# 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 - Plan*

## Introduction:

In the contemporary global landscape, the concepts of sustainability and resilience have emerged as pivotal elements in shaping the strategic frameworks of corporations. Sustainability, often defined as the capacity to maintain or improve systems over the long term without depleting resources or harming natural cycles, has become increasingly significant in business practices. Resilience, on the other hand, pertains to an organization’s ability to adapt to disruptions and maintain functionality in the face of challenges, whether environmental, economic, or social.

The intersection of these two concepts is particularly relevant 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. In 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.

This study focuses on Romania, a country with a unique 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.

## Literature review

The study of 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. This literature review 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.

The concept of corporate sustainability, as outlined by Elkington (1997) in the Triple Bottom Line framework, 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.

However, the relationship is not always straightforward. 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).

Resilience, often discussed in the context of environmental and organizational studies, is defined as the ability of a system to withstand and recover from disturbances (Holling, 1973). In the corporate context, resilience is increasingly linked to sustainability, with resilient organizations being those that can adapt to environmental and economic changes while maintaining their commitment to sustainable practices (Folke et al., 2010).

## Description of the problem:

In the present work, we check the hypothesis of the relationships between financial performance, innovation, pro-active orientation, and green performance within Romanian corporations.

#### Hypothesis 1 (H1): The financial performances influences on the green performances

The first hypothesis suggests that the financial performance of a corporation could boost its green performance, which refers to the extent and effectiveness of the company's environmental initiatives and sustainability practices. The underlying rationale for this hypothesis is that companies with better financial health are likely to view investments in green practices not just as a compliance requirement but as a strategic move that can enhance their long-term competitiveness and brand reputation. Conversely, companies struggling financially might prioritize short-term survival over long-term sustainability, potentially leading to lower green performance Also, companies with strong financial performance may have more resources to invest in sustainable practices, such as reducing their carbon footprint, improving energy efficiency, or adopting eco-friendly technologies. This hypothesis will be tested to understand whether financial success enables or encourages better green performance within Romanian corporations, or if the relationship is more complex

#### Hypothesis 2 (H2): We want to see if innovation has any influence on green performance

This hypothesis logic is the same as the previous one. Innovation, in this context, refers to the development and implementation of new ideas, processes, products, or technologies that can improve a company’s operations, efficiency, and market positioning. Innovation is often closely linked to sustainability because it can drive the development of new solutions that reduce environmental impact. For example, innovative companies may pioneer new manufacturing processes that use fewer natural resources or create products that are more energy-efficient. This hypothesis suggests that companies that are more innovative may also be more capable of improving their green performance, as they can better identify and capitalize on opportunities for sustainability. The analysis will examine if this correlation exists within the Romanian corporate context.

#### Hypothesis 3 (H3): Pro-active orientation is boosting the green performances

Proactive orientation refers to a company's forward-thinking and anticipatory approach to business challenges and opportunities, particularly in areas like environmental sustainability. We suspect, that companies with a proactive orientation do not wait for regulatory pressures or market demands to adopt green practices; instead, they actively seek out ways to improve its environmental performance ahead of industry trends or legal requirements. This hypothesis suggests that a proactive orientation could lead to better green performance because companies that take the initiative in sustainability are likely to implement more comprehensive and effective environmental strategies. The research will determine if this proactive behavior is indeed linked to superior green performance in Romanian corporations, and how significant this influence is.

#### Hypothesis 4 (A1): The young and old companies are equally take care for ecology

At the beginning of the studies, authors suggested that younger companies, or those that have been established more recently, are more likely to be concerned with and actively engaged in ecological or environmental sustainability practices. The rationale behind this hypothesis is that newer companies are often founded during a period when sustainability and environmental responsibility are increasingly recognized as critical business imperatives. However, after the receiving the data of the research, we have not found the correlation between age of the firm and “ecology thinking”, therefore 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.

#### Hypothesis 5 (F1): Transport companies in Romania are less prone to green technologies than the others

This hypothesis will explore whether firms in transport field in Romania are more likely to neglect ecological performance than the other ones.

#### Hypothesis 6 (R1): Good financial performance leads to corresponding good subjective estimation of financial performances

This hypothesis is the check of our subjective data by real economic data. The only subjective parameter we can check is the financial performances. We have the opinion of company headers about their financial performances, and we can compare them with the actual statistics that are publically available. The hypothesis suggests that when a company experiences strong financial performance, the head of the company is likely to perceive and report their financial situation positively. The rationale behind this hypothesis is based on cognitive bias, where individuals' subjective perceptions are influenced by actual performance outcomes.

### Summary

The hypotheses H1-H3 are designed to explore the various factors that might influence green performance within corporations, specifically in the Romanian context. The results of testing these hypotheses will provide insights into how financial health, innovation, and a proactive approach to business are related to a company's environmental sustainability efforts. By understanding these relationships, the study aims to contribute to the development of more effective strategies for enhancing corporate green performance, both in Romania and potentially in other emerging markets.

