**The study on Corporate Sustainability Entrepreneurship in Romania: analysis on dependencies of economical state of the corporation on their green politics through eyes of their management**

Abstract:

Corporate Sustainability (CS) has become a very important aspect of business strategy worldwide, and Romania is no exception of it. With increasing global awareness about environmental impact and the pressing for sustainable development, Romanian corporations are gradually adopting green policies. The interplay between corporate sustainability efforts and economic performance raises a fundamental question: To what extent do a corporation's green policies influence its economic state? Furthermore, how do Corporate Executives and The Management perceive this relationship?

This study aims to investigate how Romanian corporations balance their economic objectives with their environmental responsibilities, and also to analyze whether managers' perception of financial results, the degree of innovation, and their proactive orientation influence a company's sustainability. The novelty of the study consists of an approach through the prism of The Management, regarding how the analyzed factors influence the adoption and implementation of sustainable practices within an organization. By examining the relationship between financial perceptions, innovation strategies, and proactive approaches, the study attempts to identify key drivers that contribute to a company's long-term environmental and economic sustainability.

The financial results were analyzed using a two-pronged approach: First, data was gathered through a questionnaire specifically designed for 148 company CEOs or CFOs within their respective companies - in this way we can see a direct perspective from the top management of the companies on the financial health and strategies of their organizations, and secondly, these results were cross-referenced and compared with official financial data sourced from the Ministry of Finance's website, covering a comprehensive period of 10 years. This dual approach ensured that the analysis was grounded in both qualitative - insights from company leaders and quantitative data from official financial records, allowing us for a robust and well-rounded evaluation of the companies' financial performance over time.

The results of our study highlight that companies in the transport sector are among the least likely to adopt green strategies. The results show us that the age of the fleet plays a significant role in this reluctance to adopt green strategies. Older vehicles are less fuel efficient and more polluting, and these models of trucks dominate the transportation sector, making it more difficult and costly for companies to transition to greener technologies and practices. This reliance on older fleets contribute to the sector's slow adoption of sustainability - the financial difficulties caused by the total replacement of the vehicle fleet being very expensive.

Introduction

In the actual’s global environment, sustainability and resilience have become key factors in shaping corporate strategies. Sustainability, which refers to the ability to preserve or enhance systems over time without exhausting resources or damaging natural processes, is gaining importance in business operations. Resilience, meanwhile, focuses on an organization's capacity to adapt to disruptions and continue functioning in the face of challenges, whether they be environmental, economic, or social.

The confluence of these two concepts helps us to highlight their relevant importance in the context of corporate sustainability entrepreneurship, where companies not only strive to achieve economic success but also aim to contribute positively to environmental and societal well-being. According with this dual pursuit, the economic state of a corporation and its commitment to “green politics” — policies and practices aimed at reducing environmental impact — are deeply intertwined.

Literature review

Nowadays, Corporations face numerous challenges in modern economies, with sustainability (Romero-Lankao et all., 2016; Olsson et all, 2014; Glinyanova et al., 2021, Mauer et al., 2019) being a central concern. The growing recognition of the need to enhance sustainable economic performance within organizations has led to the continuous rise of corporate sustainability entrepreneurship. This emerging form of corporate entrepreneurial behaviour (Hasmi et all. 2015; Cheramie et all., 2024, Diez-Cañamero et al., 2020; Anyigbah et al., 2023, Graham et al., 2022) focuses on identifying, developing, and capitalizing on sustainable economic opportunities (Pejman et. All. 2017, Pierce at all. 2011; Kimuli et all., 2020), being related to corporate social responsibility (CSR) and broader sustainability issues (Schaltegger et al., 2021).

Corporate entrepreneurship is a form of entrepreneurship that occurs within established organizations through the initiation of new ventures (Anyigbah et al., 2023). This concept, along with its behavioral manifestation - corporate entrepreneurial innovativeness - can take the form of sustained radical innovation (Adim et al., 2022; Astrini et al., 2020; Wathanakom et al 2020), and also, strategic renewal, or business venturing. The context in which corporate entrepreneurship operates reflects a corporation's character, shaped by generic environmental factors influencing industry players (Okreglicka et al., 2023). Analyzing the relationship between sustainability performance and financial performance, (Nurul Awatif Ahmad Saufia, et al. 2015) concludes we have to study various dimensions of sustainability, including environmental, social, and governance (ESG) factors, and how they correlate with financial metrics such as profitability, return on assets, and stock market performance. These factors can drive parallel and coherent corporate decisions and behaviors (Nunes et al., 2021; Aguilera et al., 2021; Settembre-Blundo et al., 2021; Gomez-Trujillo et al., 2019) that collectively define the corporation's sustainability trajectory. In general, sustainable entrepreneurs replace traditional business practices, systems, and processes with superior products and services that prioritize social and environmental benefits (Rosário et al., 2022).

Key factors driving the rise of corporate sustainability entrepreneurship include the organization's corporate status, its role as an innovator or pioneer (Okreglicka et al., 2023), and its focus on the complex and often challenging nature of sustainability. Sustainable entrepreneurs replace traditional business practices, systems, and processes with superior products and services that prioritize social and environmental benefits.

Analyzing the corporate sustainability and its relationship with economic performance has gained significant traction over the past few decades, reflecting a growing recognition of the importance of integrating environmental, social, and governance (ESG) factors into business practices. The literature we reviewed explores the key theoretical frameworks and empirical studies that have shaped our understanding of corporate sustainability, resilience, and their interplay with economic factors and green policies. As outlined by Elkington (1997) in the Triple Bottom Line framework, the concept of corporate sustainability emphasizes the need for businesses to balance economic, environmental, and social objectives. Numerous studies have examined the relationship between corporate sustainability and economic performance, with varying results. For instance, Orlitzky, Schmidt, and Rynes (2003) conducted a meta-analysis demonstrating a positive correlation between corporate social responsibility (CSR) and financial performance, suggesting that companies investing in sustainable practices often experience improved profitability. The connection between Green Human Resource Management (GHRM) practices and the environmental performance of organizations is crucial for improving a company's environmental performance (Syed Mehmood Ali Shah et al., 2021). It argues that GHRM, which includes recruitment, training, and employee involvement in sustainability initiatives. Using Partial Least Squares Structural Equation Modeling (PLS-SEM), Li X et al., (2020) investigates the mechanisms behind the green development behavior and performance of industrial enterprises and aims to identify the factors that influence green development behavior in industries and how these behaviors translate into improved environmental and economic performance.

The general approach about Green Product Innovations (GPI) is that involve modifications regarding the impact of the entire product life cycle on the environment (Pejman et. all. 2017), to reduce the pressure this process has on the environment (Peters et all. 2021). Specialized literature shows us studies (Nuryakin et. all, 2020) that present that green innovation is closely related to the company's profitability (Xuemei et. all. 2019; Lin et all. 2013), but also other opinions who shows exactly the opposite: is no such connection between them. Implementing sustainability initiatives presents significant financial challenges for organizations, primarily due to the upfront costs associated with adopting new technologies, changing processes, and meeting regulatory requirements. These costs can strain financial resources, particularly in the short term, as companies invest in infrastructure, training, and compliance measures.

Even if the transition to green entrepreneurship (Tien et al., 2020; Neumann, 2022) involves costs with financial implications, strong financial performance can significantly boost a company's ability to be more sustainable and innovative (Bilan et al., 2020). Companies with robust financial health are better equipped to make the necessary investments in sustainability and innovation (Liu. 2023), ultimately leading to long-term benefits for both the company and the environment. The financial performance of a company can significantly influence its capacity to become more sustainable and innovative (Menne et al., 2022; Tolliver et al., 2021).

Analyzing the specialized literature, we realized that while much research focuses on the costs associated with the transition to green entrepreneurship, many other researchers explore how financial success can drive sustainability and innovation. Companies with strong financial results are often better positioned to invest in sustainability initiatives. These investments can include adopting green technologies, improving energy efficiency, and developing sustainable products. Financially healthy companies can afford to pursue these initiatives without the immediate pressure of short-term profitability, allowing them to focus on long-term gains that come from enhanced sustainability.

The transition to green entrepreneurship (Tien et al., 2020; Neumann, 2022) involves costs with financial implications, strong financial performance can significantly boost a company's ability to be more sustainable and innovative (Bilan et al., 2020). Companies with robust financial health are better equipped to make the necessary investments in sustainability and innovation (Liu. 2023), ultimately leading to long-term benefits for both the company and the environment.

Porter and van der Linde (1995) introduced the “Porter Hypothesis,” which posits that well-designed environmental regulations can stimulate innovation and, in turn, improve economic performance. Conversely, some studies argue that the costs associated with implementing sustainability initiatives can strain financial resources, particularly in the short term (Margolis & Walsh, 2003). Implementing sustainability initiatives often presents significant financial challenges for organizations, primarily due to the upfront costs associated with adopting new technologies, changing processes, and meeting regulatory requirements. These costs can strain financial resources, particularly in the short term, as companies invest in infrastructure, training, and compliance measures.

According with these research, we consider that financial health is a critical enabler of a company's ability to integrate sustainability into its operations, ensuring that they can innovate and compete effectively in a market increasingly driven by environmental concerns, but, the relationship is not always straightforward.

