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Foreign Owners in EU Countries: Boosting ESG Performance or Just Passing Through?

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Abstract

The research paper investigates the impact of the percentage of foreign ownership on ESG performance in EU companies, focusing on whether foreign investors drive greater sustainability efforts in these companies. Moreover, 4 potential channels are explored, all of them turning out to be insignificant. Additionally, the origin of the foreign owners is investigated, finding that if the foreign owner comes from a country with a larger GDP and higher governance score compared to the EU country where their owned company is located, the ESG performance of that company can be associated with being more positive. These insights are aimed to allow EU companies, foreign investors, as well as regulators in the EU to understand how foreign investment and ESG performance are connected, as well as shape better future sustainability strategies.

Keywords: Foreign ownership, ESG performance, Public companies
JEL codes: F21, G34, M14

1. Introduction

The idea of this paper is to examine how foreign ownership in EU companies affects their ESG performance, in particular, ESG scores. It is a way to understand whether foreign investors make firms more aware of sustainability and think more about the new and popular term ESG. Even though there has been some research done about foreign ownership and ESG performance in EU countries (e.g., Zhang & Wu, 2024; Yu, 2023), most of them look at the disclosure of ESG scores and other related metrics, however, none of them look at how the ESG performance is affected.

Therefore, in this research we look at what could be the possible channels for foreign ownership enhancing ESG performance, if they do it at all. The existing literature provides five main channels – improving information transparency, constraining short-termism by managers, increased analyst attention, increased investor attention, as well as the company's access to capital (e.g., Darnall et al., 2022; Deng et al., 2024; Gao et al., 2023). Improving information transparency, constraining short-termism by managers, as well as increased analyst attention are mentioned either by Zhang & Wu (2024) or Yu (2023) as possible factors that could be associated with foreign owners enhancing the ESG performance of the companies they own, however, both of these papers focus only on the Chinese market.

Besides many possible drivers that could make foreign owners enhance the ESG performance of companies they own, the literature shows that the origin of the foreign owner could matter as well when looking at the level of impact the foreign owners have on the companies they own. Most notably, Lindemanis et al. (2022) show that there are many factors, such as the economy, wealth, governance, and economic freedom in the country from where the foreign owner is originating that should be considered when looking at how foreign owners affect their owned companies in the EU.

This research aims to understand whether, first of all, there is some connection between foreign ownership and ESG performance in the EU at all, and, if yes, whether the relationship is positive or negative so that both foreign investors and EU companies could have more knowledge and information about this topic. The study aims to investigate this link by using a large dataset from almost all EU countries, in a market where there is probably a huge focus on ESG performance, compared to other parts of the world. Second, we aim to investigate the potential channels through which foreign ownership might improve

the ESG performance of the companies they own. 5 potential channels have been identified: improved information transparency, constraining manager short-termism, increased analyst attention, increased investor attention, as well as company's access to capital. The paper is set to explore these channels one by one, on the condition that there is an appropriate methodology to do so, however, based on the existing literature, it could already be seen that some of these channels are most likely more important than others. Moreover, the origin of the foreign owner might play a role as well.

Therefore, we formulate the following research questions:

RQ1: Does foreign ownership positively or negatively influence ESG scores of European companies?

RQ2: What could be the possible channels through which foreign ownership influences the ESG performance of European companies they own?

The research would allow EU companies, foreign investors, as well as regulators in the EU to understand how foreign investment and ESG performance are connected and draw the necessary conclusions for their future strategies.

The paper finds a positive association between the percentage of foreign ownership and ESG performance in EU companies, however, no credible channels explaining this relationship were found. The authors tested 4 possible channels, three of whom turned out to be insignificant, and for one channel (improved information transparency) the proxy did not work out. On the other hand, it was discovered that the origin of the foreign owner should matter in affecting ESG performance in EU companies – if the foreign owner comes from a country with a larger GDP and higher governance score compared to the EU country where their owned company is located, the ESG performance of that company can be associated with being more positive.

The research paper is structured as follows. In the next section, the context of the research is set, and relevant literature is being explored. In Section 3, data types and sources used are explained. Section 4 outlines the methodology of the work. Section 5 provides an in-depth analysis of the results. Limitations of the paper are addressed in Section 6. Finally, conclusions and recommendations for further research are summarized in Section 7.

2. Related literature

2.1. Theoretical framework

2.1.1. Legitimacy theory

When it comes to legitimacy theory in the context of ESG, it could be possible that many company owners nowadays try to make their businesses legitimate by complying with various societal forms, such as environmental and other ESG-related activities.

To back it up, Silva (2021) finds that companies could try to legitimize themselves with Sustainable Development Goals through 4 main strategies – transformation, transparency, simulation, as well as conciliatory. However, the legitimization by these companies through these strategies can still be characterized as symbolic rather than substantial. Another research paper by Mahmud (2019) draws similar conclusions – that gaining legitimacy for companies can be associated with only a symbolic improvement in the management of Corporate Social Reporting. Moreover, the author suggests that some firms even publish fabricated ESG reports.

On the other hand, Fakhriyyah et al. (2023) conclude that SMEs (Small and Medium Enterprises) can be associated with spending a much bigger effort in improving their legitimacy through Corporate Social Responsibility. An important fact about these SMEs, according to this research, is that, in order to become more legitimate, they can also be associated with attracting foreign investors by enhancing ESG performance.

2.1.2. Stakeholder theory

Stakeholder theory could be another theory that could play a crucial role in ESG, as companies nowadays could be willing to be beneficial and have a good reputation among all stakeholders, not only their shareholders, and a way to do it could be through ESG.

To give a deeper look, Talan et al. (2024) find that companies can be associated with applying the stakeholder theory to their business since it has become much more important for investors. So, if a company likes to attract capital for its business, it could try to do that by improving its ESG situation, which then could indicate to investors that the company is also being responsible to other stakeholders, rather than only its shareholders.

Moreover, a research paper by Wang (2024) discovers that stakeholder theory for companies could be associated with improving ESG performance, in that way meeting the needs of both external and internal shareholders. All this could lead to not only enhancement

of brand image but also to improvement in operational efficiency and business performance overall.

2.2. ESG and foreign ownership

Current research extensively explores the relationship between foreign ownership and the amount of ESG information the firms disclose and mostly finds a positive relationship. For instance, Temiz et al. (2023) investigate the impact of ESG disclosure on firms' foreign ownership across 42 developed countries. They find that the relationship between ESG disclosure and foreign investors varies by country, with environmental and social pillars being particularly significant to foreign investors. However, these studies do not examine the effect on ESG performance itself.

Some papers focus on foreign ownership in cross-listed companies and its impact on ESG disclosure and performance. For example, Yu & Van Luu (2021) find that foreign ownership does not increase the amount of ESG information cross-listed companies disclose, but again, they do not focus on the relationship between foreign ownership and ESG performance. Additionally, Ahmed et al. (2024) explore the relation between financial sanctions, ESG performance, and foreign ownership in China, finding that foreign investors generally can be associated with positively affecting ESG performance in this context.

Other studies, such as Abdelkader & Gao (2023), focus on the relationship between board nationality diversity (BND) and ESG pillars (using ESG scores) in developing countries, and how foreign ownership influences this relationship. A study similar to our research examines whether CSR (not ESG) disclosure is enhanced through foreign ownership in Russia (Garanina & Array, 2021). Although the authors do not address ESG performance, they highlight the importance of legitimacy theory for foreign owners, suggesting this framework should be considered in our study.

Also, researchers like Fiorillo & Santilli (2024) investigate the correlation between shareholder (the owner company's) ESG performance and corporate ESG performance, showing a positive correlation. However, while this shows that shareholders could play a crucial role in ESG performance, it does not include the component of foreign ownership.

