human resource policies aimed at facilitating the conciliation of employees’ professional and personal lives. | 3.52 | 1.070 |
| Employees’ initiatives are taken seriously into account in management decisions. | 3.16 | 1.007 |
| Equal opportunities exist for all employees. | 3.31 | 1.005 |
| Our organization participates in social projects to the community. | 3.90 | 1.063 |
| Our organization encourages employees to participate in volunteer activities or in collaboration with NGOs. | 3.80 | 1.090 |
| Our organization has dynamic mechanisms of dialogue with employees. | 3.50 | 1.014 |
| TOTAL | 3.60 | 0.735 |

In the subscale of ECSR, with the exception of the items “Our organization understands the importance of pension plans for employees.”, “Our organization is characterized as having the best quality-to-price ratio.” and “We have effective procedures for handling complaints.”, the latter of which has the lowest value (3.70), all other items present mean values above 4. The highest value (4.49) is found in item “Our products and/or services satisfy national and international quality standards.”. The overall mean value of 4.09 represent a high perceived ECSR by employees.

Table 7. Descriptives for ECSR.

| Item | Mean | Std. Deviation |
|---|-------------|----------------|
| Our organization understands the importance of pension plans for employees. | 3.85 | 1.065 |
| Our organization takes particular concern to offer high quality products and/or services to customers. | 4.42 | 0.714 |
| Our products and/or services satisfy national and international quality standards. | 4.49 | 0.719 |
| Our organization is characterized as having the best quality-to-price ratio. | 3.84 | 0.772 |
| The guarantee of our products and/or services is broader than the market average. | 4.05 | 0.770 |
| We provide our customers with accurate and complete information about our products and/or services. | 4.16 | 0.754 |
| Respect for consumer rights is a management priority. | 4.05 | 0.770 |
| We strive to enhance stable relationships of collaboration and mutual benefit with our suppliers. | 4.15 | 0.735 |
| We understand the importance of incorporating responsible purchasing (i.e., we prefer responsible suppliers). | 4.25 | 0.785 |
| We foster business relationships with organizations in this region. | 4.04 | 0.754 |
| We have effective procedures for handling complaints. | 3.70 | 1.026 |
| Our economic management is worthy of regional or national public support. | 4.08 | 0.878 |
| TOTAL | 4.09 | 0.612 |

In the subscale of NCSR, with the exception of the items “Our organization has a positive predisposition to the use, purchase, or production of environmentally friendly goods.” and “Our organization uses consumables, goods to process, and/or processed goods of low environmental impact.”, the latter of which possesses the lowest value (3.75), all other items present mean values above 4. The highest value (4.30) is found in item “Our organization is aware of the relevance of firms’ planning their investments to reduce the environmental impact that they generate.”. The overall mean value is 4.09, which indicates that the perceived NCSR is high.

Table 8. Descriptives for NCSR.

| Item | Mean | Std. Deviation |
|--|------|----------------|
| Our organization is able to minimize our environmental impact. | 4.07 | 0.664 |
| Our organization uses consumables, goods to process, and/or processed goods of low environmental impact. | 3.75 | 0.666 |
| Our organization takes energy savings into account in order to improve levels of efficiency. | 4.06 | 0.881 |
| Our organization attaches high value to the introduction of alternative sources of energy. | 4.20 | 0.892 |
| Our organization participates in activities related to the protection and enhancement of our natural environment. | 4.11 | 0.780 |
| Our organization is aware of the relevance of firms' planning their investments to reduce the environmental impact that they generate. | 4.30 | 0.659 |
| Our organization is in favor of reductions in gas emissions and in the production of wastes, and in favor of recycling materials. | 4.16 | 0.761 |
| Our organization has a positive predisposition to the use, purchase, or production of environmentally friendly goods. | 3.99 | 0.917 |
| Our organization values the use of recyclable containers and packaging. | 4.16 | 0.783 |
| TOTAL | 4.09 | 0.705 |

4.4 Univariate analysis

Table 9 illustrates the results of the Pearson's correlation among study variables including interaction effects.

Table 9. Correlations among study variables.

| Variables | EP | SC | SCSR | ECSR | NCSR | Position | Education |
|-----------|--------|--------|--------|--------|--------|----------|-----------|
| EP | (0.88) | | | | | | |
| SC | 0.35* | (0.64) | | | | | |
| SCSR | 0.56* | 0.45* | (0.94) | | | | |
| ECSR | 0.62* | 0.32* | 0.74* | (0.93) | | | |
| NCSR | 0.76* | 0.25* | 0.76* | 0.73* | (0.93) | | |
| Position | 0.08 | 0.12 | 0.08 | -0.02 | 0.01 | - | |
| Education | -0.05 | -0.09 | -0.03 | 0.02 | 0.04 | 0.23* | - |

Note: Values in parentheses represent internal consistency reliability estimates. * $p < 0.01$.

EP was found to have a significantly moderate positive relationship to SC ($r = 0.35$, $p < 0.01$) and a significantly positive relationship to social, economic and environmental CSR ($r = 0.56$, $r = 0.62$, $r = 0.76$, respectively, $p < 0.01$). SC was moderately correlated to social and economic CSR ($r = 0.45$, $r = 0.32$, respectively, $p < 0.01$) and weakly correlated to environmental CSR ($r = 0.25$, $p < 0.01$). There was a significantly strong positive correlation among each pair of CSR dimensions; more significantly, social CSR was strongly correlated with economic and environmental CSR ($r = 0.74$, $r = 0.76$, respectively, $p < 0.01$) and economic

CSR is strongly correlated with environmental CSR ($r = 0.73$, $p < 0.01$). There is also a significantly weak positive relationship between education and position.