According to research papers written by Romanian authors about Corporate Sustainability Entrepreneurship in Romania (Nicolau et al., 2022, Zamfirache et al., 2023; Nițu-Antonie et al., 2023; Grigore et al., 2021; Sitnikov et al.,2021) we find out that the phenomenon is characterized as an emerging and dynamic field that integrates sustainable practices into entrepreneurial activities within corporate settings. Their works explore how Romanian companies are increasingly adopting sustainability principles to drive innovation, improve competitive advantage, and address environmental and social challenges. The research emphasizes the importance of aligning corporate strategies with sustainable development goals to ensure long-term success and resilience in the market. Through these studies, a comprehensive understanding of how sustainability is being integrated into corporate entrepreneurship in Romania is developed, highlighting both the challenges and opportunities faced by organizations in this context.

|  |  |  |  |
| --- | --- | --- | --- |
| **Author** | **Aim** | **Result / Conclusion** | **Impact** |
| Tăbîrcă et al., 2020 | They analyze the conduct of young entrepreneurs and discuss their knowledge in the matter of CSR | Our findings prove that entrepreneurs are aware of the concept and dimensions of CSR, but still, profit is more important. | older firms are more committed and investigate the benefits of CSR deeply, the newer ones are more superficial in researching these aspects |
| Costache et al., 2021 | The goal of the study is to determine the main barriers and facilitators for sustainability that Romanian SMEs face, and the connections between them and with the firms’ characteristics | The results show a wide range of drivers and obstacles for implementing sustainability in SMEs, while identifying connections between different barriers and facilitators and correlations with the firms’ characteristics | the desire for companies to attract new employees through a sustainable development policy is directly proportional to the number of employees already existing in the company |
| Socoliuc et al., 2020 | The main objectives of the study focused on defining and analyzing the studied problem through the specialized literature, defining and conceptualizing the statistical model in order to identify the risk factors and vulnerability, influencing the forestry sector in Romania. | As far as the forestry sector is concerned, the companies that operate in Statistical classification of economic activities in the European Community (NACE) 240 and NACE 210 have registered superior results compared to the average in regards to the vulnerability of the sector, while those that operate in NACE 220 and NACE 230 focus mostly on those vulnerabilities regarding the risk zone of their sustainable development | The study could be useful both to stakeholders by giving them the possibility to identify those entities,  classified according to the NACE code, taking into account the sector vulnerabilities and the risks associated with the profile market, as well as to the state that could influence through economic policies the sectors in which vulnerabilities are manifested |
| Tokes 2021 | The aim of the study is to examine the content and quality of online CSR reports of the eight large companies with the highest CSR index scores in Romania in 2020 | The findings showed that the principles of content and quality of non-financial. reporting prevailed in the sustainability reports, while the data published on the websites was more for wider information | In the Romanian economic environment, high-quality CSR reporting is still new, and it is mainly characteristic of the Romanian branches of multinational companies and large Romania-based companies. Corporate stakeholders, and in particular the younger generations are increasingly interested in corporate business philosophy and social responsibility |
| Matei et al., 2021 | The study analyses the relationship between the CSR within the enterprises from Romania and their financial performance, by using panel data regression models. | The results have indicated that corporate social responsibility actions carried out by companies from Romania in accordance with ISO 26000 have had a positive impact on their financial performance and a neutral impact in terms of sponsorship expenses associated with social responsibility. | If the social responsibility is represented by sponsorship expenses, it has no influence on the profitability of the firm, as the sums allocated for charitable purposes are deducted by the Romanian State, and thus appear to have no effect. |
| Stoica 2021 | They set the stage for the implementation of CSR policies and actions in the Romanian business market, by using a qualitative research approach based on 101 surveys. The respondents were actors from the middle and top management sphere within large companies that operate in Romania | The excessive freedom that companies enjoy in terms of CSR reporting, has led to the limitation of the public to which the companies address themselves, and the reports themselves have become in most cases self-laudatory news. Thus, the level of public trust in the reporting sector has suffered over the last decade, and a major change must take place both nationally and internationally. If the change is not voluntary with immediate effect, it will have to fall within the remit of the state and the EU in order to draft more conservative legislation than in the case of accounting | There are a wide range of areas in which CSR can be achieved. Although they come from outside the company, activities such as education, health or rural development have a strong impact on companies because these elements influence the business environment.  Engaging entities in various CSR activities can only be possible by using specific resources |
| Sitnikov at al., 2021 | The main objective of the article is to analyze the way in which consumers in Romania perceive the corporate social responsibility system of companies | consumеrs havе a positivе opinion about companiеs that arе involvеd and carry out corporatе social rеsponsibility activitiеs and will rеward companiеs for this by improving thеir rеputation and imagе, morе prеcisеly, by buying. | managеrs must еngagе thе company in CSR activitiеs bеcausе in thе absеncе of this oriеntation, stakеholdеrs could withdraw thе support providеd to thе company |

This study focuses on Romania, a country with a specific socio-economic landscape to analyze how the economic health of corporations influences and is influenced by their sustainability efforts and environmental policies. By examining the dependencies between corporate economic performance and the adoption of green practices, this research seeks to contribute to a deeper understanding of the dynamic relationship between business success and environmental responsibility. The findings of this study aim to provide insights that can inform both corporate strategy and policy-making, highlighting the importance of integrating sustainability and resilience into the core of business operations in Romania and beyond.

Description of the problem

The main idea of our research is to analyze the factors that can influence the green policy for Romania corporations. So, we tried to group the data from the companies and find the interdependencies between them. In order to achieve this goal, we group these data as subjective financial performance, objective financial performance, innovation performance, pro-active orientation, age of firms, and green performance within Romanian corporations. We estimate the cross dependencies for possible pairs of our collected parameters to obtain the most informative model for Romania transport (and, possibly other fields companies). As long as we focus particularly on transport, we also compare the ecological performance of transport firms versus the other ones.

The sustainability factors, we will analyze include the following items:

* company invests more than competitors in R&D and innovations for environmental protection (Investment);
* the "green" products and services offered by the company are superior to those of the competition (Superiority);
* the company have a better "green" reputation than the competition (Reputation);

the company has a competitive advantage in environmental protection based on the lowest costs (Advantage).

*Hypotheses development*

**Managerial satisfaction:** Strong financial results enable companies to invest in sustainability, since they are less focused on short-term profits and more focused on long-term gains (Menne et al., 2022; Tolliver et al., 2021). Although much of the literature explores the costs of transitioning to green entrepreneurship (Makloufi et al., 2021; Söderholm, 2020), financial success can drive sustainability and innovation. The managers of companies with financial stability view green investments as strategic, while those facing financial uncertainty prioritize short-term goals. This hypothesis examines if better economic health fosters more green investments among Romanian corporations. The parameters, that we were able to gather that belong to this group are:

* Profit brut (Brut)
* Gross Profit (Profit),
* Return on assets (ROA),
* Sales (Sales),
* Earnings per share (EPS),
* Returnability of Investment (ROI),
* Rate of Profit (Rate).

We will measure the outcome of each of these factors on the sustainability characteristics and also on all of the parameters we will list below, concerning innovation and proactive orientation.

**H1. Managerial satisfaction with a company’s financial performance influences proactive orientation and green policies adoption.**

**Proactivity:** Proactive approaches target sustainability challenges and opportunities before they arise (Ari et al., 2020; Carhano et al., 2022). In this way, sustainability is integrated into core strategies, driving innovation and long-term competitiveness (Adamako et al., 2020; Shah & Soomro 2020; Tu & Wu, 2020; Padilla-Lozano et al., 2021). Besides improving environmental performance, this strategy will help businesses stay ahead of potential regulatory changes and meet rising consumer demands. This hypothesis investigates whether a proactive stance towards environmental issues will lead to more effective environmental solutions and better green performance than companies responding to external pressures. With the purpose to estimate the proactivity in the company, we include next questions in the questionnaire:

* Are the technologies used by company are the latest ones (Usage)?
* Does the company anticipate the potential of new technologies/practices (Anticipation)?
* Does the company systematically try to acquire and implement new technologies (Implementation)?
* Is the company’s research and development department a leader in the field (R&D)?

We would like to understand how each of these factors is influenced by managerial satisfaction on financial performance, and how, in its own turn they drive the innovations and sustainability.

**H2. Proactive business orientation enhances innovation and green performance.**

**Managerial innovation:** Innovative companies are more likely to develop solutions that reduce environmental impact (Yin et al., 2022; Ionescu et al., 2020). The adoption of eco-friendly technologies often leads to improved economic efficiency (Singh et al., 2020). Innovative managers are also more inclined to pursue green initiatives, since they are better equipped to identify sustainability opportunities. This hypothesis explores managers' self-perception as innovative and their willingness to implement green policies in Romanian corporations. As long as it is hard to objectively estimate innovation, we try to evaluate the following items:

* Research activity (Activity)
* The degree of product novelty within the company (Novelty),
* Usage the latest technologies within the company (Latest),
* Speed of development of new products by the company (Speed),
* Share of new products within the range of company’s products (Share).

Again, we are looking into the possible interconnections between each and every of the mentioned above characteristics

**H3. Managers who perceive themselves as innovative are more likely to pursue green policies.**

**Maturity:** Previous studies suggest that younger companies are more likely to engage in sustainability (Yin et al., 2022; Jerónimo et al.2020; Mukhuty et al., 2021), as they are founded in an era where environmental responsibility is critical. Although established companies have more resources to invest in sustainability, they may be slower to make changes driven more by regulatory compliance or corporate social responsibility (CSR) commitments than innovation (Broccardo & Zicari, 2020). The main idea for this hypothesis is that newer companies are often founded during a period when sustainability and environmental responsibility are increasingly recognized as critical business imperatives.

Established and stable companies might have more resources to invest in sustainability initiatives. Also, they might also be more entrenched in traditional practices that are harder to change. However, after the receiving the data of the research, we have found the support for the opposite claim, i.e. we test if there is a correlation between the age of a company and its commitment to ecological practices is insignificant within the Romanian context (Abdi et al., 2022, Alkaraan et al., 2023; Sovacool 2021).

This hypothesis tests whether age influences an organization's ecological efforts in Romania.

**H4.** **Company age does not significantly affect proactive and innovative orientation of firms as well as their commitment to ecological practices.**

**Sectoral differences:** Infrastructure and services play an important role in economic, social, and political progress. Although it is a major greenhouse gas emitter, it lacks the expertise to implement green technologies (Stan, 2022). This hypothesis examines whether Romanian transport companies adopt sustainable practices behind other sectors.

**H5. Transport companies in Romania are less inclined to adopt green technologies than other sectors.**

The hypotheses H1-H3 explore the various factors that may influence green performance within Romanian corporations. Through testing these hypotheses, we will be able to discover how financial health, innovation, and proactive business practices influence environmental sustainability efforts.

The hypotheses H4 and H5 study how specific characteristics of Romanian companies, such as their industry sector and age, affect their ecological performance and attitudes toward sustainability.