There are a few studies being highly relevant to our topic. Two of them look at how ESG performance affects foreign ownership – one in Saudi Arabia (Alregab, 2022), and the other in Indonesia (Khodijah, 2023). They both found that a better ESG performance could be associated with strongly increasing foreign investment. The results of this research confirm stakeholder and legitimacy theories. Among the potential channels mentioned by these papers

that could affect foreign ownership are increasing investor demand for sustainable assets, stakeholder pressure, and the desire to increase corporate reputation.

Some research looks at how foreign ownership affects ESG performance in the Chinese market. Zhang & Wu (2024) conclude that foreign ownership positively affects ESG performance and further enhances corporate ESG performance through the mediating variable of increasing analyst attention. Yu (2023), who also investigates the relationship between foreign ownership and ESG performance finds the same result; the increase of foreign ownership can indeed be associated with improving ESG performance, however, apart from the other research, he proposed two channels that make foreign shareholding enhance ESG performance - constraining short-termism by managers and improving information transparency.

It can be concluded that most of the research focuses on foreign ownership and ESG disclosure, not ESG performance, and the ones that focus on the relationship between foreign ownership and ESG performance look at that in emerging market economies where ESG plays a different role than in the EU ones.

To sum it up, foreign owners might be willing to improve their ESG performance due to several reasons. Nevertheless, first, it is essential to test the association between these two factors – increased foreign ownership and the ESG performance of the company that is owned by foreign owners. Both Zhang & Wu (2024) and Yu (2023) find a positive association between these two factors in the Chinese market. However, China shows several distinct characteristics from the EU, for example, their ESG policies, regulations, as well as the economic system itself are quite different. As a result, it is worth investigating this relationship also in the EU market in order to better understand how and whether foreign ownership impacts ESG performance at all. Therefore, we formulate our first hypothesis as follows:

H1*: A higher percentage of foreign ownership has a positive relationship with the ESG performance of the company these foreign owners own in the EU.*

2.3. Potential drivers for the relationship between foreign ownership and ESG performance

2.3.1. Improved information transparency

One potential motivation for foreign owners to enhance the ESG performance of a company is their desire to improve the clarity and accessibility of information about the company. In two words – information transparency.

It should be mentioned first that various papers have concluded that foreign ownership and information transparency are associated with a positive link between them. For example, Choi et al. (2013) find a significant and positive association between foreign ownership and information asymmetry, meaning that an increase in foreign ownership makes the information about the company with foreign ownership more transparent. The authors state that foreign owners do this through demand for more information disclosure, greater monitoring, as well as better auditing and accounting standards with the help of international auditors. They measure this effect through bid-ask spread, which is not a very popular proxy in these types of papers. Another study (Lee and Oh, 2024) also shows that foreign ownership is associated with a positive increase in information transparency due to better accounting information as well as more efficient monitoring of earnings management. In the contest of information transparency and ESG, Darnall et al. (2022) state that firms that want to enhance information transparency and are willing to follow ESG reporting guidelines, are associated with a disclosure of a greater quantity of sustainability information. This could mean that their ESG report is longer, so it could be a way of understanding whether firms are willing to improve information transparency and also do it through ESG.

Moreover, a study by Lopez-de-Silanes et al. (2020) suggests that firms which have a larger ESG disclosure tend to have a better ESG link, so this could allow us to make a conclusion that companies that are willing to improve their information transparency could do it through a greater ESG disclosure, which could enhance their ESG performance (ESG scores) as well.

Finally, research by Yu (2023) focuses on the direct link between foreign ownership and ESG performance and mentions information transparency as a channel through which foreign owners can have a great influence on ESG performance. However, the author uses a much more sophisticated methodology to determine information transparency – the transparency index is used, which consists of 5 components – the quality of earnings, earnings forecast accuracy of analysts, analyst coverage, the information disclosure evaluation score of listed companies in the respective stock exchange, as well as whether one of the "Big Four" firms (Deloitte, EY, KPMG, PwC) is hired to make the annual report as an auditor.

Overall, given a considerable amount of literature, which suggests that for foreign owners the information transparency of the company they own could be hugely important, and, that one of the ways by which to improve this information transparency could potentially be associated with the ESG performance of that company, it should be worth looking at

whether companies with a higher foreign ownership in the EU feel enhancement from foreign owners in both of these factors – information transparency and ESG performance. Yu (2023) mentions it as one of the two most important drivers through which foreign owners improve the ESG performance of the company they own.

***H2**: Higher information transparency at the company with foreign owners is associated with higher ESG performance.*

2.3.2. Constraining short-termism by managers

Another factor that might motivate foreign owners to enhance the ESG performance of a company with foreign ownership is their desire to encourage managers to adopt a more long-term perspective, thereby curbing short-term thinking.

When looking at the research in this field, Bena et al. (2017) find that foreign ownership is generally associated with an enhancement in more long-term strategy and investments in the company with foreign ownership. They conclude that foreign ownership significantly improves innovation and long-term investments in all tangible, intangible, and human capital of the company with foreign ownership. They proxy the decrease of short-termism by looking at various variables that explain the changes in long-term investments, organizational and human capital, as well as innovation level in the company, generally looking at earnings management.

Moving on to ESG, there has also been some research done to study the relationship between managerial short-termism and the ESG performance of a company. Deng et al. (2024) discovered that managerial short-termism could significantly hinder the improvement of ESG performance in companies with foreign ownership, and it mostly happens through a lower R&D investment, bigger financial constraints, as well as a decrease in internal ESG attention of the business.

Similar to before, this potential influence channel in the context of foreign owners and ESG performance is researched by Yu (2023), who finds that foreign owners can enhance ESG performance also through constraining short-termism thinking of managers in companies with foreign ownership. In order to investigate the influence of this possible driver, the author creates a new variable by calculating abnormal operating cash flows, abnormal production costs, and abnormal discretionary expenses as well, and, finally, defines a new variable that can be calculated as abnormal production costs minus both abnormal operating cash flows and abnormal discretionary expenses. A higher variable value indicates a higher presence of real earnings management and shorter-term orientation of the company's

managers, while a lower one suggests that the company with foreign ownership has more long-term strategy and investments, meaning the short-termism of managers in the firm is reduced.

Since there is also quite significant research on what could be the link between manager short-termism and both foreign ownership and ESG performance, it is worth testing what role this factor plays in the relationship between increased foreign ownership and the ESG performance in EU companies with foreign ownership. Besides, most of the papers hint that a possible way to get away from short-term thinking by managers is to make the company improve its ESG performance. After all, Yu (2023) mentions constraining short-termism by managers as also one of the two most important drivers through which foreign owners improve the ESG performance of the company they own.

H3*: Bigger constraints on manager short-termism at the company with foreign owners is associated with higher ESG performance.*

2.3.3. Increased analyst attention

If firms become more popular, meaning that analysts are paying more attention than before, the owners could possibly be willing to care more about the reputation of the company, which can also include ESG performance because nowadays ESG plays a crucial role in the company's recognition.

Existing literature in this field suggests that, first of all, increased foreign ownership in the firm is associated with more market attention, which includes analyst attention (Lai et al., 2024). In order to determine the attention from analysts for each company, authors simply use the number of analysts writing about the company, meaning the amount of analyst reports and forecasts about this particular company, so, if these numbers are larger, it means that the market attention for the company is bigger.

Additionally, Gao et al. (2023) find that increased analyst coverage or attention indeed can be associated with significantly impacting ESG performance for the companies in a positive way. The paper states that there are three channels through which this increase in analyst coverage pushes companies to enhance their ESG performance: 1) analysts encourage companies to be more aware of ESG issues by producing ESG-oriented information; 2) enhance the financial relevance of ESG performance and decreases ESG misvaluation; 3) improves mitigation of financial budget constraints in order to support ESG-related activities. The methodology used by these authors measures analyst coverage also by the number of

analysts making reports about the company, focusing more specifically on earnings forecasts made by these analysts.