4.6 Hierarchical multilevel regression analysis

Hierarchical multilevel regression analysis was employed to test the research hypotheses (Hair et al., 1998). To avoid both any misinterpretation of the main effects and multicollinearity between the predictors and the interaction items, all variables involved in the interactions were standardized (Aiken & West, 1991).

The results from the hypotheses testing for the social dimension of CSR are summarized in Table 10.

Table 10. Hierarchical regression analysis for SCSR.

| Variables | Model 1 | Model 2 | Model 3 | Model 4 |
|-----------------------------|---------|----------|-----------|----------|
| <i>Control Variables</i> | | | | |
| Position | 0.074 | 0.033 | -0.006 | 0.005 |
| Education | -0,064 | -0.016 | 0.022 | 0.018 |
| <i>Independent variable</i> | | | | |
| EP | | 0.645*** | 0.531*** | 0.545*** |
| <i>Moderator</i> | | | | |
| SC | | | 0.0420*** | 0.407** |
| <i>Two way interaction</i> | | | | |
| EPxSC | | | | 0.048 |
| R ² | 0.009 | 0.311 | 0.384 | 0.386 |
| R ² Δ | | 0.322 | 0.363 | 0.360 |

* $p < 0,1$; ** $p < 0,01$; *** $p < 0,001$

Table 11 summarizes the results from the hypotheses testing for the economic dimension of CSR.

Table 11. Hierarchical regression analysis for ECSR.

| Variables | Model 1 | Model 2 | Model 3 | Model 4 |
|-----------------------------|---------|----------|----------|----------|
| <i>Control Variables</i> | | | | |
| Position | -.015 | -0.055 | -0.065 | -0.064 |
| Education | 0.028 | 0.074 | 0.088 | 0.089 |
| <i>Independent variable</i> | | | | |
| EP | | 0.610*** | 0.567*** | 0.564*** |
| <i>Moderator</i> | | | | |
| SC | | | 0.160* | 0.163* |
| <i>Two way interaction</i> | | | | |
| EPxSC | | | | -0.009 |
| R ² | 0.001 | 0.390 | 0.405 | 0.405 |
| R ² Δ | | 0.389 | 0.015 | 0.000 |

* $p < 0,1$; ** $p < 0,01$; *** $p < 0,001$

Table 12 summarizes the results from the hypotheses testing for the environmental dimension of CSR.

Table 12. Hierarchical regression analysis for NCSR.

| Variables | Model 1 | Model 2 | Model 3 | Model 4 |
|-----------------------------|---------|----------|----------|----------|
| <i>Control Variables</i> | | | | |
| Position | -.017 | -0.038 | -0.037 | -0.040 |
| Education | -0.051 | 0.014 | 0.013 | 0.006 |
| <i>Independent variable</i> | | | | |
| EP | | 0.856*** | 0.859*** | 0.855*** |
| <i>Moderator</i> | | | | |
| SC | | | -0.014 | -0.0383 |
| <i>Two way interaction</i> | | | | |
| EPxSC | | | | -0.086 |
| R ² | 0.002 | 0.578 | 0.578 | 0.588 |
| R ² Δ | | 0.576 | 0.000 | 0.010 |

* $p < 0,1$; ** $p < 0,01$; *** $p < 0,001$

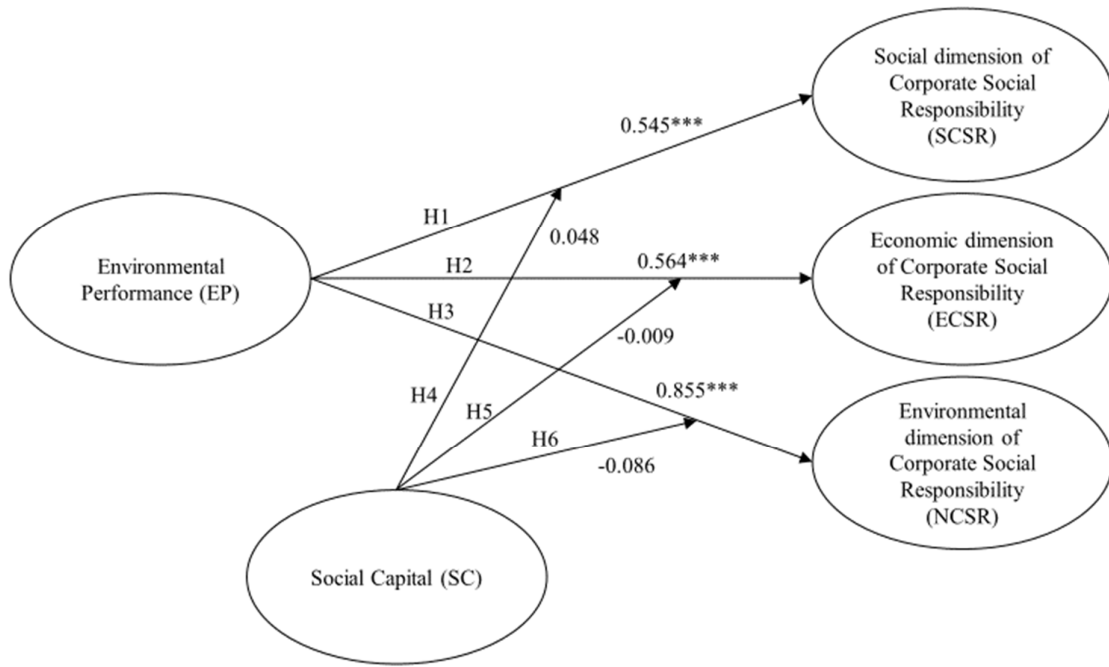
The direct effect of EP on the social, environmental and economic dimensions of CSR along with the moderating effect of SC on this relationship was tested with hierarchical multiple regression analysis. The control variables were entered in the first step (Model 1), followed by EP in the second step (Model 2). Then, the moderating variable was entered in the third step (Model 3), followed by the interaction term EPxSC on the fourth step of analysis (Model 4) (Aiken & West, 1991).