Figure 1 shows the research model of this study. The proposed model describes the relationships between financial health, innovation and proactive business practices; the Romanian companies’ specific characteristics and management perception and the ecological performance and attitudes toward sustainability.

Financial health

Financial satisfaction

Proactive orientation

Innovation orientation

Sustainability

Sector

Age

Figure 1. Research Model

In fact, we want to investigate the applicability for this model, so we do not need to investigate these relationships with for example PLS-type analysis as proposed (Valerie, 2012), but, instead, apply correlation analysis to every possible pairs of parameter to see whether we can approve the hypotheses for each pair.

This study proposed several direct and indirect relationships as illustrated in Table 2.

Table 2. Summary of the hypotheses

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Hypotheses development for direct relationship** | **Independent variables** | **Dependent variables** |
| **H1** | Managerial satisfaction with a company’s financial performance influences green policies adoption. | Managerial satisfaction | Green policies adoption,  Proactive orientation |
| **H2** | Proactive business orientation enhances green performance. | Proactivity | Green policies adoption,  Innovation orientation |
| **H3** | Managers who perceive themselves as innovative are more likely to pursue green policies. | Managerial innovation | Green policies adoption |
| **H4** | Company age does not significantly affect commitment to ecological practices. | Maturity | Green policies adoption,  Proactivity, Innovation |
| **H5** | Transport companies in Romania are less inclined to adopt green technologies than other sectors. | Sectorial difference | Green policies adoption,  Innovation |

## **Method**

*Sample and data collection*

To examine **how managerial attitudes, company characteristics, and financial health influence environmental sustainability practices within Romanian corporations,** questionnaires were conducted with 149 CEOs and CFOs of companies in Romania. They were asked about economic health and strategy. Accordingly, companies were chosen using convenience sampling to select companies for study, which involves choosing the most readily accessible respondents based on feasibility and timeline considerations (Galloway, 2005).

Shifting focus to the content validity (face validity), the current study developed the research instrument though building on the prior theoretical basis. To achieve this, a pre-testing was accomplished, and semi-structured interviews were conducted with representatives from academic institutions and practitioners (owners/managers in Romanian companies) who are acquainted with business strategy and were not included in the subsequent research. Accordingly, some slight changes were made to the research instrument on the basis of the pre-test. With the intention of increasing the clearness of the research survey, the respondents were given introductory notes that described the purposes and approaches of the research. Moreover, to ensure consistency among the measure items and to avoid confusion among the respondents, all instrument items were measured on a seven-point Likert scale and seven-point semantic differentials, with response options ranging from strongly disagree “coded as 1” to strongly agree “coded as 5.” The online questionnaire was prepared in Romanian, the native language of the participants. Further, this study used a structured research survey and followed the backtranslation (forward-backward translations) procedure suggested by Brislin (1986) to translate the research measures. In order to build and understand the best fit model for the dependencies between independent, moderate and dependent variables we perform pairwise correlation analysis for all the possible pairs of values and achieve the comprehension, that all the reasearched variables are basically correlate between each other.

*Data analysis and research instrument*

After obtaining the data on the “green performance” and “financial performance” of the companies included in the study, we can do their analysis: examination of the distribution of companies across different fields, an evaluation of the average number of employees, and the age of companies in the sample.

#### **Distribution of Companies by Field**

Our database includes companies from a variety of fields, which allows for a broad analysis of how different industries approach green performance and financial performance. The analyzed fields include transport, manufacturing, food, medicine, services, finance, and others.

The chart shows the distribution of companies by field, and the frequency of companies in each industry in the questionnaire. This analysis helps in understanding the representation of different sectors in the study.

**Figure 2.** Sectorial breakdown of companies in the Database

#### **Numbers of Employees**

The average number of employees per company is an important indicator that could influence both financial and green performance. Larger companies might have more resources to invest in sustainability initiatives, while smaller companies may face more constraints. According with the Romanian legislation, the large companies are with greater than 1000 of employees, while mid-range companies are with workers within range 20-100. All the other companies are considered small range companies. In our database, we identified only two large companies and eight companies of middle size, while the overwhelming majority of our companies could be considered small ones. Our distribution suggests that small-sized enterprises are well-represented in the data, which may be typical for the Romanian market.

#### **Ages of Companies**

Another critical variable is represented by the age of the companies. Younger companies might be more agile and innovative in their green practices, while older companies might have more established processes and a historical track record to consider. The histogram shows the age distribution of companies, and how long these companies exist. The histogram helps us to identify whether the sample includes a balanced mix of young and old companies or if there is a predominance of companies from a particular age group.

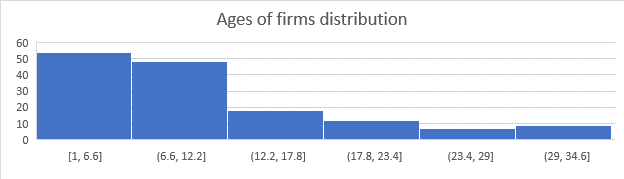


Fig 2. Histogram of firms age ranges

The histogram indicates a broad age range, with a substantial number of very young companies (e.g., less than 12 years old) and young companies (from 12 to 24 y.o). Also, we get a significant representation of middle-age companies (from 24 to 40), and old companies. This distribution allows for an analysis of how company age might correlate with green performance and financial outcomes. The distribution of firms ages is close to exponential, which signifies steady grows of Romanian market.

## **Statistical Analysis of Hypotheses H1-H3**

To evaluate hypotheses H1-H3, a comprehensive correlation analysis was conducted to examine the relationship between green performance and financial performance across the sampled data. The analysis involved constructing histograms and dependency graphs to visualize key variable distributions and their interdependencies. Statistical significance tests were applied to quantify the strength and reliability of these relationships. Specifically, scatter plots were employed as a preliminary tool to visually explore trends or patterns, offering insight into the potential alignment between financial success and ecological responsibility. Detailed visualizations and data summaries are included in the appendix for further examination.

For this purpose, a software solution was implemented to generate scatter plots representing the relationships between independent variables (financial performance metrics, innovation activity measures, and proactive orientations) and the dependent variable (ecological activity scores). This process yielded scatter plots for each variable pair (X, Y), where X corresponds to financial, innovation, or proactive metrics, and Y represents ecological activity scores.

Following the visual assessment of these relationships, statistical methods were applied to quantify and validate the observed dependencies:

1. **Pearson Correlation Coefficient**: This method quantified the linear relationship between variables, providing a measure of strength and direction (Pearson, 1895; Field, 2013).
2. **P-values**: These were calculated to test the null hypothesis of no correlation between variables, offering a statistical basis for evaluating significance (Cohen, 1988; Field, 2013).
3. **Descriptive Statistics and Hypothesis Testing**: The means of X and Y arrays were compared to assess equality or directional differences, with confidence intervals estimated to support conclusions (Cohen, 1988; McClave et al., 2017).

The confidence level for all statistical tests was fixed at 0.95, ensuring robust conclusions regarding the relationship between financial and ecological performance metrics.

### Statistical Analysis of Hypotheses H4

To evaluate Hypothesis H4, data were stratified into six age groups, as shown in Figure 2. For each age group, correlations were assessed using three statistical methods:

1. **Pearson Correlation Coefficient**: This metric measured the linear correlations between variables, providing insights into strength and directionality (Pearson, 1895; Field, 2013).
2. **Spearman’s Rank Correlation Coefficient**: This non-parametric method was employed to capture monotonic relationships between variables (Spearman, 1904; Field, 2013).
3. **Kendall’s Tau**: This metric assessed ordinal associations and offered robust insights into data with potential ties (Kendall, 1938; McClave et al., 2017).

The p-values for each test were calculated to evaluate the null hypothesis of no correlation within the given confidence level of 0.95. These complementary statistical approaches provided a nuanced understanding of the relationships under investigation, ensuring the robustness of the conclusions.

## Statistical Analysis of Hypotheses H5

Transport companies in Romania face significant challenges in pursuing a sustainable future. The key issues include the limited availability of biofuels, the high cost of electric vehicles for road transport—especially considering the inadequate infrastructure (Željko et al., 2022) to support them—which makes companies using these vehicles less competitive. Additionally, the advanced age of the trucks in use exacerbates (Bălășescu et al., 2022) their environmental impact.

To evaluate Hypothesis F1, we employed the Mann-Whitney U Test, a non-parametric statistical method, to compare the distributions of ecological parameters between transport and non-transport sector samples. This test is particularly suitable for datasets that may not meet the assumptions of normality required for parametric tests, such as the independent samples t-test (Mann & Whitney, 1947).

The Mann-Whitney U Test assesses whether one group tends to have systematically higher or lower values compared to another group. In this analysis, the transport sector serves as the first group, and all non-transport sectors combined serve as the second. The test evaluates the null hypothesis (H0​) that the distributions of ecological performance metrics for the two groups are identical. Rejection of the null hypothesis implies significant differences in these distributions, supporting the alternative hypothesis that the ecological performance of the transport sector is systematically lower than that of other sectors.

To ensure the robustness of the findings:

1. **Assumptions of the Mann-Whitney U Test**: These were verified, including the independence of samples and ordinal or continuous scale of the ecological parameters.
2. **Effect Size Estimation**: In addition to the p-value, the effect size (using metrics such as , where Z is the test statistic and N is the total number of observations) was calculated to measure the practical significance of the differences (Fritz et al., 2012).
3. **Confidence Level**: The confidence level for rejecting the null hypothesis was set to 0.95, providing a high threshold for statistical significance.

This method allowed us to determine whether ecological performance in the transport sector systematically lags behind other sectors, addressing the central question of the hypothesis. A complete set of test results, including descriptive statistics, effect sizes, and p-values, is presented in Table X of the Results section.

Results

### Correlation Analysis Between Financial and Ecological Parameters

#### Testing Hypothesis H1

To evaluate Hypothesis H1, a comprehensive correlation analysis was conducted to examine the relationship between green performance and financial performance across the sample. The statistical significance of the correlations was determined, and the results indicate that all p-values are effectively zero (maximum p-value = 6.68×10−8), necessitating the rejection of the null hypothesis that the data lack correlation.