The hypotheses F1 and A1 are designed to investigate how different characteristics of companies, such as their industry field and age, influence their ecological performance and attitudes towards sustainability. Understanding these relationships can provide valuable insights into how and why certain companies engage in ecological practices, potentially guiding future corporate strategies and policies aimed at improving environmental sustainability across various sectors in Romania.

The hypothesis R1 is designed to explore the psychological and cognitive factors that influence how company heads perceive and evaluate both financial performance and sustainability efforts. By examining the correlations between subjective estimations of financial health and sustainability, the study seeks to understand whether certain biases or tendencies are consistent across different aspects of corporate performance. This analysis will contribute to a deeper understanding of how internal perceptions shape the reporting and assessment of a company's overall performance in the Romanian context.

## Method

Description of the questionnaire and the way the data were gathered

Analysis of the obtained data. (Histograms on Fields and Number of Employers(avg), Age of Companies)

After obtaining the data on the "green performance" and "financial performance" of the companies included in the study, we can do the analysis of them. The analysis includes an 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. Histograms are used to visually represent these distributions.

#### 1. **Distribution of Companies by Field**

The data set includes companies from a variety of fields, which allows for a broad analysis of how different industries approach green performance and financial performance. The fields represented in the data include transport, manufacturing, food, medicine, services, finance, and others.

A circular chart below shows of 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.

Fig 1. The fields of firm’s activities in our database

The circular chart indicates that field of transport is the most heavily represented (84 from 148) in our data, however, we have enough data to analyze transport firms versus the other types of firms.

#### 2. **Number of Employees**

The average number of employees per company is an important factor 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. We consider large companies, as those with number of employees greater then 1000, while mid-range companies are with workers within range 20-100. All the other companies are considered small range companies. In our list of companies, we have only 2 large companies and 8 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.

#### 3. **Age of Companies**

The age of the companies in the sample is another critical variable, as it can influence their approach to both financial management and sustainability practices. 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. A presented histogram below shows the age distribution of companies in the sample shows how long these companies have been in operation. The histogram helps 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.

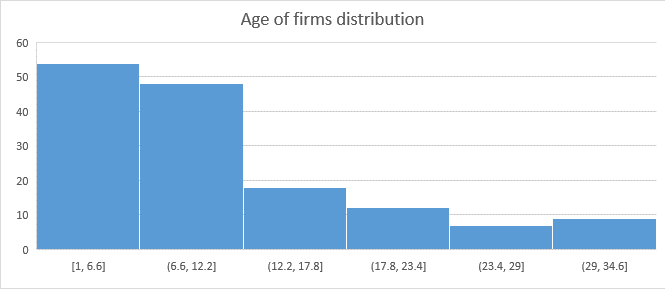


Fig 2. Histogram of firms age ranges

The distribution is close to exponential, that is how this distribution should be from theoretical point of view. 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). However, 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.

## Methods

The core variables of interest in this study are green performance and financial performance. Green performance is assessed based on a variety of metrics, including energy efficiency, waste reduction, and sustainability reporting, while financial performance is evaluated using traditional financial metrics like revenue growth, profitability, and return on investment.

For the checking of hypotheses H1-H3, we perform a correlation analysis to explore the relationship between green performance and financial performance across the sample. We constructed relevant histograms, dependency graphs for certain pairs of variables, and check the statistical significance of the impact of these parameters. Scatter plots will be used to visually examine the relationship between green performance and financial performance, potentially revealing trends or patterns in the data.

This analysis will provide preliminary insights into whether companies that perform well financially also tend to have better green performance, and vice versa.

At first, we implemented a SW solution, that creates scatter plots for visual representations of each of the X-data (financial performances, innovation activities estimations, pro-active orientations) versus ecology activities estimations (Y-data). Thus, we are having scatter plots for every pair (d1,d2), where d1 is X-data, d2- is Y-data.

After visual plotting of the corresponding dependencies, we can use the following mathematical methods were used to assess the impact of the parameters and verify their statistical significance:

- Pearson Correlation (to assess the linear relationship between two variables);

- P-values (to estimate the hypothesis of not having a correlation between the data);

- One-Sample t-test (to check if the sample mean equals a specified value (in our case, 0)) for the difference of our data.

The results of the calculations are represented on the next tables for H1:

The p-values for all of the parameters are almost equal to zero (with maximum value is 6.681962001442607e-08), therefore we must reject the hypothesis, that our data have no correlation.

Pearson correlation coefficients are represented in the next table:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Investment | Superirority | Reputation | LowCost |
| Profit brut | 0.475009 | 0.451672 | 0.457395 | 0.426107 |
| Profit brut | 0.475009 | 0.451672 | 0.457395 | 0.426107 |
| Gross profit | 0.475009 | 0.451672 | 0.457395 | 0.426107 |
| Return on Assets | 0.534273 | 0.50931 | 0.501177 | 0.441552 |
| Sales | 0.492854 | 0.456346 | 0.475342 | 0.43801 |
| Earnings per share | 0.513717 | 0.499747 | 0.503604 | 0.462833 |
| Earnings per share | 0.563941 | 0.532551 | 0.572841 | 0.516004 |
| Rate of Profit | 0.496409 | 0.485327 | 0.476414 | 0.458953 |

Thus, we are having not very strong linear positive relationships for every pair of our parameters.