The results indicate that EP has a significant positive direct effect on the social ($b = 0.545$, $p < 0.001$), the economic ($b = 0.564$, $p < 0.001$), and the environmental dimension of CSR ($b = 0.855$, $p < 0.001$).

Although SC has an effect on the social and environmental dimension of CSR ($b = 0.407$, $p < 0.01$ and $b = 0.163$, $p < 0.1$, respectively), the interaction term EPxSC did not display a positive and significant coefficient for the dependent variables ($b = 0.048$, $p = 0.466$, $b = -0.009$, $p = 0.865$ and $b = -0.086$, $p = 0.095$, respectively).

These results indicate that hypotheses 1-3 of this study are fully supported. On the contrary, hypotheses 4-6 are not supported and SC does not moderate the relationship between EP and the three dimensions of CSR.

The findings of this study's conceptual model are presented in Figure 2.



** $p < 0,1$; ** $p < 0,01$; *** $p < 0,001$

Figure 2. Research model estimation findings.

5. Discussion

5.1 Theoretical implications

The aim of this study was to investigate the relationship between EP and the three dimensions of CSR, social, economic and environmental, and the moderating role of SC. Our findings report that higher levels of EP are associated with high levels of the social, the economic and the environmental dimension of CSR, respectively (EP: $M = 3.97$, social, economic and environmental CSR: $M = 3.60$, $M = 4.09$, $M = 4.09$, respectively). Results from the hierarchical multilevel regression analysis suggest that EP is a significant predictor of the implementation of CSR activities in the three dimensions ($b = 0.545$, $p < 0.001$, $b = 0.564$, $p < 0.001$ and $b = 0.855$, $p < 0.001$, respectively). However, hierarchical multilevel regression analysis results did not support hypotheses 4 – 5, namely that SC acts as a moderator in the relationships between EP and social, EP and economic and EP and environmental CSR ($b = 0.048$, $p = 0.466$, $b = -0.009$, $p = 0.865$ and $b = -0.086$, $p = 0.095$, respectively).

The findings showcase that the employees in the setting studied agree that their organizations address EP concerns and implement CSR activities to a significant extent, in three dimensions, social, economic and environmental. Additionally, a weak positive relationship between education and position was observed, indicating that highly educated personnel tends to occupy higher positions. An important takeaway is that the SC developed in their organizations does not act as a moderator in the translation of EP to CSR actions.

Early efforts have primarily focused on studying CSR using corporate-level analyses and indices, such as information from company reports, published reports, reputation indices and metrics of industrial operations (Abbot & Monsen, 1979; Acosta-Alba et al., 2012; Azapagic, 2004; Chee Tahir & Darton, 2010; P. Clarkson et al., 2008; Maignan & Ferrel, 2000; Nordheim & Barrasso, 2007; Ruf, 1998; Ullmann, 1985; Veleva & Ellenbecker, 2001). In the breadth of CSR literature, the EP of organizations has been investigated as one of the factors leading to their implementation of CSR activities, and various studies have showcased the relationship between EP and CSR (Bhat et al., 2024). The current research model of the association between EP and CSR in heavy industries distinguished itself from the existing literature by studying the association at the individual level (EP and CSR perceived by employees), thereby extending the CSR scholarship, while at the same time following the efforts of previous research on individual attitudes and values towards CSR (Aupperle et al., 1985; Quazi & O'Brien, 2000; Singhapakdi et al., 1996; Turker, 2008) and responding to calls

of scholars for more research on CSR at the level of individuals (Shin & Hur, 2020; Tian & Robertson, 2019).

The relationship between EP and CSR has been reported in the literature, but due to its reciprocal nature, directional causality is ambiguous. The present research overcomes this issue by presenting that, in the setting studied, EP is a factor contributing to the implementation of CSR practices.

A potential explanation for SC not acting as a moderator could be that heavy industries are typically associated with high employee turnover due to their risky work environment and competitive landscape (Awan, 2015; Chivatanaporn, 2014; Kato, 2017). In other words, employees leave the company before they can establish networks and friendships within the company. Previous research has characterized heavy industry as “vulnerable” and “associated with self-interest behavior” (Kato, 2017). Another explanation could be that organizational goals are not clear among employees, therefore making it difficult for employees to identify with the organization. Employee morale and attitudes to work makes it easier for employees to connect with the company (Vuong & Bui, 2023). Enterprises should employ internal channels of communication in boosting the value of social responsibility by involving employees into CSR and, at the same time strengthening employee social capital, since poor communication has been reported to lower the efficacy of CSR (Dhanesh, 2020; Stojanović et al., 2022). A positive atmosphere can boost productivity, thus contribute to the success of CSR activities. Employee engagement can increase their confidence in the enterprises that retain them and they will start to care more about their work (Vuong & Bui, 2023), thus the social atmosphere within the organization.