When looking at the role of analyst attention in the context of the relation between foreign ownership and ESG performance, the research of Zhang & Wu (2024) mentions that increased analyst attention can be associated as a main driver for enhancing foreign owners to improve ESG performance for firms. These authors use a similar methodology as others – they look at the analyst attention driver as several research reports made by the analysts in the next 12 months after the first announcement that a company has increased foreign ownership.

To conclude, as many research papers state that increase in the foreign ownership of a company could be associated also with an increase in analyst attention to that company, therefore, it should be valuable to investigate what effect this factor has on the company's ESG performance in this kind of situation too. In fact, Zhang & Wu (2024) suggest that increased analyst attention is the only and the most important factor that makes foreign owners improve the ESG performance of the company they own.

H4*: An increased attention of analysts to the company in the EU is associated with foreign owners enhancing the ESG performance of that company.*

2.3.4. Increased investor attention

Besides increased analyst attention being one of the key possible drivers that could push foreign investors to improve the ESG performance of the company with foreign ownership, an increase in investor attention could also be associated with playing some role in this relationship.

The research on the relationship between foreign ownership and investor attention is limited. Although Nguyen et al. (2023) do not specifically look at the performance, and particularly, ESG performance of the firm, this study manages to conclude that an increase in investor attention could be associated with the risk-taking behavior of foreign investors, so this driver could also potentially be relevant in the context of foreign owners' choice in whether to improve ESG performance or not. The authors proxy shows investor attention to stock prices by the Google search volume index. The index is a ratio between searches for a given keyword to a total search over time.

Research about the relationship between investor attention and ESG performance is even more limited. Zhang & Zhang (2024) discover that increased investor attention can be associated with a significant improvement in ESG performance. Moreover, they conclude that this enhancement is more present in highly polluting companies. Similarly, Meng et al.

(2023) also find that investor attention can be associated with affecting ESG performance, and they use China's equivalent of the Google search volume index, so the approach of proxying investor attention is practically similar to the aforementioned paper.

Although current research does not provide a lot of evidence of the possible role of investor attention in the relationship between foreign ownership and the ESG performance of the company these foreign owners own, it is believed that increased investor attention could be associated with an improvement in the ESG performance of a company. As the link between foreign ownership and investor attention could also be possible, according to the existing literature, it would be interesting to find out whether increased investor attention leads to foreign owners improving the ESG performance of the company they own in the EU. Additionally, this factor could be easily estimated by the Google search volume index, which is used by Nguyen et al. (2023), and Meng et al. (2023) use a similar proxy in China.

H5*: An increased investor attention to the company they own in the EU is associated with foreign owners enhancing the ESG performance of that company.*

2.3.5. Access to capital

There is also a possibility that the company's ESG actions could influence its access to capital. If this is the case, foreign owners would likely be motivated to ensure the foreign-owned company has strong ESG performance to attract capital more easily.

Existing research shows that, firstly, ESG actions of the company can be associated with the access to capital for that particular company. Garcia et al. (2023) suggest that companies, which have a stronger reputation in the ESG field tend to have fewer financial constraints and tend to have easier access to capital as well. This research determines the access to capital by using the complicated KZ index, which is related to corporate liquidity and can be proxied using a formula that consists of cash flow, total assets, cash, dividends paid by the company, leverage, as well as firm's market value of equity. In this case, a higher index means higher financial constraints and lower access to capital for the particular company. Moreover, another research done by Dzomonda (2022), also emphasizes that better environmental sustainability practices can be associated with better access to capital so it seems that nowadays good ESG practices could indeed play an important role in affecting the willingness of investors to give more capital and should be worth examining in the context of the foreign ownership. Additionally, Piechocka-Kaluzna et al. (2021) find that that there is a significant negative correlation between ESG scores and cost of capital, so ESG can also be

associated with affecting the situation of company's equity in a positive way through this variable.

When it comes to the relationship between foreign investors and access to capital, Kampouris et al. (2022) discover that increased foreign ownership can be associated with a higher willingness for the company to acquire more capital, so foreign owners could care about getting better access to capital in the firms their own. To determine each firm's access to capital, this paper uses the Enterprise Surveys database that is created and run by the World Bank. The database includes various surveys, and the one that shows each company's experience with financial constraints (FINCON) is used. In this survey, companies have to answer the question: "How difficult has it been to obtain financing for your company's operation and growth?", and the answer must be between 0 and 4, depending on their perceived difficulty to access extra capital. One more research shows similar results that foreign owners can be associated with easier access to capital, and it uses the World Bank's Enterprise Surveys as well (Mertzanis, 2016). This research uses the same survey question from the database.

2.4. Origin of the foreign acquirer

When it comes to the potential effect that foreign ownership can have on ESG performance, it is worth controlling for the origin of the foreign acquirer, since it could potentially also play a role in how much foreign owners can affect the ESG performance of a company.

In the current literature, Lindemanis et al. (2022) examine how foreign ownership affects firm performance in general. They find that the origin of the foreign owner can be associated with the impact on the firm's financial performance. The paper concludes that the most important aspects of the origin of the foreign acquirer that play a role in affecting firms with foreign ownership performance can be associated with the acquirer's size of the economy (estimated by the total GDP of the country), wealth (proxied by country's GDP per capita), governance (approximated by average governance score in the country), and economic freedom (determined by the economic freedom index rank). Also, they conclude that the impact from foreign owners on a firm's performance can potentially vary depending on whether this particular firm is in a country that has relatively recently joined the EU, or whether the country has been in the EU for a relatively long time.

Bris & Cabolis (2008) point out that the origin of the foreign owner could be associated with how significant the impact from foreign owners on the firm they own is,

however, they mention that the main factors for that, according to their research, could be related to shareholder protection and accounting standards in the home country of foreign owners.

Finally, research done by Chen (2011) brings more or less the same conclusions as both previously mentioned papers – that the origin of the foreign owner can be associated with the impact of the foreign owner on the firm with foreign ownership. The author suggests that among the drivers that make the difference between various origins of foreign owners could consist of whether the foreign owner comes from a developed or developing country and depending on the industrialization of the country from which the foreign owner comes.

To sum it up, many papers, most notably Lindemanis et al. (2022), investigate what factors of the foreign owner's country of origin are the ones that make the biggest difference in the impact these owners have on their companies. Putting it all together, it should be feasible to test the differences in economy, governance, and economic freedom from which the foreign owners come in order to gain a better understanding of how the relationship between an increased foreign ownership and ESG performance in the company these owners own in the EU is shaped.

H6*: The impact of foreign owners on the ESG performance of the company they own in the EU varies depending on the foreign owner country's economy, governance, as well as economic freedom of that country.*

3. Data

We are testing our hypothesis on a static dataset of publicly listed companies within the European Union in 2023. In total, Refinitiv has information about 7,307 public firms listed in the EU, out of which only 1,489 have the latest ESG data. Similarly to many other researchers, for example, Lindemanis et al. (2022), we also exclude companies from Malta, Cyprus, and Luxembourg as those are low-tax jurisdictions, and some companies have their headquarters there to get tax benefits. Therefore, our final sample from the Refinitiv database includes 1,431 companies. The data extracted from Refinitiv consists of the company name, country of headquarters, registration number, date of incorporation, the latest ESG score, and the number of analysts estimating earnings per share.

The data extracted from Refinitiv is merged with data from Orbis, where financial and ownership data are recorded. To get the financial and ownership data from Orbis, the Orbis Batch Search tool allows one to find companies by country, registration number, and/or name. Unfortunately, some of the companies did not match based on the algorithm. The data extracted from Orbis consists of the company name, ownership data at the end of 2023 (name of the shareholder, country, direct share in the company), NACE code, company country code, last available year, ticker symbol, and some financial data for 2023: return on assets, current ratio, total assets, shareholders' funds, revenue, revenue growth, and research & development spending. Based on the NACE codes, non-relevant companies are removed from the sample. Similar to Lindemanis et al. (2022), banking and insurance firms (NACE 64 and 65) are excluded from the sample because of the different nature of business and different reporting requirements and standards. After eliminating non-relevant companies and accounting for data loss during the merging process, the final sample includes information from both sources for 1200 companies.