For the estimations of the differences we have the next tables:

t-stat for differences

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Investment | Superirority | Reputation | LowCost |
| Profit brut | -0.26883 | 0.523937 | 0.394498 | -0.25738 |
| Profit brut | -0.26883 | 0.523937 | 0.394498 | -0.25738 |
| Gross profit | -0.26883 | 0.523937 | 0.394498 | -0.25738 |
| Return on Assets | -0.69893 | 0.135631 | 0 | -0.6389 |
| Sales | -0.39975 | 0.384583 | 0.260663 | -0.3799 |
| Earnings per share | 1.298793 | 2.080552 | 1.951592 | 1.236385 |
| Earnings per share | -1.33708 | -0.47394 | -0.63671 | -1.26928 |
| Rate of Profit | 0.135007 | 0.930846 | 0.790252 | 0.130309 |

p-values for t-stats

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Investment | Superirority | Reputation | LowCost |
| Profit brut | 0.788435 | 0.601112 | 0.693785 | 0.797243 |
| Profit brut | 0.788435 | 0.601112 | 0.693785 | 0.797243 |
| Gross profit | 0.788435 | 0.601112 | 0.693785 | 0.797243 |
| Return on Assets | 0.485701 | 0.892299 | 1 | 0.52388 |
| Sales | 0.689919 | 0.701102 | 0.794717 | 0.70457 |
| Earnings per share | 0.196049 | 0.03921 | 0.052888 | 0.218287 |
| Earnings per share | 0.183261 | 0.636243 | 0.525304 | 0.206348 |
| Rate of Profit | 0.892791 | 0.353459 | 0.430654 | 0.8965 |

For H2, we have

Pearson correlation coefficients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Investment | Superirority | Reputation | LowCost |
| Research activity | 0.518528 | 0.41129 | 0.4376 | 0.373892 |
| Product novelty | 0.526478 | 0.492545 | 0.495252 | 0.440965 |
| Latest technologies | 0.515422 | 0.499071 | 0.449267 | 0.420069 |
| Speed of development | 0.476235 | 0.44546 | 0.438668 | 0.389703 |
| Share of new products | 0.475906 | 0.434086 | 0.423374 | 0.390624 |

The p-values for all of the parameters are almost equal to zero (with maximum value is 9.795415321090777e-07), therefore we must reject the hypothesis, that our data have no correlation.

For the estimations of the differences we have the next tables:

t-stat for differences

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Investment | Superirority | Reputation | LowCost |
| Research activity | -5.49689 | -4.23674 | -4.45247 | -4.82057 |
| Product novelty | -7.69839 | -6.63556 | -6.7759 | -7.08552 |
| Latest technologies | -9.24315 | -8.25507 | -7.99443 | -8.45429 |
| Speed of development | -6.67825 | -5.70406 | -5.78952 | -6.18992 |
| Share of new products | -7.09049 | -6.04877 | -6.10982 | -6.57799 |

p-values for t-stats are close to zero with maximum value 0.0000398435530451423

For H3, we have

Pearson correlation coefficients

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Investment | Superirority | Reputation | LowCost |
| Using latest technologies | 0.486759 | 0.458815 | 0.462047 | 0.491229 |
| Anticipation of the potential | 0.479994 | 0.472283 | 0.476528 | 0.484429 |
| Acquire new technologies | 0.49239 | 0.50591 | 0.510216 | 0.527903 |
| RnD is a leader | 0.527903 | 0.477587 | 0.48248 | 0.507144 |

The p-values for all of the parameters are almost equal to zero (with maximum value is 9.795415321090777e-07), therefore we must reject the hypothesis, that our data have no correlation.

For the estimations of the differences we have the next tables:

t-stat for differences

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Investment | Superirority | Reputation | LowCost |
| Using latest technologies | -7.87377 | -6.87386 | -7.0147 | -7.90812 |
| Anticipation of the potential | -8.96548 | -8.09345 | -8.24649 | -9.00382 |
| Acquire new technologies | -9.20875 | -8.49884 | -8.66025 | -9.54747 |
| RnD is a leader | -4.8793 | -4.11442 | -4.25859 | -5.04982 |

p-values for t-stats are close to zero with maximum value 0.0000643971344180446

To check the hypothesis A1, we checked the Pearson correlation coefficients, p-values, Spearmen correlation coefficients

To check the hypothesis F1

## Results

Analysis of the correlation between the questionnaire Financial/Ecology data

Analysis of the real Financial data: estimation of real performance

Analysis of the correlation between Real Performance and Subjective performance

Analysis of Sustainability on different field results

Analysis of Sustainability on different company’s ages

## Conclusion