Since EP comprises the environmental aspect of ESG, the important relationship between EP and CSR confirmed for the setting of the present study encourages future researchers to explore the relationship between EP and CSR in different settings, as well as that between sustainability or corporate governance aspects and CSR. More research on CSR at the level of individuals is necessary, since it is fundamental in breaking down organizational policies and goals to individual motivations towards CSR (Shin & Hur, 2020; Tian & Robertson, 2019). Moreover, the present study suggests that research on CSR can be further enriched via approaches through the lens of SC, as the relationship between SC and CSR is demonstrated to be intricate and diversified. Previous research has reported that there is a link between happiness at work and employee participation in CSR initiatives (Appiah, 2019). Additionally, in the context of CSR initiatives, employee attitudes, especially trust and intrinsic motivation, have been reported to be positively and substantially associated (Vuong & Bui,

2023). Therefore, there is great ambiguity in the relationship between CSR and SC and its mechanism, which needs to be clarified in different settings. Finally, further research is needed to investigate potential obstacles and factors promoting SC development in heavy industry (Kato, 2017).

5.2 Practical implications

The practical implications of the findings from this study have significant ramifications for practitioners, managers, and policymakers in the realm of corporate sustainability and social responsibility. The identified strong relationship between organizational environmental performance (EP) and corporate social responsibility (CSR) underscores the importance of prioritizing environmental sustainability within the corporate strategy. For professionals in Greek heavy industries, particularly in chemicals, oil & gas, power, cement, metals, and steel production companies, understanding and enhancing EP can serve as a strategic lever for fostering CSR initiatives.

One key practical implication pertains to the targeted allocation of resources and efforts toward improving EP, as this is shown to positively influence CSR across its social, economic, and environmental dimensions. Organizations should consider integrating Environmental, Social, and Governance (ESG) actions and initiatives into their day-to-day operations and overarching strategies. This integration should extend beyond the corporate level and penetrate the individual level of analysis, as indicated by this research. Managers should be attentive to the fact that fostering a positive environmental performance not only contributes to broader CSR goals but also has implications for internal stakeholders.

The non-significant moderation effect of building employee social capital (SC) suggests that the influence of SC as a moderating factor may be context-dependent. However, the identification of this non-significant effect should not discount the potential importance of SC in the broader context of CSR. It points to the need for further exploration and nuanced investigation into the role of SC in shaping CSR initiatives. Future research should delve into the specific conditions or contexts where SC may play a more prominent role in moderating the relationship between EP and CSR, providing practical insights for organizations seeking to enhance their CSR practices.

5.3 Limitations and future directions

Although this study has achieved its objectives, there are several limitations associated with it. First of all, the collection of data in the Greek context limits the ability to extrapolate

the results to other areas. Although this study uses findings about other national contexts, such as India and China, the current investigation focuses on Greek heavy industry and additional research is needed before applying its findings to other areas. Most of the studies on CSR have been conducted in developed countries. As a result, their conclusions cannot be generalized to the setting of developing countries. There are two reasons for this. First, developed and developing countries differ in their infrastructure, regulation and levels of knowledge. Second, the definition and implementation of CSR varies across environments (Vuong & Bui, 2023).

Additionally, this study targets heavy industry, namely oil and gas, power, cement, steel and metal production companies. It is ambiguous whether the results of the present study can be extrapolated to other types of industries. The specific sample was selected because the respondents work for industries having significant limitations in addressing environmental concerns and facing heightened scrutiny with regards to their environmental output. It is recommended that future researchers replicate this study for other types of industries in order to observe the relationships between the variables studied accordingly.

Since the respondents work for Greek heavy industries, they may have similar attributes and attitudes, which limit the results. Further research needs to be carried out, examining different sources of data and/or methods in different contexts. Even though the present study did not follow a multilevel approach, the results still shed light on the relationship between EP and CSR, as well as the potential of SC in the industrial setting in both theoretical and practical terms and can be useful in advancing existing knowledge in the study constructs.

Another limitation is that responses of employees with less than five-year experience in their organization were taken into consideration for the results analysis, along with the responses of more experienced employees, department heads and general directors. This decision is based on the argument that even less experienced employees have specialized knowledge in the operations of their organizations and therefore their insights are of value for the purposes of this study.

Finally, it cannot be guaranteed that the findings would yield consistent results over a prolonged time frame. Since EP and CSR are dynamic and highly influenced by relevant regulatory frameworks and incentives, it is recommended that the research findings are examined over different time periods.

6. Conclusions

The objective of this study was to investigate the relationship between organizational environmental performance and corporate social responsibility, as well as the role of building

employee social capital as moderator in this relationship, in Greek heavy industries (i.e., power plants, chemicals, cement, metals and steel production companies). The investigation was based at the level of individuals, namely employees of the industries studied. The findings suggest a strong relationship between environmental performance and corporate social responsibility, in all three dimensions of the latter, namely the social, the economic and the environmental dimension. Additionally, the results resolved the issue of directional causality between the two concepts, by proposing that environmental performance is a predictor of corporate social responsibility. In other words, the greater the extent to which the organizations studied address environmental performance concerns, the more extensive their implementation of corporate social responsibility practices, as perceived by employees. The moderation effect of social capital was not statistically significant. The influence of SC in the relationship between environmental performance and corporate social responsibility as a moderating factor may be context-dependent.

These findings are not redundant and may lead to a better understanding of the importance of practitioners and managers in Greek heavy industries to prioritize and enhance environmental performance, as part of the integration of ESG actions into daily operations, to foster corporate social responsibility initiatives, especially since a positive environmental performance has implications for internal stakeholders. The identification of the non-significant moderation effect of social capital should not understate its importance in the broader context of corporate social responsibility. It highlights the need for further investigation into the role of social capital in shaping corporate social responsibility initiatives.

7. Literature

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Appendix 1. Control variables and their operationalization

Table A1 summarizes the control variables, their type as well as their operational definition.