For country-level control variables, data from the World Economic Forum's Global Competitiveness Report were taken from pillar 10, market sizes for the EU countries (World Economic Forum, 2019). The rule of law measure is taken from the World Bank's Worldwide Governance Indicators database (World Bank, 2025). The same source is also used for the remaining categories of governance scores in the origin analysis.

Additional data are retrieved from other sources for further analysis. For the investor attention channel, Google Trends data are obtained by getting the average score during 2023 in the Finance category by using stock tickers as keywords (Google Trends, n.d.). For the origin analysis, country-level data as GDP and GDP per capita, are taken from the World Bank (2025). And the Economic Freedom Index is taken from the Fraser Institute (2024).

4. Methodology

Our method is similar to the one used by Ellimäki et al. (2023). The authors explain the sustainability score with foreign ownership using Generalised Least Squares (GLS) regression. However, instead of using a sustainability measure, we use the ESG score obtained from Refinitiv as a dependent variable. Moreover, instead of GLS regression, OLS regression is used, but to account for the heteroscedasticity problem, the robust standard errors approach is used for the data samples that have heteroscedastic data.

Our independent variable, *Foreign Ownership* (FO), reflects the percentage of shares that are held by investors whose origin is different from the country where the company is headquartered. Similarly, *Domestic Ownership* (DO) reflects the percentage of shares that are held by investors whose origin is the same as the country where the company is headquartered, or the shares are self-owned. However, the sum of DO and FO is rarely 100%, as the publicly listed shares as well as shares owned by employees or owners without known origin are not included in any of the previous measures. We extracted the percentage ownership figures from Orbis, categorized them based on the known nationalities of the owners, and summed them up for the respective category.

4.1. Control variables

To obtain valid results, we included several control variables in the regression; see Table 1. We primarily rely on the study by Ellimäki et al. (2023) when selecting the *company-level control variables*. Additionally, we include some other variables used in studies where the ESG score is the dependent variable. The first control variable is the company's *size*, which is measured by the natural logarithm of the number of employees in the company. The second control variable used is the return on assets (*ROA)*, which is a profitability measure. The third variable is the current ratio (*CR*), which is defined as current assets divided by current liabilities. Ellimäki et al. (2023) included this variable because CR measures the availability of resources, which can be utilized for practices aimed at improving ESG within the company. Based on the research made by Fang et al. (2023), we also included the company's leverage ratio (*leverage*) as the fourth control variable, which is calculated as total liabilities divided by total assets. Two additional control variables are included based on DasGupta (2022) research. Hence, our fifth control variable is revenue growth (*growth*), calculated as revenue divided by the revenue in the last period and measured in percentages. The last firm-level control variable is the age of the company (*age*), calculated as the full years since the day of incorporation.

The *country-related control* variables include *markSize*(Home Country Market Size), taken from the Global Competitiveness Report 2019, and *law* (Home Country Rule of Law), taken from the World Bank's Worldwide Governance Indicators database.

Table 1. Variables used in the regression.

Variable	Brief name	Description	Source
Dependent variables			
ESG score	ESG	The last available ESG score for the company in the Refinitiv database	Refinitiv
Independent variables			
FO	Foreign Ownership	Percentage of shares owned by foreign owners	Orbis
DO	Domestic Ownership	Percentage of shares owned by domestic owners	Orbis
Company-level control variables			
Size	Size of the company	Natural logarithm of the number of employees	Orbis
ROA	Return on Assets	Profitability measure, calculated by Net Income divided by Total Assets, shown as a percentage	Orbis
CR	Current Ratio	Liquidity ratio is calculated by dividing Current Assets by Current Liabilities	Orbis
Leverage	Company leverage	The leverage ratio, calculated by dividing the total debt by the total assets	Orbis
Growth	Sales growth	Sales growth since the previous year, measured as a percentage	Orbis
Age	Age of the company	Years since the incorporation of the firm	Refinitiv
Country-related control variables			
MarkSize	Market size	Size of the domestic market	Global Competitiveness Report 2019
Law	Rule of Law	Home country's Rule of Law	World Bank's Worldwide Governance Indicators

The OLS regression to assess the relationship between ESG score and foreign ownership is currently defined as follows:

$$ESG\ score = \alpha + \beta_1 FO + \beta_2 DO + \beta_3 \sum company\ level\ control\ variables + \beta_4 \sum country\ related\ control\ variables \quad (1)$$

For the definition of the variables in Eq. 1, see Table 1.

4.2. Assessing channels

To assess the channels through which foreign investors might influence the ESG score, similar to Chen & Xie (2022), heterogeneity analysis is performed. We use proxies for each channel, as shown in Table 2. The analyst attention is proxied by the number of analysts estimating EPS for the respective company. This data is extracted from Refinitiv. As it was suggested by Deng et al. (2024), R&D spending can be used as a proxy for constraining the manager's short-termism. The information transparency channel is proxied by the Bloomberg Disclosure score, which looks at how qualitative and comprehensive the company's ESG reporting. Similarly to Nguyen et al. (2023), the Google Search Volume index score is used as the proxy for investor attention. As the Google Trends data are relative measures, each ticker was compared relative to the same baseline, in order for the data to be comparable. Volkswagen AG ticker VOW was chosen as the baseline as it had an average attention level. In case a ticker with a very high or very low level had been chosen as a baseline, then on the other end adjustment wouldn't be as precise.

Table 2. Channels and their proxies.

Channel	**Proxy**	**Source of Data**
Analyst Attention	Number of Analysts estimating EPS	Refinitiv
Constrained short-termism	R&D spending	Orbis
Information Transparency	Bloomberg Disclosure Score	Bloomberg
Investor Attention	Google Search Volume Index	Google Trends

To assess these channels, we split the sample of companies so that only companies that have a foreign ownership level above 33% are considered in further analysis. The approach is similar to the one proposed by Almeida (2021), who suggests influential

ownership starts from 33%, so we use this as the threshold. As this heterogeneity analysis investigates through which channels the relationship between FO and ESG score is transmitted, we are interested only in companies with high FO because the effect is presumably much weaker for companies with a low percentage of FO.

The heterogeneity analysis follows the method used by Chen & Xie (2022). Companies with high FO are categorized into three groups: low proxy value (below the 40th percentile), high proxy value (above the 60th percentile), and a middle group (40th to 60th percentile) that is excluded from further analysis. A Wilcoxon rank-sum test is performed to understand whether the means in the low and high groups are statistically different. The Wilcoxon test was chosen because the sample doesn't have to be normally distributed, unlike for a t-test. Then, the same regression as regression (1) is performed on the low and high subsamples:

$$ESG\ score = \alpha + \beta_1 FO + \beta_2 DO + \beta_3 \sum company\ level\ control\ variables + \beta_4 \sum country\ related\ control\ variables \quad (1)$$

If the subsample of companies with a high proxy value has a significant coefficient for foreign ownership, but the specification on the other subsample has an insignificant coefficient, then we might posit that this channel helps foreign owners improve the company's ESG score. In case both coefficients are significant, then we can look at whether the signs for the coefficients are the same. In the case when both the high and low subsamples have statistically significant coefficients for foreign ownership, further scrutiny of the coefficient signs becomes necessary. If both coefficients exhibit the same sign, it implies that foreign ownership exerts a similar directional effect on ESG scores across both high and low levels of the channel-related variable. This outcome suggests that alternative channels may hold greater explanatory power in the observed relationship between foreign ownership and ESG performance, indicating that the channel under examination is not the primary driver. If the analysis reveals statistically insignificant coefficients for foreign ownership in both subsamples, it suggests that the investigated channel is not a relevant mechanism through which foreign owners influence the corporate ESG scores.