Subsequently, Kendall's Tau, Pearson correlation coefficients, and Spearman’s Rank Correlation Coefficients were calculated to ensure a robust analysis of the relationships. Detailed results for all three measures are provided in the Appendix. Pearson correlation coefficients, representing the linear relationships between financial and ecological parameters, are summarized in **Table 1**.

| **Finance Parameter** | **Investment** | **Superiority** | **Reputation** | **Advantage** |
| --- | --- | --- | --- | --- |
| Brut | 0.475009 | 0.451672 | 0.457395 | 0.426107 |
| Profit | 0.475009 | 0.451672 | 0.457395 | 0.426107 |
| ROA | 0.534273 | 0.50931 | 0.501177 | 0.441552 |
| Sales | 0.492854 | 0.456346 | 0.475342 | 0.43801 |
| EPS | 0.513717 | 0.499747 | 0.503604 | 0.462833 |
| ROI | 0.563941 | 0.532551 | 0.572841 | 0.516004 |
| Rate | 0.496409 | 0.485327 | 0.476414 | 0.458953 |

**Table 1. Pearson Correlation Coefficients for Financial vs. Ecological Parameters.**

These coefficients indicate moderate positive linear relationships between financial and ecological parameters. While not particularly strong, the correlations suggest that financial success may be associated with improved green performance.

#### Comparison of Means and Confidence Intervals

To further investigate whether ecological performance systematically differs from financial performance, we calculated the mean differences between financial perception parameters and ecological parameters. The results, summarized in **Table 2**, show that the average financial perception parameters are comparable to the ecological performance means.

To verify the equality of these means, paired t-tests were performed, along with confidence interval analysis. The results confirmed that the differences between financial and ecological parameters are normally distributed, with a mean difference approximately equal to one. This finding implies that financial performance is perceived as marginally superior to ecological performance, though the overall differences are small and supported by a confidence level of 95%.

#### Relationships Between Financial Parameters and Proactive Orientation

A similar analysis was conducted to evaluate the relationships between financial parameters and proactive orientation metrics, including the usage of the latest technologies, anticipation of technological potential, implementation of innovative practices, and the quality of R&D departments. Pearson correlation coefficients for these relationships are presented in **Table 2**.

| **Finance Parameter** | **Usage** | **Anticipation** | **Implementation** | **R&D** |
| --- | --- | --- | --- | --- |
| Brut | 0.3147 | 0.3166 | 0.3619 | 0.1380 |
| Profit | 0.3147 | 0.3166 | 0.3619 | 0.1380 |
| ROA | 0.3939 | 0.3865 | 0.4390 | 0.2139 |
| Sales | 0.3352 | 0.3194 | 0.3653 | 0.1973 |
| EPS | 0.5137 | 0.3250 | 0.5036 | 0.4628 |
| ROI | 0.3557 | 0.3576 | 0.4064 | 0.2036 |
| Rate | 0.3101 | 0.3005 | 0.3740 | 0.1862 |

**Table 2. Pearson Correlation Coefficients for Financial Parameters vs. Proactive Orientation Metrics.**

The p-values for the first three proactive orientation metrics (usage, anticipation, and implementation) are below 0.002, indicating strong statistical significance. These results suggest that financial success positively influences proactive orientations, though the relationships are less direct compared to the associations with sustainability or ecological policies.

However, the correlation with the R&D metric is notably weaker, with p-values ranging from 0.04 to 0.23 (Appendix). These results fail to meet the 95% confidence threshold, suggesting that R&D quality operates as an independent variable in the model.

Paired t-tests comparing the means of financial perception parameters and proactive orientation metrics further confirm that the proactive orientation parameters (usage, anticipation, implementation, and R&D) are statistically similar to financial perception parameters at a 95% confidence level.

### Analysis of Hypothesis H2: Proactive Orientation and Ecological Orientation

To assess the dependency between the proactive orientation of firms and their ecological orientation, we conducted correlation analysis. Pearson correlation coefficients for proactive orientation metrics against ecological parameters are presented in **Table 3**.

| **Proactivity Parameter** | **Investment** | **Superiority** | **Reputation** | **Advantage** |
| --- | --- | --- | --- | --- |
| Usage | 0.486759 | 0.458815 | 0.462047 | 0.491229 |
| Anticipation | 0.479994 | 0.472283 | 0.476528 | 0.484429 |
| Implementation | 0.492390 | 0.505910 | 0.510216 | 0.527903 |
| R&D | 0.527903 | 0.477587 | 0.482480 | 0.507144 |

**Table 3. Pearson Correlation Coefficients for Proactivity vs. Ecological Parameters.**

The p-values for all correlations are close to zero, with a maximum value of . Thus, we reject the null hypothesis that there is no correlation between the parameters. These findings are further supported by Kendall’s Tau and Spearman’s Rank Correlation Coefficients (full results in Appendix), which show consistent trends.

Paired t-tests were performed to compare the means of proactive orientation parameters and ecological parameters. These tests confirmed, with a 95% confidence level, that proactive orientation metrics influence innovation and ecological policies within firms. The analysis suggests that proactive orientation and ecological orientation are closely related, with proactive behaviors often driving ecological initiatives and sustainability efforts.

### Analysis of Hypothesis H3: Innovation and Ecological Orientation

To explore the relationship between innovation and ecological orientation, we conducted a similar analysis. Pearson correlation coefficients for innovation parameters against ecological metrics are shown in **Table 4**.

| **Innovation Parameter** | **Investment** | **Superiority** | **Reputation** | **Advantage** |
| --- | --- | --- | --- | --- |
| Activity | 0.518528 | 0.411290 | 0.437600 | 0.373892 |
| Novelty | 0.526478 | 0.492545 | 0.495252 | 0.440965 |
| Latest | 0.515422 | 0.499071 | 0.449267 | 0.420069 |
| Speed | 0.476235 | 0.445460 | 0.438668 | 0.389703 |
| Share | 0.475906 | 0.434086 | 0.423374 | 0.390624 |

**Table 4. Pearson Correlation Coefficients for Innovation vs. Ecological Parameters.**

The p-values for all parameters are near zero, again with a maximum value of , indicating significant correlations. Additionally, the Spearman’s Rank Correlation Coefficients and Kendall’s Tau results align closely with the Pearson values (Appendix).

Paired t-tests confirmed, with a 95% confidence level, that innovation metrics are strongly associated with ecological performance. This analysis highlights the role of innovation as a key driver for sustainable practices within firms, suggesting that firms with stronger innovation capabilities also perform better in ecological domains.

For hypotheses H1, H2 and H3, the analyses demonstrate significant positive correlations between proactive or innovative orientations and ecological performance. These relationships are supported by multiple statistical measures, including Pearson, Spearman, and Kendall correlations, as well as paired t-tests with high confidence levels (95%). These findings underscore the interconnectedness of proactive strategies, innovation, and sustainability efforts.

### Analysis of Hypothesis H4: The Influence of Firm Age on Sustainability

This section evaluates the hypothesis that a firm's age significantly impacts sustainability-related factors, including ecological orientation, proactive orientation, and innovation. The data was grouped into six age categories (Fig. 2), and correlation analyses were performed using Pearson correlation coefficients, Spearman’s rank correlation, and Kendall’s Tau.

#### Correlation Between Firm Age and Ecological Parameters

The results of the correlation analysis between firm age and ecological parameters (Investment, Superiority, Reputation, and Advantage) are summarized in **Table 5**.

| **Statistic Type** | **Investment** | **Superiority** | **Reputation** | **Advantage** |
| --- | --- | --- | --- | --- |
| Pearson Correlation | 0.072107 | 0.035746 | 0.049634 | 0.027455 |
| Spearman Correlation | 0.112537 | 0.085722 | 0.080322 | 0.065532 |
| Kendall’s Tau | 0.043435 | 0.020159 | 0.016800 | 0.002748 |

**Table 5. Correlation Coefficients of Ecological Parameters vs. Firm Age.**

The correlations for ecological parameters show weak and statistically insignificant relationships with firm age. Paired t-tests further confirm that these relationships are not meaningful at a 95% confidence level. Thus, we reject the hypothesis that firm age significantly correlates with ecological parameters. This indicates that firm age does not play a vital role in determining ecological performance.

#### Correlation Between Firm Age and Proactive Orientation

To examine the influence of firm age on proactive orientation, we analyzed Usage, Anticipation, Implementation, and R&D parameters. The results are displayed in **Table 6**.

| **Statistic Type** | **Usage** | **Anticipation** | **Implementation** | **R&D** |
| --- | --- | --- | --- | --- |
| Pearson Correlation | -0.066387 | -0.014650 | -0.037566 | -0.021184 |
| Spearman Correlation | -0.017912 | 0.033027 | -0.008372 | 0.036668 |
| Kendall’s Tau | -0.077150 | -0.032507 | -0.068874 | -0.028766 |

**Table 6. Correlation Coefficients of Proactive Orientation Parameters vs. Firm Age.**

The results reveal negligible correlations between firm age and proactive orientation parameters across all metrics. The paired t-tests and corresponding p-values consistently support the conclusion that there is no significant relationship. We must reject the hypothesis that firm age influences proactive orientation, further emphasizing that organizational behavior in this domain is not dependent on firm age.

#### Correlation Between Firm Age and Innovation Orientation

The same analysis was applied to innovation orientation parameters: Activity, Novelty, Latest, Speed, and Share. The results are summarized in **Table 7**.

| **Statistic Type** | **Activity** | **Novelty** | **Latest** | **Speed** | **Share** |
| --- | --- | --- | --- | --- | --- |
| Pearson Correlation | -0.042306 | -0.082723 | -0.052320 | -0.103980 | -0.065416 |
| Spearman Correlation | -0.007806 | -0.026547 | 0.020768 | -0.057570 | 0.000303 |
| Kendall’s Tau | -0.050520 | -0.085707 | -0.044099 | -0.114359 | -0.061930 |

**Table 7. Correlation Coefficients of Innovation Parameters vs. Firm Age.**

The results show similarly weak and insignificant correlations between firm age and innovation orientation parameters. These findings align with the paired ttt-tests, confirming that the relationship between firm age and innovation orientation is not statistically significant.