Table A1. Control variables and operational definition.

| Control variable | Type ^a | Operational definition |
|------------------|-------------------|---|
| Education | O/D | Seven categories were created (primary education – Elementary school; lower secondary education and higher secondary education – high school were not considered as categories, since all respondents had an education level that exceeded the aforementioned ones) 0 = Post-secondary, non-university education; 1 = Undergraduate degree – Bachelor/Diploma; 2 = Postgraduate degree – Master; 3 = Doctorate degree |
| Position | O/D | Four categories were created: 0 = Employee with under 5 years of experience in the organization; 1 = Employee with over 5 years of experience in the organization; 2 = Head of Department; 3 = General Director |

Notes: ^aOrdinal (O), Discrete (D).

Appendix 2. Statistical analysis results.

Table A2.1 Descriptives for Position and Education.

| Statistics | | | |
|----------------|---------|----------|-----------|
| | | Position | Education |
| N | Valid | 122 | 122 |
| | Missing | 0 | 0 |
| Mean | | 1,26 | 1,53 |
| Median | | 1,00 | 2,00 |
| Std. Deviation | | ,943 | ,563 |
| Variance | | ,889 | ,317 |
| Minimum | | 0 | 0 |
| Maximum | | 3 | 3 |

Table A2.2 Descriptives for Position.

| Position | | | | | |
|----------|-------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 0 | 31 | 25,4 | 25,4 | 25,4 |
| | 1 | 39 | 32,0 | 32,0 | 57,4 |
| | 2 | 41 | 33,6 | 33,6 | 91,0 |
| | 3 | 11 | 9,0 | 9,0 | 100,0 |
| | Total | 122 | 100,0 | 100,0 | |

Table A2.3 Descriptives for Education.

| Education | | | | | |
|-----------|-------|-----------|---------|---------------|--------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 0 | 2 | 1,6 | 1,6 | 1,6 |
| | 1 | 55 | 45,1 | 45,1 | 46,7 |
| | 2 | 63 | 51,6 | 51,6 | 98,4 |
| | 3 | 2 | 1,6 | 1,6 | 100,0 |
| | Total | 122 | 100,0 | 100,0 | |

Table A2.4 Descriptive statistics for all variables.

| Descriptive Statistics | | | | | |
|------------------------|-----|---------|---------|--------|----------------|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Position | 122 | 0 | 3 | 1,26 | ,943 |
| Education | 122 | 0 | 3 | 1,53 | ,563 |
| EP | 122 | 1,17 | 4,83 | 3,9658 | ,62908 |
| SC | 122 | 1,86 | 4,57 | 3,4918 | ,50767 |
| SCSR | 122 | 1,71 | 4,93 | 3,5989 | ,73485 |
| ECSR | 122 | 2,42 | 5,00 | 4,0908 | ,61237 |
| NCSR | 122 | 2,00 | 5,00 | 4,0911 | ,70519 |
| Valid N (listwise) | 122 | | | | |

Table A2.5 Pearson's Correlations between the study variables.

| | | Correlations | | | | | | |
|-----------|---------------------|--------------|--------|--------|--------|--------|----------|-----------|
| | | EP | SC | SCR | ECSR | NCSR | Position | Education |
| EP | Pearson Correlation | 1 | ,349** | ,556** | ,617** | ,759** | ,080 | -,045 |
| | Sig. (2-tailed) | | ,000 | ,000 | ,000 | ,000 | ,380 | ,619 |
| | N | 122 | 122 | 122 | 122 | 122 | 122 | 122 |
| SC | Pearson Correlation | ,349** | 1 | ,449** | ,317** | ,251** | ,123 | -,086 |
| | Sig. (2-tailed) | ,000 | | ,000 | ,000 | ,005 | ,177 | ,348 |
| | N | 122 | 122 | 122 | 122 | 122 | 122 | 122 |
| SCR | Pearson Correlation | ,556** | ,449** | 1 | ,742** | ,756** | ,084 | -,027 |
| | Sig. (2-tailed) | ,000 | ,000 | | ,000 | ,000 | ,357 | ,766 |
| | N | 122 | 122 | 122 | 122 | 122 | 122 | 122 |
| ECSR | Pearson Correlation | ,617** | ,317** | ,742** | 1 | ,727** | -,018 | ,020 |
| | Sig. (2-tailed) | ,000 | ,000 | ,000 | | ,000 | ,846 | ,825 |
| | N | 122 | 122 | 122 | 122 | 122 | 122 | 122 |
| NCSR | Pearson Correlation | ,759** | ,251** | ,756** | ,727** | 1 | ,013 | -,035 |
| | Sig. (2-tailed) | ,000 | ,005 | ,000 | ,000 | | ,883 | ,699 |
| | N | 122 | 122 | 122 | 122 | 122 | 122 | 122 |
| Position | Pearson Correlation | ,080 | ,123 | ,084 | -,018 | ,013 | 1 | ,233** |
| | Sig. (2-tailed) | ,380 | ,177 | ,357 | ,846 | ,883 | | ,010 |
| | N | 122 | 122 | 122 | 122 | 122 | 122 | 122 |
| Education | Pearson Correlation | -,045 | -,086 | -,027 | ,020 | -,035 | ,233** | 1 |
| | Sig. (2-tailed) | ,619 | ,348 | ,766 | ,825 | ,699 | ,010 | |
| | N | 122 | 122 | 122 | 122 | 122 | 122 | 122 |

** . Correlation is significant at the 0.01 level (2-tailed).

Table A2.6 EP scale reliability analysis.

| Reliability Statistics | | |
|------------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| ,875 | ,888 | 6 |

Table A2.7 SC scale reliability analysis.

| Reliability Statistics | | |
|------------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| ,635 | ,665 | 7 |

Table A2.8 Social CSR scale reliability analysis.

| Reliability Statistics | | |
|------------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| ,936 | ,936 | 14 |

Table A2.9 Economic CSR scale reliability analysis.

| Reliability Statistics | | |
|------------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| ,928 | ,931 | 12 |

Table A2.10 Environmental CSR scale reliability analysis.

| Reliability Statistics | | |
|------------------------|--|------------|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| ,929 | ,929 | 9 |

Table A2.11 H1-4 | Variables entered/removed.

| Variables Entered/Removed ^a | | | |
|--|----------------------------------|-------------------|--------|
| Model | Variables Entered | Variables Removed | Method |
| 1 | Education, Position ^b | . | Enter |
| 2 | EP ^b | . | Enter |
| 3 | SC ^b | . | Enter |
| 4 | MODEPSC ^b | . | Enter |

a. Dependent Variable: SCSR

b. All requested variables entered.