4.3. Influence of Origin of the Foreign Investor

To understand whether the characteristics of foreign owners' home countries affect the influence they have on the ESG score, a new subsample of companies with FO over 30%, 40%, and 50% from the same country is taken. This is due to the approach proposed by

Almeida (2021), who suggests that influential ownership starts from between 33-45%, so it would be beneficial to look at both the 30% and 40% threshold levels. Additionally, the 50% level was added, since from that the owners own the majority of the company, surely playing an important role.

The first part of the analysis is similar to the one done by Lindemanis et al. (2022). In particular, the comparison analysis is performed for several factors of the domestic country of the firm and the origin country of the owners that are dominant in the company. The factors considered are GDP accounting for the size of the country, GDP per capita for the wealth of the country, governance score, and economic freedom. The governance score is the sum of all six measures in the World Bank's Worldwide Governance Indicators (World Bank, 2025), and the economic freedom variable is taken from the Fraser Institute's Economic Freedom of the World annual report (Gwartney et al., 2024). The second part involves conducting an Ordinary Least Squares (OLS) regression analysis using the same sample. In this regression, ESG performance serves as the dependent variable, while the differences in the previously mentioned factors are employed as independent variables. This approach is similar to Xu & Liu (2023), who use differences in country-level variables to explain corporate profitability. The regression is as follows:

$$ESG\ score = \alpha + \beta_1 Diff.GDP + \beta_2 Diff.GDP.PC + \beta_3 Diff.Gov + \beta_4 Diff.Econ.Freedom \quad (2),$$

where:

- *Diff.GDP* = the difference between the GDP of a foreign owner's country and an EU country where that owner owns a company.
- *Diff.GDP.PC* = the difference between the GDP per capita of a foreign owner's country and an EU country where that owner owns a company.
- *Diff.Gov* = the difference between the governance score of a foreign owner's country and an EU country where that owner owns a company.
- *Diff.Econ.Freedom* = the difference between the economic freedom of a foreign owner's country and an EU country where that owner owns a company.

5. Result analysis and discussion

Before conducting the analysis, the dataset must be prepared by addressing outliers. Boxplots are utilized to identify variables with outliers. Variables exhibiting outliers are then winsorized: upper outliers are replaced with the 99th percentile value, while lower outliers are replaced with the 1st percentile value.

5.1. Descriptive statistics

Table 3. Descriptive statistics for variables used in the regression after winsorization.

	Mean	Min.	Max.	St. dev.
Dependent variables				
ESG score	52.81	0.75	92.82	20.63
Independent variables				
FO (%)	17.17	0.00	99.52	21.50
DO (%)	35.53	0.00	100.00	28.75
Company-level control variables				
Size (log of employees)	7.92	1.39	13.51	2.16
ROA (%)	0.73	-61.83	22.83	13.11
CR (%)	1.84	0.02	9.96	1.58
Leverage (ratio)	0.57	0.01	1.43	0.21
Growth (%)	7.88	-72.32	173.31	29.22
Age (years)	35.63	2.00	132.13	27.67
Country-related control variables				
MarkSize (units)*	72.50	48.50	86.00	9.89
Law (Rule of Law units)**	1.45	-0.07	1.97	0.39

**Units are from 0 to 100*

***Rule of Law units are from -2.5 to 2.5*

The statistics in Table 3 provide an overview of how the variables used in the regressions are distributed. The dependent variable ESG is quite normally distributed as mean and median values are close to each other, and the minimum and maximum values are about the same distance from the mean and the median. Foreign Ownership, which is one of the independent variables, seems to be right skewed as the mean is visibly larger than the median. For domestic ownership, the characteristic is less pronounced. An average company in our sample has a return on assets of 0.7%, a current ratio of 1.84, 57% of assets are financed by debt, and a yearly revenue growth of 8% and 36 years of age.

For the regressions, it is important that the variables are not correlated to avoid biases; usually correlation above 0.7 is considered to be too high for a pair of variables to be included in the regression (Judge et al., 1982, as cited in Kalnins, 2018). In Appendix 1, it can be seen that most of the correlation coefficients are below 0.5; some that are above 0.5 are still below 0.7. It is worth mentioning that the correlation between Foreign Ownership and Domestic Ownership is -0.42, despite that intuitively these variables should be strongly

negatively correlated. The reason for that is that there are owners that are not considered in any of these categories, for example, the public part of shares, as well as shares owned by employees or owners whose origin is not available.

5.2. Relationship between foreign ownership and ESG performance

After running the regression specified in equation (1), the regression coefficients were significant for both independent variables (foreign ownership and domestic ownership), which means that they do, in fact, can be associated with affecting the ESG performance of public companies in the EU. We can see from Table 4, if foreign ownership increases by 1 percentage point, the ESG performance of an EU firm is expected to increase by 0.08 units, however, it is not very significant in economic terms. A paper by Kim et al. (2025) suggests that generally foreign ownership can be associated with positively affecting the ESG performance of the company they own (which is the case here). However, under negative financial feedback, these firms can reduce ESG engagement to prioritize short-term results, so the impact may not have high significance in economic terms. At the same time, an increase in domestic ownership by 1 percentage point can be associated with reducing the company's ESG score of the company by approximately 0.06 units.

When looking at the coefficients of control variables and industry fixed effects in the regression, we look at those that are within the 5% significance level, unless stated otherwise.

A noticeable positive impact on the company's ESG performance (coefficient of 6.2967) is expected to come from the size of the company – the coefficient representing this variable also has a p-value close to zero, so the potential impact can be viewed as highly significant.

Another control variable with a significant coefficient is the company's age – if the company's age increases by 1 year, then the ESG performance of that company can be associated with increasing by only 0.05. This finding could mean that older EU companies tend to care about their ESG performance more, but the impact of this variable is not very substantial, so it likely does not affect the ESG performance at all.

Moreover, it can also be seen that the market size coefficient tends to negatively influence ESG performance. The coefficient representing the market size component is quite strange, as the majority of the literature concludes that there should be a positive relationship between market size and ESG performance, as companies with robust ESG practices tend to have higher valuations (Vochenko et al., 2024). However, a possible explanation for this rather counterintuitive coefficient could be provided by Assael et al. (2023), who discover

that the relationship can be viewed as positive for large-cap firms, and as a negative one for small-cap firms. Since currently such research for the EU market has not been done, there is a chance that the sample of our research tends to have more small-cap companies, which could result in a negative coefficient of market size. This, in fact, could be true since 56% of companies in the sample of this research can be considered small-cap.

Regarding industry fixed effects, an industry that stands out as associated with affecting ESG performance much more positively than the benchmark agriculture industry is the real estate industry. Although there has not been specific research done about the real estate industry and its connection with ESG performance, there are some trends that could help explain this positive finding in the EU context. For instance, Van Lanschot Kempen (2023) concludes that the European real estate industry has generally shown a stronger commitment to ESG practices compared to other world regions - 31% of European listed real estate companies have established net-zero carbon emission targets. To back this up, Goton (2021) presents that on average, European real estate companies achieved an ESG score of 32 out of 100, convincingly leading other parts of the world.

The education industry has a much smaller impact on ESG performance compared to agriculture. With no existing research on the field, it's difficult to support the negative coefficient with concrete findings. It can only be speculated that ESG plays a minor role in this sector.

Similarly, the “Other service activities” category shows a comparable effect to real estate, but drawing meaningful conclusions is challenging due to the broad range of industries it encompasses.