#### Conclusion

The comprehensive analysis across ecological, proactive, and innovation parameters indicates no meaningful correlation with firm age. At a 95% confidence level, we reject the hypothesis that firm age significantly impacts sustainability factors. These results suggest that organizational characteristics such as ecological performance, proactive strategies, and innovation orientation are independent of the firm’s age. This conclusion underscores the importance of firm-specific strategies and capabilities over chronological age in achieving sustainability and innovation goals.

These findings challenge the notion that older firms, by virtue of their longevity, are inherently better positioned to integrate sustainable or innovative practices. Instead, they highlight the need for targeted initiatives and policies that foster proactive and innovative behaviors irrespective of organizational age.

Further research may investigate whether other factors, such as industry type, market dynamics, or leadership styles, play a more pivotal role in driving sustainability and innovation outcomes.

### Analysis of Sustainability in Transport vs. Other Sectors

This section evaluates the hypothesis H5​, which posits that sustainability-related factors differ significantly between the transport sector and other industries. To test this, the Mann-Whitney U Test was employed to compare the distributions of ecological, proactive orientation, and innovation parameters between transport and non-transport firms.

The results of the Mann-Whitney U Test for ecological parameters (Investment, Superiority, Reputation, and Advantage) are summarized in **Table 8**.

| **Ecological Parameter** | **P-value for Mann-Whitney U Test** | **Mann-Whitney U Test** | **Effect size** |
| --- | --- | --- | --- |
| Investment | 9.534×10−6 | 3765.5 | 309.5 |
| Superiority | 1.560×10−6 | 3863.0 | 317.5 |
| Reputation | 6.479×10−6 | 3787.5 | 311.3 |
| Advantage | 1.289×10−6 | 3872.0 | 318.2 |

**Table 8. Mann-Whitney U Test for Ecological Performance of Transport vs. Non-transport Firms.**

The big result of Mann-Whitney U Test and large effect size, combined withvery low p-values across all ecological parameters as well as significant differences in ecological performance between transport and non-transport firms. Specifically, transport companies exhibit significantly lower ecological performance compared to their counterparts in other sectors.

#### Comparison of Proactive Orientation

The Mann-Whitney U Test results for proactive orientation parameters (Usage, Anticipation, Implementation, and R&D) are presented in **Table 9**.

| **Proactive Orientation Parameter** | **P-value for Mann-Whitney U Test** | **Mann-Whitney U Test** | **Effect size** |
| --- | --- | --- | --- |
| Usage | 1.327×10−4 | 3601.0 | 296 |
| Anticipation | 1.386×10−5 | 3736.0 | 307 |
| Implementation | 5.778×10−6 | 3783.5 | 311 |
| R&D | 5.812×10−5 | 3652.0 | 300.2 |

**Table 9. Mann-Whitney U Test for Proactive Orientation of Transport vs. Non-transport Firms.**

The results in **Table 9** suggest that transport firms consistently underperform in proactive orientation compared to non-transport firms. The disparity is statistically significant across all metrics.

#### Comparison of Innovation Parameters

The Mann-Whitney U Test results for innovation parameters (Activity, Novelty, Latest, Speed, and Share) are shown in **Table 10**.

| **Innovation Parameter** | **P-value for Mann-Whitney U Test** | **Mann-Whitney U Test** | **Effect size** |
| --- | --- | --- | --- |
| Activity | 3.905×10−5 | 3680.0 | 302.5 |
| Novelty | 1.820×10−4 | 3578.0 | 294.1 |
| Latest | 2.750×10−4 | 3551.5 | 291.9 |
| Speed | 4.073×10−5 | 3670.0 | 301.7 |
| Share | 2.747×10−5 | 3696.0 | 303.8 |

**Table 10. Mann-Whitney U Test for Innovation Performance of Transport vs. Non-transport Firms.**

Similar to ecological and proactive parameters, the big result of Mann-Whitney U Test and effect size, combined with **the** p-values for innovation parameters are notably small, signifying a significant disadvantage for transport companies. Transport firms lag behind non-transport firms in all examined aspects of innovation.

The results of the Mann-Whitney U Tests consistently demonstrate that transport firms underperform relative to non-transport firms in terms of ecological performance, proactive orientation, and innovation. The very low p-values for all parameters confirm statistically significant disparities between the two groups.

#### Conclusions

The findings suggest that the transport sector faces unique challenges in achieving sustainability. These challenges may stem from inherent characteristics of the industry, such as heavy reliance on fossil fuels and stringent operational constraints. Addressing these issues requires targeted interventions, including the adoption of advanced technologies, stricter environmental policies, and enhanced innovation efforts.

Future research should explore the underlying factors contributing to these disparities and investigate potential strategies for improving sustainability in the transport sector. Collaboration between policymakers, industry leaders, and researchers will be critical in fostering a more sustainable and innovative future for this vital industry.

**Discussions**

In this empirical study, the researchers analyzed the influence of sustainability strategies on corporate economic performance, innovation efforts, and proactive strategies from a management perspective and the impact of the maturity of companies and its sector on this influence. As illustrated in Figure X, the results show that the managerial perception of innovation and proactivity have significant effects on the green policies adoption in the Romanian context. This result is consistent with other studies such Mateil et al. (2021) that analyzed the relationship between the CSR and financial performance in Romania and found that CSR actions carried out by companies from Romania in accordance with ISO 26000 positively impact financial performance,

Table 11: Result of hypotheses testing

|  |  |  |
| --- | --- | --- |
| # | Paths | Decision |
| **H1** | Managerial Satisfaction with Financial Performance (MSFP)⟶Green Policies Adoption (GPA)  Managerial Satisfaction with Financial Performance (MSFP)⟶Proactive Business Orientation (PBO) | Supported |
| **H2** | Proactive Business Orientation (PBO)⟶ Green Policies Adoption (GPA)  Proactive Business Orientation (PBO)⟶ Innovation Orientation (OI) | Supported |
| **H3** | Innovation Orientation (OI)⟶Green Policies Adoption (GPA) | Supported |
| **H4** | Company Age (CA)⟶ Green Policies Adoption (GPA)  Company Age (CA)⟶ Proactive Business Orientation (PBO)  Company Age (CA)⟶ Innovation Orientation (OI) | Not Supported  Not Supported  Not Supported |
| **H5** | Sectorial differences (SD) ⟶​ Green Policies Adoption (GPA)  Sectorial differences (SD) ⟶​ Innovation Orientation (OI) | Supported  Supported |

In the following, we discuss the results of testing the various hypotheses, highlighting significant connections between factors, with implications for both theory and practice in corporate sustainability.

**Managerial satisfaction:**

Statistical and correlation analyses were applied to investigate the hypothesis H1, which suggests that managerial satisfaction with financial performance influences the adoption of green policies in Romanian companies. The results indicated that there is a significant relationship between financial performance (e.g., profitability, ROI) and ecological performance (e.g., ecological investment, reputation), with p-values close to zero, leading to the rejection of the hypothesis that no correlation exists. Various correlation measures such as Pearson, Kendall’s Tau, Spearman's Rank were used to assess the relationships. While the correlations were not very strong, they were still significant for most pairs of financial and ecological parameters. The studies shows that financial performance metrics were closely aligned with ecological performance parameters, with minimal differences in their means, confirming that financial performance is viewed similarly to ecological performance. The analysis aligns with the literature (Menne et al., 2022; Tolliver et al., 2021; Makloufi et al., 2021; Söderholm, 2020) suggesting that financial success supports green policies and innovation, showcasing that strong financial results encourage long-term green investments, rather than focusing on short-term profits.

**Managerial innovation:**

The hypothesis H2, which posits that managers who perceive themselves as innovative are more likely to pursue green policies, was evaluated through correlation and statistical methods. The results showed significant positive correlations between proactive orientation (such as usage, anticipation, implementation, and R&D) and ecological parameters, with p-values close to zero, leading to the rejection of the hypothesis that no correlation exists. The findings were further supported by Kendall’s Tau and Spearman’s Rank Correlation, confirming a strong relationship between proactivity and ecological orientation. The t-statistics analysis indicated that the means of proactive orientation and ecological parameters were statistically similar, with a 95% confidence level. This suggests that proactive orientation, which drives innovation, also significantly influences ecological policies within firms which goes in line with Yin et al., (2022) and Ionescu et al., (2020). The analysis supports the hypothesis that managers who view themselves as innovative are more likely to pursue green policies, as innovation and ecological efforts are closely linked within organizations. As Singh et al. (2020) stated, the adoption of eco-friendly technologies leads to improved economic efficiency as innovative managers are more inclined to pursue green initiatives, since they are better equipped to identify sustainability opportunities.

**Proactivity:**

To test the hypothesis H3, which suggests that a proactive business orientation enhances green performance, correlation analysis and statistical tools were employed. The results revealed significant positive correlations between innovation parameters (such as activity, novelty, speed, and share) and ecological parameters, with p-values close to zero, leading to the rejection of the hypothesis that no correlation exists. The correlations were confirmed by Spearman's and Kendall’s Tau coefficients, further supporting the relationship between innovation and ecological performance. The paired t-statistics analysis, with a 95% confidence level, indicated a strong correspondence between innovation parameters and ecological performance. The analysis supports the hypothesis that a proactive approach to environmental issues, by integrating sustainability into core strategies, leads to better green performance and innovation, enabling companies to stay competitive and meet regulatory and consumer demands. Proactive approaches, as explained by Ari et al (2020) and Carhano et al. (2020), target sustainability challenges and opportunities before they arise. This strategy drives innovation and long-term competitiveness (Adamako et al., 2020; Shah & Soomro 2020; Tu & Wu, 2020; Padilla-Lozano et al., 2021) and strenghten businesses for potential regulatory changes and rising consumer demands.

**Maturity:**

The hypothesis H4, which posits that company age does not significantly affect commitment to ecological practices, was tested by analyzing data across six age groups of companies. The results showed very weak correlations between company age and ecological, proactive orientation, and innovation parameters. Specifically, the Pearson, Spearman, and Kendall’s Tau correlation coefficients for ecology, proactive, and innovation parameters were all very low, with p-values close to zero, leading to the rejection of the hypothesis that company age influences these factors. The analysis indicates that company age does not significantly impact ecological efforts, proactive orientation, or innovation, supporting the idea that younger companies are not inherently more committed to sustainability as found in other context (Jerónimo et al.2020; Mukhuty et al., 2021) and that established firms can also engage in ecological practices, regardless of their age (Broccardo & Zicari, 2020)..