Table A2.12 H1-4 | Model summary.

| Model Summary | | | | | | | | | |
|---------------|-------------------|--------|------------|-----------------|----------|-------------------|-----|-----|---------------|
| Model | R | R | Adjusted R | Std. Error | R Square | Change Statistics | | | Sig. F Change |
| | | Square | Square | of the Estimate | Change | F Change | df1 | df2 | |
| 1 | ,097 ^a | ,009 | -,007 | ,73752 | ,009 | ,563 | 2 | 119 | ,571 |
| 2 | ,558 ^b | ,311 | ,294 | ,61763 | ,302 | 51,685 | 1 | 118 | ,000 |
| 3 | ,619 ^c | ,384 | ,363 | ,58669 | ,073 | 13,773 | 1 | 117 | ,000 |
| 4 | ,622 ^d | ,386 | ,360 | ,58786 | ,003 | ,535 | 1 | 116 | ,466 |

a. Predictors: (Constant), Education, Position

b. Predictors: (Constant), Education, Position, EP

c. Predictors: (Constant), Education, Position, EP, SC

d. Predictors: (Constant), Education, Position, EP, SC, MODEPSC

Table A2.13 H1-4 | ANOVA results.

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|-----|-------------|--------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | ,612 | 2 | ,306 | ,563 | ,571 ^b |
| | Residual | 64,729 | 119 | ,544 | | |
| | Total | 65,341 | 121 | | | |
| 2 | Regression | 20,328 | 3 | 6,776 | 17,764 | ,000 ^c |
| | Residual | 45,013 | 118 | ,381 | | |
| | Total | 65,341 | 121 | | | |
| 3 | Regression | 25,069 | 4 | 6,267 | 18,208 | ,000 ^d |
| | Residual | 40,272 | 117 | ,344 | | |
| | Total | 65,341 | 121 | | | |
| 4 | Regression | 25,254 | 5 | 5,051 | 14,615 | ,000 ^e |
| | Residual | 40,087 | 116 | ,346 | | |
| | Total | 65,341 | 121 | | | |

a. Dependent Variable: SCSR

b. Predictors: (Constant), Education, Position

c. Predictors: (Constant), Education, Position, EP

d. Predictors: (Constant), Education, Position, EP, SC

e. Predictors: (Constant), Education, Position, EP, SC, MODEPSC

Table A2.14 H1-4 | Coefficients.

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | Unstandardized Coefficients | | Standardized Coefficients | | |
| Model | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 3,604 | ,200 | | 17,990 | ,000 |
| | Position | ,074 | ,073 | ,096 | 1,018 | ,311 |
| | Education | -,064 | ,122 | -,049 | -,527 | ,600 |
| 2 | (Constant) | 1,022 | ,396 | | 2,580 | ,011 |
| | Position | ,033 | ,061 | ,043 | ,539 | ,591 |
| | Education | -,016 | ,103 | -,012 | -,152 | ,879 |
| | EP | ,645 | ,090 | ,552 | 7,189 | ,000 |
| 3 | (Constant) | -,018 | ,469 | | -,037 | ,970 |
| | Position | ,006 | ,059 | ,008 | ,106 | ,916 |
| | Education | ,022 | ,098 | ,017 | ,220 | ,826 |
| | EP | ,531 | ,091 | ,455 | 5,865 | ,000 |
| | SC | ,420 | ,113 | ,290 | 3,711 | ,000 |
| 4 | (Constant) | -,036 | ,471 | | -,076 | ,940 |
| | Position | ,005 | ,059 | ,006 | ,078 | ,938 |
| | Education | ,018 | ,098 | ,014 | ,180 | ,858 |
| | EP | ,545 | ,093 | ,467 | 5,878 | ,000 |
| | SC | ,407 | ,115 | ,281 | 3,543 | ,001 |
| | MODEPSC | ,048 | ,065 | ,055 | ,731 | ,466 |

a. Dependent Variable: SCSR

Table A2.15 H1-4 | Excluded variables.

| Excluded Variables ^a | | | | | | |
|---------------------------------|---------|-------------------|-------|------|---------------------|--------------------------------------|
| | | Beta In | t | Sig. | Partial Correlation | Collinearity Statistics Tolerance |
| 1 | EP | ,552 ^b | 7,189 | ,000 | ,552 | ,989 |
| | SC | ,446 ^b | 5,345 | ,000 | ,441 | ,971 |
| | MODEPSC | ,003 ^b | ,037 | ,970 | ,003 | ,995 |
| 2 | SC | ,290 ^c | 3,711 | ,000 | ,325 | ,860 |
| | MODEPSC | ,096 ^c | 1,243 | ,216 | ,114 | ,968 |
| 3 | MODEPSC | ,055 ^d | ,731 | ,466 | ,068 | ,944 |

a. Dependent Variable: SCSR

b. Predictors in the Model: (Constant), Education, Position

c. Predictors in the Model: (Constant), Education, Position, EP

d. Predictors in the Model: (Constant), Education, Position, EP, SC

Table A2.16 H2-5 | Variables entered/removed.

| Variables Entered/Removed ^a | | | |
|--|----------------------------------|-------------------|--------|
| Model | Variables Entered | Variables Removed | Method |
| 1 | Education, Position ^b | . | Enter |
| 2 | EP ^b | . | Enter |
| 3 | SC ^b | . | Enter |
| 4 | MODEPSC ^b | . | Enter |

a. Dependent Variable: ECSR

b. All requested variables entered.