Table 4. Relationship between ESG performance and foreign ownership.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Independent variables					
FO	0.0932	0.0282	3.311	0.0010	***
DO	-0.0531	0.0191	-2.775	0.0056	**
Company-level control variables					
Size	6.4378	0.3192	20.166	0.0000	***
ROA	0.0149	0.0417	0.359	0.7199	
CR	0.6763	0.4896	1.381	0.1675	
Leverage	-0.6990	3.7818	-0.185	0.8534	
Growth	-0.0098	0.0162	-0.604	0.5460	
Age	0.0481	0.0183	2.631	0.0087	**
Country-related control variables					
MarkSize	-0.1301	0.0570	-2.281	0.0228	*
Law	-1.3162	1.5159	-0.868	0.3855	
Industry fixed effects					

Real estate activities	26.7039	8.2712	3.229	0.0013	**
Education	-15.6430	7.8626	-1.990	0.0469	*
Other service activities	22.4075	9.2707	2.417	0.0158	*

Adjusted R-squared: 0.4517

No. of observations: 986

*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

Regarding the first hypothesis ***(H1:** A higher percentage of foreign ownership is positively associated with the ESG performance of EU companies)*, the results of the regression specified in equation (1) provide support for this hypothesis. The coefficient representing the relationship between foreign ownership and ESG performance is both positive and statistically significant, indicating a positive association between these variables. Although the magnitude of the impact is relatively modest, this does not alter the conclusion that the relationship is indeed positive.

Additionally, the authors made another version of the regression to consider potential reverse causality. It could be the case that there are more foreign owners in the companies because of a higher score, not the other way around. Therefore, lagged ownership data from 2022 were used for the new regression. In that way, the ESG score cannot influence ownership one year prior to the calculation of the score. The only noticeable changes that happened in the regression result table were that the Domestic ownership variable lost its significance (p-value changed from 0.0056 to 0.1546). The Foreign ownership variable became even more significant (p-value changed from 0.0001 to 0.0000054). Even though there were some changes regarding the ownership variables, the foreign ownership variable remained highly significant, and the main conclusion from the main regression still holds that a higher foreign ownership percentage positively influences the ESG score of the respective company.

5.3. Potential channels of the relationship between foreign ownership and ESG performance

5.3.1. Improved information transparency

The regression (1) with two different data samples (companies with relatively high vs low ESG disclosure) was expected to assess whether foreign owners could affect the ESG performance of EU companies through improved information transparency.

However, the regression analysis could not be rightfully performed due to the unexpectedly large correlation between the Bloomberg Disclosure Score and the dependent variable (ESG score).

Therefore, the second hypothesis ***(H2**: Higher information transparency at the company with foreign owners is associated with higher ESG performance.)* could not be tested with the proposed proxy variable. The Bloomberg Disclosure Score, used as a proxy for information transparency among EU companies, proved insufficient for effectively investigating the hypothesis.

5.3.2. Constrained short-termism

The regression (1) with two different data samples (companies with relatively low vs high R&D spending) assesses whether foreign owners could affect the ESG performance of EU companies through constraining short-termism. Table 5 shows the descriptive statistics for the two different data samples.

Table 5. Descriptive statistics for subsamples of high and low R&D spending (in EUR).

	Mean	**Min.**	**Max.**	**St. dev.**
Subsample with high R&D spending	179'231	2	6'124'000	718'178
Subsample with low R&D spending	-0.88	-100	0	9.37

In these two subsamples, coefficients representing the impact of foreign ownership on ESG performance are insignificant, see Tables 6 and 7. As in both regressions, findings do not represent any significant differences in this relationship, it can be concluded that increased R&D spending, which represents constraining short-termism of managers in companies of the EU, cannot be considered as a potential channel that makes foreign owners affect ESG performance of EU businesses.

Table 6. The relationship between ESG performance and foreign ownership in the subsample of companies with high R&D spending.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Independent variables					
FO	-0.2063	0.1585	-1.302	0.1982	
DO	-0.0747	0.1082	-0.690	0.4928	
Company-level control variables					
Size	7.2330	1.4494	4.990	0.0000	***
ROA	0.2154	0.1122	1.920	0.0599	.
CR	0.2679	0.8440	0.317	0.7521	
Leverage	-14.1607	11.2848	-1.255	0.2147	
Growth	0.0159	0.0414	0.383	0.7031	
Age	-0.0095	0.0861	-0.110	0.9130	
Country-related control variables					
MarkSize	0.1051	0.2083	0.505	0.6157	
Law	-3.2121	7.3329	-0.438	0.6630	

Industry fixed effects					
Electricity, gas, steam, air conditioning	18.2227	7.5024	2.429	0.0183	*
Transportation and storage	-20.1945	7.6356	-2.645	0.0105	*

Adjusted R-squared: 0.4157

No. of observations: 76

*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

Table 7. The relationship between ESG performance and foreign ownership in the subsample of companies with low R&D spending.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Independent variables					
FO	-0.1129	0.1027	-1.099	0.2747	
DO	-0.1669	0.1313	-1.271	0.2070	
Company-level control variables					
Size	6.3058	0.9158	6.885	0.0000	***
ROA	0.0324	0.1970	0.165	0.8697	
CR	0.1893	1.3215	0.143	0.8864	
Leverage	-6.5071	13.0143	-0.500	0.6183	
Growth	-0.0143	0.0469	-0.304	0.1930	
Age	-0.0147	0.0704	-0.223	0.7622	
Country-related control variables					
MarkSize	0.1922	0.2145	0.896	0.3726	
Law	-2.9997	4.2152	-0.712	0.4786	

Adjusted R-squared: 0.4046

No. of observations: 114

*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

The third hypothesis ***(H3**: Bigger constraints on manager short-termism at the company with foreign owners is associated with higher ESG performance.)* is not supported by the findings. As previously concluded, the coefficients representing this relationship were found to be insignificant.

5.3.3. Analyst attention

The regression (1) with two different data samples, as discussed in the methodology section looks separately at whether foreign ownership in companies with a relatively high number of analysts vs companies with a relatively low number of analysts is associated with ESG performance. Table 8 reports the descriptive statistics for the two different data samples.

Table 8. Descriptive statistics for subsamples of high and low analyst attention (in number of analysts).

	Mean	**Min.**	**Max.**	**St. dev.**
Subsample with high analyst attention	16.33	8	31	5.68

Subsample with low analyst attention	1.94	0	4	1.45

The regression results in Tables 9 and 10 clearly indicate that, in both models, the coefficients representing the impact of increased foreign ownership on ESG performance are insignificant. This indicates that the number of analysts, whether high or low, cannot be associated with playing a decisive role in shaping the impact of foreign ownership on ESG performance. Based on this, the research can conclude that even if foreign-owned companies have wider analyst coverage, this cannot be associated with the mechanism through which the ESG performance of foreign-owned companies improves.

Table 9. The relationship between ESG performance and foreign ownership in the subsample of companies with a high number of analysts.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Independent variables					
FO	0.0049	0.1531	0.032	0.9744	
DO	-0.0479	0.1237	-0.387	0.7001	
Company-level control variables					
Size	4.9139	1.3494	3.642	0.0006	***
ROA	0.1915	0.2181	0.878	0.3838	
CR	0.0844	1.1256	0.075	0.9405	
Leverage	1.1967	15.4737	0.077	0.9386	
Growth	-0.0416	0.0767	-0.542	0.5899	
Age	-0.0178	0.0771	-0.231	0.8180	
Country-related control variables					
MarkSize	0.3839	0.2672	1.437	0.1563	
Law	-8.3951	6.0467	-1.388	0.1704	
Industry fixed effects					
Administrative activities	-21.7510	5.9843	-3.635	0.0006	***
Arts, entertainment and recreation	-30.1610	10.9750	-2.748	0.0080	**