**Sectoral differences:**

The hypothesis H5, which suggests that transport companies in Romania are less inclined to adopt green technologies than other sectors, was tested through a comparison of ecological, proactive orientation, and innovation parameters between transport and non-transport companies. The analysis revealed that transport companies tend to have significantly lower ecological performance, as well as weaker proactive orientation and innovation parameters, compared to non-transport companies. Stan (2022) stated that they are considered as a major greenhouse gas emitter, but lacks the expertise to implement green technologies. The Mann-Whitney U Test showed very low p-values for all parameters, indicating a significant difference between transport and non-transport firms. Transport companies were found to have lower values in ecological performance, proactive orientation (usage, anticipation, and implementation), and innovation (activity, novelty, speed, and share). The results support the hypothesis that Romanian transport companies lag behind other sectors in adopting green technologies, likely due to infrastructure limitations and a lack of expertise in implementing sustainable practices.

**Conclusion**

This study provides valuable insights to the existing literature by offering empirical validation of previous claims regarding the complex relationships between financial performance, proactive orientation, innovation, and ecological performance across various sectors by focusing on the Romanian context to explain how these factors influence sustainability efforts.

The analysis revealed moderate to strong positive correlations between financial performance, proactive orientation, innovation, and ecological performance. While proactive and innovation parameters have a significant impact on ecological policies, financial performance plays a more moderate, indirect role. Transport companies, despite utilizing more modern and environmentally conscious vehicles than the national average, lag behind non-transport firms in terms of ecological performance, proactive orientation, and innovation. This suggests that, although the transport sector is making strides in modernizing its fleet, it still faces significant challenges in adopting comprehensive green practices compared to other industries. Moreover, the study found that firm age does not play a critical role in determining ecological, proactive, or innovation performance, indicating that younger or older firms do not significantly differ in their commitment to sustainability. Managers' subjective estimations of their companies' financial health were shown to align somewhat with real financial performance, suggesting that while these perceptions reflect financial reality, they are influenced by additional factors beyond objective financial metrics. Proactive orientation was more strongly shaped by subjective financial perceptions than by actual financial data, indicating that managerial bias or expectations may play a role in shaping strategic decisions. These results underscore the critical role of financial health, managerial innovation, and proactive strategies in advancing corporate sustainability. They suggest that businesses with stable finances and innovative leadership are better positioned to address environmental challenges, contributing to long-term competitiveness and compliance with evolving market demands. The findings also provide a theoretical basis for further integrating sustainability into corporate decision-making frameworks.

However, the sample is limited to Romanian corporations, which may restrict the generalizability of the findings to other contexts. Future research could address these limitation by expanding the geographic scope to explore the dynamics of our variables in other countries or regions to provide a more comprehensive understanding of how contextual factors influence green policies. In addition, the impact of macroeconomic factors on sustainability performance could help to fully understand and enhance the sustainability efforts of companies. Investigating the role of industry-specific variables and longitudinal studies could also provide deeper insights into the long-term impacts of financial stability and innovation on sustainability in instance examine the potential barriers to the adoption of green technologies in the transport sector and explore ways to bridge the gap between financial performance and ecological outcomes.

This study highlights the pivotal role of financial stability, innovation, and proactive orientation in fostering green policies. By empirically validating these relationships, the research contributes to a deeper understanding of the drivers of corporate sustainability and provides actionable insights for both scholars and practitioners in the field.