Table A3.17 H2-5 | Model summary.

| Model Summary | | | | | | | | | |
|---------------|-------------------|--------|------------|-----------------|----------|-------------------|-----|-----|---------------|
| Model | R | R | Adjusted R | Std. Error | R Square | Change Statistics | | | Sig. F Change |
| | | Square | Square | of the Estimate | Change | F Change | df1 | df2 | |
| 1 | ,031 ^a | ,001 | -,016 | ,61721 | ,001 | ,056 | 2 | 119 | ,945 |
| 2 | ,624 ^b | ,390 | ,374 | ,48439 | ,389 | 75,202 | 1 | 118 | ,000 |
| 3 | ,636 ^c | ,405 | ,385 | ,48037 | ,015 | 2,986 | 1 | 117 | ,087 |
| 4 | ,637 ^d | ,405 | ,380 | ,48237 | ,000 | ,029 | 1 | 116 | ,865 |

a. Predictors: (Constant), Education, Position

b. Predictors: (Constant), Education, Position, EP

c. Predictors: (Constant), Education, Position, EP, SC

d. Predictors: (Constant), Education, Position, EP, SC, MODEPSC

Table A2.18 H2-5 | ANOVA results.

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|-----|-------------|--------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | ,043 | 2 | ,021 | ,056 | ,945 ^b |
| | Residual | 45,332 | 119 | ,381 | | |
| | Total | 45,375 | 121 | | | |
| 2 | Regression | 17,688 | 3 | 5,896 | 25,128 | ,000 ^c |
| | Residual | 27,687 | 118 | ,235 | | |
| | Total | 45,375 | 121 | | | |
| 3 | Regression | 18,377 | 4 | 4,594 | 19,910 | ,000 ^d |
| | Residual | 26,998 | 117 | ,231 | | |
| | Total | 45,375 | 121 | | | |
| 4 | Regression | 18,384 | 5 | 3,677 | 15,801 | ,000 ^e |
| | Residual | 26,991 | 116 | ,233 | | |
| | Total | 45,375 | 121 | | | |

a. Dependent Variable: ECSR

b. Predictors: (Constant), Education, Position

c. Predictors: (Constant), Education, Position, EP

d. Predictors: (Constant), Education, Position, EP, SC

e. Predictors: (Constant), Education, Position, EP, SC, MODEPSC

Table A2.19 H2-5 | Coefficients.

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | Unstandardized Coefficients | | Standardized Coefficients | | |
| Model | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 4,067 | ,168 | | 24,262 | ,000 |
| | Position | -,015 | ,061 | -,024 | -,252 | ,801 |
| | Education | ,028 | ,102 | ,026 | ,274 | ,785 |
| 2 | (Constant) | 1,625 | ,311 | | 5,230 | ,000 |
| | Position | -,055 | ,048 | -,084 | -1,130 | ,261 |
| | Education | ,074 | ,081 | ,068 | ,921 | ,359 |
| | EP | ,610 | ,070 | ,627 | 8,672 | ,000 |
| 3 | (Constant) | 1,229 | ,384 | | 3,198 | ,002 |
| | Position | -,065 | ,048 | -,100 | -1,344 | ,182 |
| | Education | ,088 | ,080 | ,081 | 1,101 | ,273 |
| | EP | ,567 | ,074 | ,582 | 7,643 | ,000 |
| | SC | ,160 | ,093 | ,133 | 1,728 | ,087 |
| 4 | (Constant) | 1,232 | ,386 | | 3,190 | ,002 |
| | Position | -,064 | ,048 | -,099 | -1,331 | ,186 |
| | Education | ,089 | ,081 | ,082 | 1,104 | ,272 |
| | EP | ,564 | ,076 | ,580 | 7,411 | ,000 |
| | SC | ,163 | ,094 | ,135 | 1,726 | ,087 |
| | MODEPSC | -,009 | ,054 | -,013 | -,171 | ,865 |

a. Dependent Variable: ECSR

Table A2.20 H2-5 | Excluded variables.

| Excluded Variables ^a | | | | | | |
|---------------------------------|---------|--------------------|--------|------|---------------------|--------------------------------------|
| | | Beta In | t | Sig. | Partial Correlation | Collinearity Statistics Tolerance |
| 1 | EP | ,627 ^b | 8,672 | ,000 | ,624 | ,989 |
| | SC | ,332 ^b | 3,761 | ,000 | ,327 | ,971 |
| | MODEPSC | -,095 ^b | -1,038 | ,302 | -,095 | ,995 |
| 2 | SC | ,133 ^c | 1,728 | ,087 | ,158 | ,860 |
| | MODEPSC | ,007 ^c | ,100 | ,920 | ,009 | ,968 |
| 3 | MODEPSC | -,013 ^d | -,171 | ,865 | -,016 | ,944 |

a. Dependent Variable: ECSR

b. Predictors in the Model: (Constant), Education, Position

c. Predictors in the Model: (Constant), Education, Position, EP

d. Predictors in the Model: (Constant), Education, Position, EP, SC

Table A2.21 H3-6 | Variables entered/removed.

| Variables Entered/Removed ^a | | | |
|--|----------------------------------|-------------------|--------|
| Model | Variables Entered | Variables Removed | Method |
| 1 | Education, Position ^b | . | Enter |
| 2 | EP ^b | . | Enter |
| 3 | SC ^b | . | Enter |
| 4 | MODEPSC ^b | . | Enter |

a. Dependent Variable: NCSR

b. All requested variables entered.