Adjusted R-squared: 0.3605

No. of observations: 80

*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

Table 10. The relationship between ESG performance and foreign ownership in the subsample of companies with a low number of analysts.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Independent variables					
FO	-0.0758	0.1729	-0.438	0.6627	
DO	-0.1553	0.1427	-1.088	0.2809	
Company-level control variables					
Size	5.7384	1.2170	4.715	0.0000	***
ROA	-0.0527	0.1154	-0.457	0.6497	
CR	-0.2204	1.0143	-0.217	0.8287	
Leverage	-22.5478	10.2068	-2.209	0.0311	*

Growth	0.0082	0.0401	0.203	0.8397	
Age	0.0477	0.0728	0.655	0.5150	
Country-related control variables					
MarkSize	-0.0675	0.2253	-0.300	0.7654	
Law	2.8896	4.1879	0.690	0.4929	
Industry fixed effects					
Mining and quarrying	35.7191	11.9444	2.991	0.0041	**
Manufacturing	36.2793	5.8909	6.156	0.0000	***
Electricity, gas, steam, air conditioning	38.6611	7.5009	5.154	0.0000	***
Construction	39.1545	7.9354	4.934	0.0000	***
Wholesale and retail trade	36.9476	6.2174	5.943	0.0000	***
Transportation and storage	32.3184	10.6508	3.034	0.0036	**
Accommodation and food service	49.8233	6.9608	7.158	0.0000	***
Information and communication	34.6023	4.9409	7.003	0.0000	***
Real estate activities	54.5808	7.1831	7.599	0.0000	***
Professional, scientific and technical	29.0880	7.4052	3.928	0.0002	***
Administrative and support service	37.3349	7.7620	4.810	0.0000	***
Human health and social work	35.3230	10.2627	3.442	0.0011	**
Arts, entertainment and recreation	33.4628	6.5714	5.092	0.0000	***
Other service activities	54.1980	19.8335	2.733	0.0083	**

Adjusted R-squared: 0.2250

No. of observations: 83

*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

The fourth hypothesis ***(H4**: An increased attention of analysts to the company in the EU is associated with foreign owners enhancing the ESG performance of that company.)* is not supported. As previously concluded, the coefficients representing this relationship were found to be insignificant.

5.3.4. Investor attention

To understand the potential impact of investor attention, regressions with two different subsamples – one containing companies with high Google Trends Scores and the other with low Google Trends Scores – were run. Table 11 reports the descriptive statistics for the two different data samples.

Table 11. Descriptive statistics for subsamples of high and low investor attention (in Google Trends Scores).

	Mean	**Min.**	**Max.**	**St. dev.**
Subsample with high investor attention	33’513	70	870’000	161’531
Subsample with low investor attention	0.773	0	7	1.79

When looking at the results in both regressions in Tables 12 and 13, no significant coefficients on foreign ownership could be found. This means that foreign ownership is not associated with affecting ESG performance in any of the subsamples. This finding suggests that in this particular EU data sample, foreign ownership cannot be associated with affecting ESG performance through higher investor attention.

Table 12. The relationship between ESG performance and foreign ownership in the subsample of companies with a high Google Trends Score.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Independent variables					
FO	0.0095	0.1267	0.075	0.9403	
DO	0.0143	0.1341	0.107	0.9153	
Company-level control variables					
Size	7.8826	1.1435	6.894	0.0000	***
ROA	0.0361	0.1357	0.266	0.7912	
CR	1.1141	1.8051	0.617	0.5398	
Leverage	-20.7132	11.9680	-1.731	0.0894	.
Growth	-0.0448	0.0433	-1.033	0.3062	
Age	-0.0474	0.0887	-0.533	0.5964	
Country-related control variables					
MarkSize	0.1946	0.2097	0.928	0.3577	
Law	-4.5352	5.7906	-0.783	0.4371	
Industry fixed effects					
Electricity, gas, steam, air conditioning	19.0256	6.9814	2.725	0.0087	**
Wholesale and retail trade	-15.9020	7.8159	-2.035	0.0470	*
Accommodation and food service	-27.2651	9.5078	-2.868	0.0060	**
Financial and insurance activities	-20.5407	8.1395	-2.524	0.0147	*
Real estate activities	13.2402	5.9696	2.218	0.0310	*
Other service activities	13.9050	6.4123	2.169	0.0347	*

Adjusted R-squared: 0.5123

No. of observations: 77

*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

Table 13. The relationship between ESG performance and foreign ownership in the subsample of companies with a low Google Trends Score.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Independent variables					
FO	-0.2361	0.1697	-1.391	0.1705	
DO	-0.2614	0.2039	-1.282	0.2059	
Company-level control variables					
Size	6.2834	1.5502	4.053	0.0000	***
ROA	-0.0430	0.1822	-0.236	0.8143	
CR	1.3533	0.9070	1.492	0.1421	
Leverage	5.6072	17.2062	0.326	0.7459	
Growth	0.1567	0.0690	2.272	0.0275	*
Age	-0.0284	0.1227	-0.231	0.8180	

Country-related control variables				
MarkSize	0.4091	0.3234	1.265	0.2119
Law	4.0541	8.1224	0.499	0.6199

Adjusted R-squared: 0.3332

No. of observations: 75

*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

The fifth hypothesis ***(H5**: An increased investor attention to the company they own in the EU is associated with foreign owners enhancing the ESG performance of that company.)* is not supported. As previously concluded, the coefficients representing this relationship were found to be insignificant.

5.4. Impact of origin of foreign owners

As discussed in the methodology section, in order to look at how the origin of foreign owners affects the ESG performance of an EU company they own, it should be relevant to look at various percentage thresholds of foreign ownership coming from one country, so that the potential impact is likely a significant one.

Table 14. Varying thresholds of foreign ownership from a specific country, along with indicators reflecting their home country, compared to the country where the company is owned.

Percentage of foreign ownership that comes from one country	Foreign owners with a higher GDP	Foreign owners with a higher GDP per capita	Foreign owners with a higher Country Governance Score	Foreign owners with a higher economic freedom
Above 30%	48.0%	75.0%	61.8%	76.9%
Above 40%	42.9%	74.5%	69.5%	81.4%
Above 50%	38.2%	75.0%	71.6%	80.9%

After doing a quick analysis of the country data at various foreign ownership thresholds, the summary in Table 14 shows that a convincing majority of foreign owners at all thresholds tend to come from a country with higher GDP per capita, higher country governance score, as well as better economic freedom than a country their owned company is registered. Moreover, despite the tendency being more or less the same for all thresholds in terms of GDP per capita and economic freedom, in higher country governance score it is different – as the level of threshold increases, the share of foreign owners with higher governance score also increases. To give an example of the interpretation, for instance, in a

sample with a 30% threshold, 48% of foreign owners are originating from a country with a higher GDP than the GDP of the country in which they own a company.

At the same time, across all thresholds, less than half of these foreign owners come from countries with a higher GDP than the EU country where their owned company is registered. Moreover, as the ownership threshold increases, this tendency becomes less pronounced. This indicates that when foreign owners from a particular country seek to own a larger share of a company in an EU country, their home country's GDP is typically lower than that of the EU country where their owned company is registered.

When it looking at how exactly these differences affect the ESG performance of EU companies owned by foreign owners, the results are quite similar for all percentage thresholds of foreign owners coming from one country, see Tables 15-17.

In all three subsamples, the impact of the difference between the GDP of a foreign owner's country and an EU country where this owner owns a company on that company's ESG performance is positive and within 5% significance level (even within 0.1% significance level in 40% threshold subsample). For example, we can see in a subsample with a 30% threshold that if the GDP difference between the foreign country and domestic country increases by 1 USD, then the ESG score for the company increases by 6.1061e-13 (0.0000 in Table 15) units. Although at first glance, it could look as making no economic sense when we translate the interpretation of the increase in GDP from 1 USD to 1 billion USD (which is more realistic for GDP), the ESG score for the company increases by 0.6106 units in the subsample with 30% threshold, which should be considered as a much more meaningful impact. For example, if the foreign owners come from the United States and the company is headquartered in Ireland, then the ESG score increases by around 17 units. Similarly, the ESG score increases by 0.9798 units in the subsample with a 40% threshold (see Table 16, and by 0.7772 units in the subsample with a 50% threshold (See Table 17.