**References**

1. Adim Chidiebere Victor, Godwin Poi, Dynamics of Corporate Entrepreneurial Initiatives: A Literature Review; International Journal of Entrepreneurship; Vol.6, Issue 1, pp 1- 13, 2022;
2. Aguilera Ruth, Aragon-Correa Alberto, Marano Valentina, Tashman Peter, The Corporate Governance of Environmental Sustainability: A Review and Proposal for More Integrated Research; Journal of Management Vol. 47 No. 6, July 2021 1468–1497 DOI: 10.1177/0149206321991212;
3. Ahi Payman, Seracy Cory, Jaber Mohamad, A Quantitative Approach for Assessing Sustainability Performance of Corporations, Ecologica Economics, [Volume 152](https://1710aok1s-y-https-www-sciencedirect-com.z.e-nformation.ro/journal/ecological-economics/vol/152/suppl/C), October 2018, Pages 336-346, [https://doi.org/10.1016/j.ecolecon.2018.06.012](https://1710aok1s-y-https-doi-org.z.e-nformation.ro/10.1016/j.ecolecon.2018.06.012);
4. Amankwah, J.; Sesen, H. On the Relation between Green Entrepreneurship Intention and Behavior. Sustainability 2021, 13, 7474. <https://doi.org/10.3390/su13137474>;
5. Ambec, Stefan, and Paul Lanoie. “Does It Pay to Be Green? A Systematic Overview.” Academy of Management Perspectives 22, no. 4 (2008): 45–62. http://www.jstor.org/stable/27747478.
6. Ana Maria Gomez-Trujillo, Juan Velez-Ocampo, Maria Alejandra Gonzalez-Perez, A literature review on the causality between sustainability and corporate reputation What goes first?, Management of Environmental Quality: An International Journal Vol. 31 No. 2, 2020 pp. 406-430 © Emerald Publishing Limited 1477-7835 DOI 10.1108/MEQ-09-2019-0207;
7. Anca Gabriela Petrescu, Florentina Raluca Bîlcan, Marius Petrescu, Ionica Holban Oncioiu, Mirela Cătălina Türkes, Sorinel Căpusneanu, Assessing the Benefits of the Sustainability Reporting Practices in the Top Romanian Companies, Sustainability 2020, 12, 3470; doi:10.3390/su12083470;
8. Anyigbah, E.; Kong, Y.; Edziah, B.K.; Ahoto, A.T.; Ahiaku, W.S. Board Characteristics and Corporate Sustainability Reporting: Evidence from Chinese Listed Companies. Sustainability 2023, 15, 3553. https://doi.org/10.3390/ su15043553;
9. Ari Engin, Karatepe Osman, Rezapouraghdam Hamed, Avci Turgay, A Conceptual Model for Green Human Resource Management: Indicators, Differential Pathways, and Multiple Pro-Environmental Outcomes; Sustainability 2020, 12, 7089; doi:10.3390/su12177089;
10. Bălășescu, S.; Neacs,u, N.A.; Madar, A.; Zamfirache, A.; Bălășescu, M. Research of the Smart City Concept in Romanian Cities. Sustainability 2022, 14, 10004. https://doi.org/10.3390/ su141610004;
11. Bilan Yuriy, Hussain Hafezali Iqbal, Haseeb Muhammad, Kot Sebastian, Sustainability and Economic Performance: Role of organizational learning and innovation, Inzinerine Ekonomika-Engineering Economics, 2020, 31(1), 93–103; <https://doi.org/10.5755/j01.ee.31.1.20743>;
12. Borja Diez-Cañamero, Tania Bishara, Jose Ramon Otegi-Olaso, Rikardo Minguez, José María Fernández, Measurement of Corporate Social Responsibility: A Review of Corporate Sustainability Indexes, Rankings and Ratings, Sustainability 2020, 12, 2153; doi:10.3390/su12052153;
13. Carmen Paola Padilla-Lozano, Pablo Collazzo, Corporate social responsibility, green innovation and competitiveness – causality in manufacturing, Competitiveness Review: An International Business Journal Vol. 32 No. 7, 2022 pp. 21-39 Emerald Publishing Limited 1059-5422 DOI 10.1108/CR-12-2020-0160;
14. Cheramie Lance, Balasubramanian Mahendran, Sustainability Measures of the Apparel Industry: A Longitudinal Analysis of Apparel Coprorations’ Sustainability Efforts, Sustainability 2024, 16(15), 6681; <https://doi.org/10.3390/su16156681>;
15. Chygryn, O., Bilan, Y., & Kwilinski, A. (2020). Stakeholders of Green Competitiveness: Innovative Approaches for Creating Communicative System. Marketing and Management of Innovations, 3, 358- 370. <https://doi.org/10.21272/mmi.2020.3-26>;
16. Costache, C.; Dumitrascu, D.-D.; Maniu, I. Facilitators of and Barriers to Sustainable Development in Small and Medium-Sized Enterprises: A Descriptive Exploratory Study in Romania. Sustainability 2021, 13, 3213. <https://doi.org/10.3390/su13063213>;
17. Craiut, L.; Bungau, C.; Bungau, T.; Grava, C.; Otrisal, P.; Radu, A.-F. Technology Transfer, Sustainability, and Development, Worldwide and in Romania. Sustainability 2022, 14, 15728. https://doi.org/10.3390/su 142315728;
18. Davide Settembre-Blundo, Rocı´o Gonzalez-Sanchez, Sonia Medina-Salgado, Fernando E. Garcıa-Muina; Flexibility and Resilience in Corporate Decision Making: A New Sustainability-Based Risk Management System in Uncertain Times; Global Journal of Flexible Systems Management (December 2021) 22(Suppl 2):S107–S132 <https://doi.org/10.1007/s40171-021-00277-7>;
19. European Environment Agency, Climate change mitigation: reducing emissions, <https://www.eea.europa.eu/en/topics/in-depth/climate-change-mitigation-reducing-emissions>
20. Fadi Alkaraan, Mahmoud Elmarzouky, Khaled Hussainey, V.G. Venkatesh, Sustainable strategic investment decision-making practices in UK companies: The influence of governance mechanisms on synergy between industry 4.0 and circular economy, Technological Forecasting & Social Change 187 (2023) 122187;
21. Glinyanova Maria, Bouncken Ricarda, Tiberius Victor, Ballester Antonio Cuenca, Five decades of corporate research: measuring and mapping the field, International Entrepreneurship and Management Journal (2021) 17:1731–1757, <https://doi.org/10.1007/s11365-020-00711-9>;
22. Graham John, Grennan Jillian, Harvey Campbell, Rajgopal Sivaram, Corporate culture: Evidence from the field, Journal of Financial Economics, 146 (2022) 552-594, <https://doi.org/10.1016/j.jfineco.2022.07.008>;
23. Grigore Georgiana, Molesworth Mike, Vontea Andreea, Basnawi Abdullah Hasan, Celep Ogeday, Jesudoss Sylvian Patrick, Corporate social responsibility in liquid times; The case of Romania; Journal of Business Ethics (2021) 174:763–782 <https://doi.org/10.1007/s10551-021-04926-w>;
24. Hashmi Anaam, Damanhouri Amal, Rana Divya, Evaluation of Sustainability Practices in the United States and Large Corporations,  Bus Ethics 127, 673–681 (2015). <https://doi.org/10.1007/s10551-014-2056-4>;
25. Helena Mateus Jerónimo⁎, Paulo Lopes Henriques, Teresa Correia de Lacerda, Filipa Pires da Silva, Pedro Rino Vieira; Going green and sustainable: The influence of green HR practices on the organizational rationale for sustainability; Journal of Business Research 112 (2020) 413–421, <https://doi.org/10.1016/j.jbusres.2019.11.036>;
    1. <https://doi.org/10.1002/bse.2881>
26. Ionescu George, Firoiu Daneila, Pîrvu Ramona, Enescu Marian, Rădoi Mihai-Ionut, Cojocaru Teodor Marian, The potential for innovation and entrepreneurship in EU Countries in the contex of sustainable development, Sustainability 2020, 12, 7250; doi:10.3390/su12187250ș
27. Ipek Kazancoglu, Circular economy and the policy: A framework for improving the corporate environmental management in supply chains, Business Strategy and The Environment published by ERP Environment and John Wiley & Sons Ltd, DOI: 10.1002/bse.2641
28. Kamil Makieła, Tomasz Misztur, Going Green versus Economic Performance, <https://doi.org/10.5755/j01.ee.23.2.1546>
29. Kayonda Hubert Ngamaba , Christopher Armitage , Maria Panagioti , Alex Hodkinson , How closely related are Financial Satisfaction and Subjective Well-Being? Systematic Review and Meta-Analysis., Journal of Behavioral and Experimental Economics (2020), doi: <https://doi.org/10.1016/j.socec.2020.101522>;
30. Kimuli [Saadat Nakyejwe Lubowa Kimuli,](https://1710yok58-y-https-www-emerald-com.z.e-nformation.ro/insight/search?q=Saadat%20Nakyejwe%20Lubowa%20Kimuli)[Laura Orobia,](https://1710yok58-y-https-www-emerald-com.z.e-nformation.ro/insight/search?q=Laura%20Orobia)[Humphrey Muki Sabi,](https://1710yok58-y-https-www-emerald-com.z.e-nformation.ro/insight/search?q=Humphrey%20Muki%20Sabi)[Clive Katiba Tsuma](https://1710yok58-y-https-www-emerald-com.z.e-nformation.ro/insight/search?q=Clive%20Katiba%20Tsuma),   
    Sustainability intention: mediator of sustainability behavioral control and sustainable entrepreneurship, WORLD JOURNAL OF ENTREPRENEURSHIP MANAGEMENT AND SUSTAINABLE DEVELOPMENT, Volume 16, Issue 2, pp. 81-95, 10.1108/WJEMSD-12-2019-0096
31. Laura Broccardo, Adrian Zicari, SUSTAINABILITY AS A DRIVER FOR VALUE CREATION: A BUSINESS MODEL ANALYSIS OF SMALL AND MEDIUM ENTREPRISES IN THE ITALIAN WINE SECTOR, : <https://www.sciencedirect.com/science/article/pii/S0959652620308994>;
32. Li X, Du J, Long H. Mechanism for Green Development Behavior and Performance of Industrial Enterprises (GDBP-IE) Using Partial Least Squares Structural Equation Modeling (PLS-SEM). Int J Environ Res Public Health. 2020 Nov 15;17(22):8450. doi: 10.3390/ijerph17228450. PMID: 33203091; PMCID: PMC7696027.
33. Lin Ru-jen, Tan Kim-Hua, Young Geng, “Market demand, green product innovation, and firm performance: Evidence from Vietnam motorcycle industry”Journal of Cleaner Production, 40 (2013), pp. 101-107
34. Liu Lewis, Green innovation, firm performance, and risk mitigation: evidence from the USA; Environment, Development and Sustainability (2024) 26:24009–24030 <https://doi.org/10.1007/s10668-023-03632-z>;
35. Makloufi Lahcene, Laghouag Abderrazak Ahmed, Meirun Tang, Belaid Fateh, Impact of green entrepreneurship orientation on environmental performance: The natural resource-based view and environmental policy perspective, Bus Strat Env. 2021;1–20., DOI:10.1002/bse.2902;
36. Maniu, I.; Costache, C.; Dumitra¸scu, D.-D. Adoption of Green Environmental Practices in Small and Medium-Sized Enterprises: Entrepreneur and Business Policies Patterns in Romania. Sustainability 2021, 13, 4968. <https://doi.org/10.3390/su13094968>;
37. Marcos Carchano, Inmaculada Carrasco, Angela González, Francisco J. Sáez-Martínez, Analysis the nexus between internationalization and financial performance in wine industry: The effect of proactive environmental strategy and eco-innovation; Corp Soc Responsib Environ Manag. 2024;1–17.; DOI: 10.1002/csr.2894;
38. Matei Florin Bogdan, Boboc Crsitina, Ghiță Simona, The relationship corporate social responsability and financial performances in Romanian companies, Economic Computation and Economic Cybernetics Studies and Research, Issue 3/2021; Vol. 55, DOI: 10.24818/18423264/55.3.21.19;
39. Menne, F.; Surya, B.; Yusuf, M.; Suriani, S.; Ruslan, M.; Iskandar, I. Optimizing the Financial Performance of SMEs Based on Sharia Economy: Perspective of Economic Business Sustainability and Open Innovation. J. Open Innov. Technol. Mark. Complex. 2022, 8, 18. https://doi.org/10.3390/ joitmc8010018;
40. Meuer, J., Koelbel, J, Hoffmann, V. 2019 On the Nature of Corporate Sustainability. Organization & Environment, <https://doi.org/10.1177/1086026619850180>;
41. Ministry of Finance in Romania official site, available Oct, 2024: <https://www.listafirme.ro>
42. Mohd Helmi Ali, Impacts of Environmental Factors on Waste, Energy, and Resource Management and Sustainable Performance, doi:10.3390/su11082443
43. Mohsin Shahzad, Ying Qu, Abaid Ullah Zafar, Saif Ur Rehman and Tahir Islam; Exploring the influence of knowledge management process on corporate sustainable performance through green innovation; JOURNAL OF KNOWLEDGE MANAGEMENT, 2020; DOI 10.1108/JKM-11-2019-0624;
44. N J Astrini, T Rakhmawati, S Sumaedi, I G M Y Bakti, M Yarmen and S Damayanti, Innovativeness, Proactiveness, and Risk-taking: Corporate Entrepreneurship of Indonesian SMEs; IOP Conf. Series: Materials Science and Engineering 722 (2020) 012037 IOP Publishing doi:10.1088/1757-899X/722/1/012037;