Table A2.22 H3-6 | Model summary.

| Model Summary | | | | | | | | | |
|---------------|-------------------|--------|------------|-----------------|----------|-------------------|-----|-----|---------------|
| Model | R | R | Adjusted R | Std. Error | R Square | Change Statistics | | | Sig. F Change |
| | | Square | Square | of the Estimate | Change | F Change | df1 | df2 | |
| 1 | ,042 ^a | ,002 | -,015 | ,71047 | ,002 | ,104 | 2 | 119 | ,901 |
| 2 | ,760 ^b | ,578 | ,567 | ,46381 | ,576 | 161,229 | 1 | 118 | ,000 |
| 3 | ,760 ^c | ,578 | ,564 | ,46574 | ,000 | ,024 | 1 | 117 | ,877 |
| 4 | ,767 ^d | ,588 | ,571 | ,46213 | ,010 | 2,834 | 1 | 116 | ,095 |

a. Predictors: (Constant), Education, Position

b. Predictors: (Constant), Education, Position, EP

c. Predictors: (Constant), Education, Position, EP, SC

d. Predictors: (Constant), Education, Position, EP, SC, MODEPSC

Table A2.23 H3-6 | ANOVA results.

| ANOVA ^a | | | | | | |
|--------------------|------------|----------------|-----|-------------|--------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | ,105 | 2 | ,053 | ,104 | ,901 ^b |
| | Residual | 60,068 | 119 | ,505 | | |
| | Total | 60,173 | 121 | | | |
| 2 | Regression | 34,789 | 3 | 11,596 | 53,906 | ,000 ^c |
| | Residual | 25,384 | 118 | ,215 | | |
| | Total | 60,173 | 121 | | | |
| 3 | Regression | 34,794 | 4 | 8,699 | 40,101 | ,000 ^d |
| | Residual | 25,379 | 117 | ,217 | | |
| | Total | 60,173 | 121 | | | |
| 4 | Regression | 35,399 | 5 | 7,080 | 33,150 | ,000 ^e |
| | Residual | 24,774 | 116 | ,214 | | |
| | Total | 60,173 | 121 | | | |

a. Dependent Variable: NCSR

b. Predictors: (Constant), Education, Position

c. Predictors: (Constant), Education, Position, EP

d. Predictors: (Constant), Education, Position, EP, SC

e. Predictors: (Constant), Education, Position, EP, SC, MODEPSC

Table A2.24 H3-6 | Coefficients.

| Coefficients ^a | | | | | | |
|---------------------------|------------|-----------------------------|------------|---------------------------|--------|------|
| | | Unstandardized Coefficients | | Standardized Coefficients | | |
| Model | | B | Std. Error | Beta | t | Sig. |
| 1 | (Constant) | 4,147 | ,193 | | 21,492 | ,000 |
| | Position | ,017 | ,070 | ,023 | ,244 | ,808 |
| | Education | -,051 | ,118 | -,041 | -,432 | ,667 |
| 2 | (Constant) | ,724 | ,298 | | 2,432 | ,017 |
| | Position | -,038 | ,046 | -,050 | -,815 | ,417 |
| | Education | ,014 | ,077 | ,011 | ,179 | ,858 |
| | EP | ,856 | ,067 | ,763 | 12,698 | ,000 |
| 3 | (Constant) | ,758 | ,373 | | 2,036 | ,044 |
| | Position | -,037 | ,047 | -,049 | -,786 | ,433 |
| | Education | ,013 | ,078 | ,010 | ,162 | ,872 |
| | EP | ,859 | ,072 | ,767 | 11,951 | ,000 |
| | SC | -,014 | ,090 | -,010 | -,156 | ,877 |
| 4 | (Constant) | ,725 | ,370 | | 1,959 | ,052 |
| | Position | -,040 | ,046 | -,053 | -,855 | ,394 |
| | Education | ,006 | ,077 | ,004 | ,071 | ,943 |
| | EP | ,885 | ,073 | ,789 | 12,132 | ,000 |
| | SC | -,038 | ,090 | -,027 | -,419 | ,676 |
| | MODEPSC | ,086 | ,051 | ,103 | 1,683 | ,095 |

a. Dependent Variable: NCSR

Table A2.25 H3-6 | Excluded variables.

| Excluded Variables ^a | | | | | | |
|---------------------------------|---------|--------------------|--------|------|---------------------|--------------------------------------|
| | | Beta In | t | Sig. | Partial Correlation | Collinearity Statistics Tolerance |
| 1 | EP | ,763 ^b | 12,698 | ,000 | ,760 | ,989 |
| | SC | ,252 ^b | 2,786 | ,006 | ,248 | ,971 |
| | MODEPSC | -,028 ^b | -,306 | ,760 | -,028 | ,995 |
| 2 | SC | -,010 ^c | -,156 | ,877 | -,014 | ,860 |
| | MODEPSC | ,099 ^c | 1,644 | ,103 | ,150 | ,968 |
| 3 | MODEPSC | ,103 ^d | 1,683 | ,095 | ,154 | ,944 |

a. Dependent Variable: NCSR

b. Predictors in the Model: (Constant), Education, Position

c. Predictors in the Model: (Constant), Education, Position, EP

d. Predictors in the Model: (Constant), Education, Position, EP, SC