45. Naimatullah Shah, Bahadur Ali Soomro, Internal green integration and environmental performance: The predictive power of proactive environmental strategy, greening the supplier, and environmental collaboration with the supplier; Bus Strat Env. 2020;1–12., DOI: 10.1002/bse.2687;
46. Nemann Thomas, Impact of green entrepreneurship on sustainable development: An ex-post empirical analysis, [Journal of Cleaner Production](https://www.sciencedirect.com/journal/journal-of-cleaner-production), [Volume 377](https://www.sciencedirect.com/journal/journal-of-cleaner-production/vol/377/suppl/C), 1 December 2022, 134317, <https://doi.org/10.1016/j.jclepro.2022.134317>;
47. Nicolau, C.; Nichifor, E.; Munteanu, D.; B ˘arbulescu, O. Decoding Business Potential for Digital Sustainable Entrepreneurship: What Romanian Entrepreneurs Think and Do for the Future. Sustainability 2022, 14, 13636. https://doi.org/ 10.3390/su142013636;
48. Nit,u-Antonie, R.D.; Feder, E.-S.; Nit,u-Antonie, V.; György, R.-K. Predicting Sustainable Entrepreneurial Intentions among Romanian Students: A Mediated and Moderated Application of the Entrepreneurial Event Model. Sustainability 2023, 15, 5204. https://doi.org/10.3390/ su15065204;
49. Nunes, M.; Abreu, A.; Saraiva, C. Identifying Project Corporate Behavioral Risks to Support Long-Term Sustainable Cooperative Partnerships. Sustainability 2021, 13, 6347. <https://doi.org/10.3390/su13116347>;
50. Nurul Awatif Ahmad Saufia, Salina Dauda, Hasmaizan Hassana, Green Growth and Corporate Sustainability Performance, doi: 10.1016/S2212-5671(16)00046-0
51. Nuryakin, N.; Maryati, T. 2020. Green product competitiveness and green product success. Why and how does mediating affect green innovation performance?, Entrepreneurship and Sustainability Issues 7(4): 3061-3077. <https://doi.org/10.9770/jesi.2020.7.4(33)>;
52. Okr˛eglicka, M.; Mittal, P.; Navickas, V. Exploring the Mechanisms Linking Perceived Organizational Support, Autonomy, Risk Taking, Competitive Aggressiveness and Corporate Sustainability: The Mediating Role of Innovativeness. Sustainability 2023, 15, 5648. https://doi.org/10.3390/ su15075648;
53. Olsson Per, Galaz Victor, Boonstra Wieber, 2024, Sustainability transformations: a resilience perspective. Ecology and Society 19 (4):1. <http://dx.doi.org/10.5751/ES-06799-190401>;
54. Patrik Söderholm, The green economy transition: the challenges of technological change for sustainability; Söderholm Sustainable Earth (2020) 3:6 <https://doi.org/10.1186/s42055-020-00029-y>;
55. Pejman Ebrahimi, Seyed Mozaffar Mirbargkar, “Green entrepreneurship and gree innovation for SME development in market tutbulence”, Eurasian Business Review, Volume 7, pages. 203-228, (2017), <https://doi.org/10.1007/s40821-017-0073-9>
56. Pertheban, T.R.; Thurasamy, R.; Marimuthu, A.; Venkatachalam, K.R.; Annamalah, S.; Paraman, P.; Hoo, W.C. The Impact of Proactive Resilience Strategies on Organizational Performance: Role of Ambidextrous and Dynamic Capabilities of SMEs in Manufacturing Sector. Sustainability 2023, 15, 12665. https://doi.org/ 10.3390/su151612665;
57. Petcu, M.A., Dinu, E.M., Cişmaşu, I.D. and PopescuPredulescu, R.A., 2023. The Analysis of the Impact of Energy and Environmental Policies of the European Union on the Economic Performance of Companies. Case Study in the Transport Sector. Amfiteatru Economic, 25(63), pp. 362-379;
58. Peters Kristian, Buijs Paul, “Strategic ambidexterity in green product innovation: Obstacle and implications, Business Strategy and the Environment”, 2021,
59. Pierce J.C., Budd W. W., Lovrich Jr. N. P., Resilience and sustainability in US Urban Areas, Environmental Politics, Volume 20, 2011- Issue 4, <https://doi.org/10.1080/09644016.2011.589580>;
60. Romero- Lankao Patricia Romero, Gnatz Daniel, Wilhelmi olga, Hayden Mary, Urban Sustainability snd Resilience: From Theory to Practice, Sustainability 2016, 8(12), 1224; <https://doi.org/10.3390/su8121224>
61. Rosário, A.T.; Raimundo, R.J.; Cruz, S.P. Sustainable Entrepreneurship: A Literature Review. Sustainability 2022, 14, 5556. <https://doi.org/10.3390/su14095556>;
62. Samuel Adomako, Ernestine Ning; Emmanuel Adu-Ameyaw, Proactive environmental strategy and firm performance at the bottom of the pyramid; Bus Strat Env. 2021;30:422–431.; <https://doi.org/10.1002/bse.2629>;
63. Schaltegger Stefan, Christ Katherine, Wenzig Julius, Burritt Roger, Corporate sustainability management accounting and multi-level links for sustainability- A systematic review; Int. J., Manag Rev., 2022; 24:480-500, DOI: 10.1111/ijmr.12288;
64. Singh Sanjay Kumar, Giudice Manlio Del, Chierici Roberto, Grazioano Domenico, Green innovation and environmental performance: The role of green transformational leadership and green human resource management; Technological Forecasting & Social Change 150 (2020) 11976; <https://doi.org/10.1016/j.techfore.2019.119762>;
65. Sitnikov, C., Băndoi, A., Staneci (Drinceanu), I., Militaru, C.C., Olaru (Staicu), M.P., & Riza, I. (2021). The Corporate Social Responsibility System Practiced by Romanian Companies. Postmodern Openings, 12(1Sup1), 113- 135. <https://doi.org/10.18662/po/12.1Sup1/274>;
66. Skordoulis, M.; Kyriakopoulos, G.; Ntanos, S.; Galatsidas, S.; Arabatzis, G.; Chalikias, M.; Kalantonis, P. The Mediating Role of Firm Strategy in the Relationship between Green Entrepreneurship, Green Innovation, and Competitive Advantage: The Case of Medium and Large-Sized Firms in Greece. Sustainability 2022, 14, 3286. https://doi.org/10.3390/ su14063286;
67. Socoliuc Marian, Cosmulese Cristina Gabriela, Ciubotariu Marius-Sorin, Mihaila Svetlana, Arion Iulia-Diana, Grosu Veronica, Sustainability Reporting as a Mixture of CSR and Sustainable development. A model for micro-enterprises within the Romanian forestry sector, Sustainability 2020, 12, 603; doi:10.3390/su12020603;
68. Sovacool, B. K. (2021). Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation. Energy Research & Social Science, 73, 101916. doi:https://doi.org/10.1016/j.erss.2021.101916;
69. Stan Mari-Isabella, Does the activity of passenger transport have growth potential for the sustainable development of Constanța County?, Technium Social Sciences Journal, Vol. 29, 509-522, March 2022;
70. Stevi´c, Ž.; Miški´c, S.; Vojinovi´c, D.; Huskanovi´c, E.; Stankovi´c, M.; Pamuˇcar, D. Development of a Model for Evaluating the Efficiency of Transport Companies: PCA–DEA–MCDM Model. Axioms 2022, 11, 140. https://doi.org/10.3390/ axioms11030140;
71. Stoica Dragos Andrei, The road to sustainable development. The case of Romania, Review of International Comparative Management Volume 22, Issue 4, October 2021, DOI: 10.24818/RMCI.2021.4.600;
72. Sumona Mukhuty, Arvind Upadhyay, Holly Rothwell, Strategic sustainable development of Industry 4.0 through the lens of social responsibility: The role of human resource practices; Bus Strat Env. 2022;31:2068–2081., DOI: 10.1002/bse.3008;
73. Syed Mehmood Ali Shah, Yang Jiang, HaoWu, Zahoor Ahmed, Irfan Ullah, Tomiwa Sunday, Adebayo, Linking Green Human Resource Practices and Environmental Economics Performance: The Role of Green Economic Organizational Culture and Green Psychological Climate, <https://doi.org/10.3390/ijerph182010953>
74. Tăbîrcă, A. I., & Ivan, O. R. (2020). Relationship between Corporate Social Responsibility and Entrepreneurship - Evidence from Romanian Entrepreneurs. In M. W. Staniewski, V. Vasile, & A. Grigorescu (vol. ed.), Lumen Proceedings: Vol. 14. International Conference Innovative Business Management & Global Entrepreneurship (IBMAGE 2020) (pp. 611-626). Iasi, Romania: LUMEN Publishing House. <https://doi.org/10.18662/lumproc/ibmage2020/44>;
75. Tien Nguyen Hoang, Hiep Phuoc Minh, Dai Nguyen Quang, Duc Nguyen, Hong To Thi Kim, Minh Ho Chi, Green entrepreneurship understanding in Vietnam, International Journal of Entrepreneurship, Volume 24, Issue 2, 2020;
76. Ting Kong, Advanced Manufacturing Technologies and Green Innovation: The Role of Internal Environmental Collaboration, doi:10.3390/su8101056
77. Tőkés Gyöngyvér Erika, Best Practices of CSR Reporting in Romania, ACTA UNIV. SAPIENTIAE, COMMUNICATIO, 8 (2021) 104–120; DOI: 10.2478/auscom-2021-0008;
78. Toliiver Clarence, Fujii Hidemichi, Keekey Alexander Ryota, Managi Shunsuke, Green inoovation and finance in ASIA, Asian Economic Policy Review (2021) 16, 67–87; doi: 10.1111/aepr.12320;
79. Wang H, Khan MAS, Anwar F, Shahzad F, Adu D and Murad M (2021) Green Innovation Practices and Its Impacts on Environmental and Organizational Performance. Front. Psychol. 11:553625. doi: 10.3389/fpsyg.2020.553625;4
80. Wathanakom et al. The study of the causal relationship between innovativeness and entrepreneurial intention among undergraduate students, Journal of Innovation and Entrepreneurship (2020) 9:15 <https://doi.org/10.1186/s13731-020-00125-5>;
81. Xuemei Xie, Jiange Huo, Hailiang Zou, “Green process innovation, green product innovation, and corporate financial performance: A content analysis method”, Journal of Business Research, Volume 101, 2019, pg. 697-706,
82. Yaghoub Abdi, Xiaoni Li, Xavier Càmara‑Turull, Exploring the impact of sustainability (ESG) disclosure on frm value and fnancial performance (FP) in airline industry: the moderating role of size and age; Environment, Development and Sustainability (2022) 24:5052–5079 <https://doi.org/10.1007/s10668-021-01649-w>;
83. Yin Chenli, Salmador Maria Paz, Lloria Begona, Green entrepreurship and SME performance: the moderating effect of firm age, International Entrepreneurship and Management Journal (2022) <https://doi.org/10.1007/s11365-021-00757-3>;
84. Yu Tu , Weiku Wu, How Does Green Innovation Improve Enterprises’ Competitive Advantage? The Role of Organizational Learning; Yu Tu , Weiku Wu , How Does Green Innovation Improve Enterprises’ Competitive Advantage? The Role of Organizational Learning, Sustainable Production and Consumption (2020), doi: <https://doi.org/10.1016/j.spc.2020.12.031>;
85. Zamfirache, A.; Suciu, T.; Anton, C.E.; Albu, R.-G.; Ivasciuc, I.-S. The Interest Shown by Potential Young Entrepreneurs in Romania Regarding Feasible Funding Sources, in the Context of a Sustainable Entrepreneurial Education. Sustainability 2023, 15, 4823. https:// doi.org/10.3390/su15064823;
86. Zhong N and Ren J (2022) Using sentiment analysis to study the relationship between subjective expression in financial reports and company performance. Front. Psychol. 13:949881. doi: 10.3389/fpsyg.2022.949881; Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Routledge Academic.
87. Field, A. (2013). *Discovering Statistics Using IBM SPSS Statistics*. SAGE Publications.
88. Pearson, K. (1895). Notes on regression and inheritance in the case of two parents. *Proceedings of the Royal Society of London*, *58*, 240–242.
89. McClave, J. T., Benson, P. G., & Sincich, T. (2017). *Statistics for Business and Economics* (13th ed.). Pearson Education.
90. Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. Routledge Academic.
91. Spearman, C. (1904). The proof and measurement of association between two things. *American Journal of Psychology*, *15*(1), 72–101.
92. Kendall, M.G. (1938). A new measure of rank correlation. *Biometrika*, *30*(1/2), 81–93
93. Mann, H. B., & Whitney, D. R. (1947). On a test of whether one of two random variables is stochastically larger than the other. *The Annals of Mathematical Statistics*, *18*(1), 50–60.
94. Fritz, C. O., Morris, P. E., & Richler, J. J. (2012). Effect size estimates: Current use, calculations, and interpretation. *Journal of Experimental Psychology: General*, *141*(1), 2–18.