Another indicator that has a positive coefficient within a 5% significance level in 2 out of 3 subsamples and within a 10% significance level in all 3 subsamples is the impact of the difference between the country governance score of a foreign owner's country and an EU country where he owns a company on that company's ESG performance. In the subsample with the 30% threshold, as shown in Table 15, if the difference between a foreign country's governance score and a domestic country's governance score increases by one unit, the ESG score increases by 2.481 units, which should be considered a significant result in economic terms. Likewise, the ESG score increases by 2.4623 units in the subsample with a 40%

threshold, and by 2.6070 (see Table 16) units in the subsample with a 50% threshold (see Table 17).

The other two indicators – difference in GDP per capita and economic freedom proved to be insignificant in all 3 subsamples.

Table 15. How the ESG score of an EU company is influenced by differences between the home country indicators of its foreign owners and the indicators of the country where the company operates, in a subsample where over 30% of foreign ownership originates from a single country.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Difference in GDP	0.0000	0.0000	2.304	0.0227	*
Difference in GDP per capita	-0.0001	0.0001	-1.039	0.3006	
Difference in country governance score	2.4814	0.9915	2.503	0.0135	*
Difference in economic freedom	-5.0497	15.1480	-0.974	0.3319	

Adjusted R-squared: 0.0442

No. of observations: 144

*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

Table 16. How the ESG score of an EU company is influenced by differences between the home country indicators of its foreign owners and the indicators of the country where the company operates, in a subsample where over 40% of foreign ownership originates from a single country.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Difference in GDP	0.0000	0.0000	3.777	0.0003	***
Difference in GDP per capita	-0.0001	0.0001	-0.927	0.3562	
Difference in country governance score	2.4623	1.2290	2.004	0.0481	*
Difference in economic freedom	2.0781	5.8868	0.353	0.7249	

Adjusted R-squared: 0.1274

No. of observations: 95

*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

Table 17. How the ESG score of an EU company is influenced by differences between the home country indicators of its foreign owners and the indicators of the country where the company operates, in a subsample where over 50% of foreign ownership originates from a single country.

	Parameter	**Std. Err.**	**T-stat**	**P-value**	
Difference in GDP	0.0000	0.0000	2.356	0.0217	*
Difference in GDP per capita	-0.0001	0.0001	-1.144	0.2573	
Difference in country governance score	2.6070	1.4323	1.820	0.0736	.
Difference in economic freedom	2.8855	7.5127	0.384	0.7023	

Adjusted R-squared: 0.0824
No. of observations: 66
*P-values are denoted by: ***p0.001, **p0.01, *p0.05.*

The sixth hypothesis ***(H6**: The impact of foreign owners on the ESG performance of the company they own in the EU varies depending on the foreign owner country's economy, governance, as well as economic freedom of that country.)* proves to be partly supported. While the impact of foreign owners on the ESG performance of the company they own in the EU can be associated with the foreign owner country's GDP and governance score (the larger these indicators compared to the EU country in which their owned company is registered, the larger the ESG performance of that owned EU company), the data of this research could not find any dependency on foreign owner's country GDP per capita and economic freedom.

6. Limitations and future research

During the research, the authors faced some obstacles that may have influenced the results. First, despite taking only publicly listed companies in the sample, the Orbis database, in many cases, lacks information about how much of the ownership is public. Second, the average foreign ownership level in the main sample was quite low; therefore, in the channel analysis, the results might be more precise if there were more firms with high foreign ownership levels. Moreover, if the threshold is set to a reasonably high level, the results are more accurate, but the sample decreases in size quite significantly. Third, the investor attention proxy Google Trends score is inflated for some tickers because it coincides either with the name of the company or some other word, therefore, the algorithm also counts searches that were used to find information other than stock information. The authors couldn't find a viable proxy for the information transparency channel, as the intended proxy Bloomberg Disclosure score, was too correlated with the ESG score, thus creating bias in the respective channel analysis.

For further research, it would be advisable to look for more potential channels that could explain the relationship between foreign ownership and ESG performance in EU countries, as well as find a finer and, most importantly, valid proxy to successfully test the improved information transparency channel and to find a proxy for the access to capital channel. Additionally, a better proxy for investor attention could be used that is not inflated due to similarity to other phrases. Another direction that could be researched further is adding the time dimension to look at whether and how this relationship has changed over time. Furthermore, future research could look at whether there is any impact on the ESG score for the company if the ownership has changed from domestic to foreign or vice versa.

7. Conclusion

The concept of ESG is becoming increasingly popular nowadays, making companies worldwide pay more attention to sustainable business practices. Moreover, foreign investment also plays a crucial role in EU countries. Therefore, in this paper, the authors have analyzed the impact of foreign owners on ESG performance in EU companies. To make it more transparent, we have also investigated potential channels that could make foreign owners affect ESG scores in these companies. The potential channels that were tested consisted of improved information transparency, constrained short-termism, analyst attention, as well as investor attention. Last, but not least, the role of origin of these foreign owners in affecting ESG scores in EU companies was examined. Country-level factors considered in this part included GDP, GDP per capita, country governance score, and economic freedom.

The findings of this paper indicate that there is a positive and significant association between foreign ownership and ESG scores in EU companies, however the impact is relatively small in economic terms. However, none of the channels tested proved to be useful – three of them turned out to be insignificant, and the other one (improved information transparency) was not successfully tested due to an invalid proxy. On the other hand, the origin of foreign owners turned out to play an important role – if a dominant foreign owner comes from a country with a higher GDP and country governance score than the EU country in which his company is located, that particular EU company has a positive association with having a greater ESG performance.

8. References

Google folder with full-text materials:

https://drive.google.com/drive/folders/1mI88v9UH0BFqNGxel3z_yh-Eq822wPBl?usp=sharing

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9. Appendices

Appendix 1 – Correlations of Variables Used in Regressions

	ESG score	FO	DO	size	ROA	CR	leverage	growth	age	markSize	law
ESG score	1.00	0.17	-0.11	0.61	0.25	-0.17	0.12	-0.09	0.23	0.08	-0.08
FO	0.17	1.00	-0.42	0.05	-0.03	-0.05	0.10	0.00	-0.09	0.08	-0.07
DO	-0.11	-0.42	1.00	0.02	0.10	-0.04	-0.01	-0.01	0.08	0.05	-0.08
size	0.61	0.05	0.02	1.00	0.37	-0.32	0.26	-0.14	0.24	0.21	-0.11
ROA	0.25	-0.03	0.10	0.37	1.00	-0.05	-0.21	0.01	0.13	0.05	-0.06
CR	-0.17	-0.05	-0.04	-0.32	-0.05	1.00	-0.54	0.12	-0.11	-0.02	0.00
leverage	0.12	0.10	-0.01	0.26	-0.21	-0.54	1.00	-0.08	0.01	0.10	-0.07
growth	-0.09	0.00	-0.01	-0.14	0.01	0.12	-0.08	1.00	-0.09	-0.06	0.00
age	0.23	-0.09	0.08	0.24	0.13	-0.11	0.01	-0.09	1.00	-0.13	0.00
markSize	0.08	0.08	0.05	0.21	0.05	-0.02	0.10	-0.06	-0.13	1.00	-0.29
law	-0.08	-0.07	-0.08	-0.11	-0.06	0.00	-0.07	0.00	0.00	-0.29	1.00

Appendix 2 – Descriptive statistics of subsample with high R&D spending

ESG.1	FO.2023	DO.2023	log.Empl.2023_w	ROA.1_w	CR.1_w
Min. :11.26	Min. :33.12	Min. : 0.000	Min. : 4.644	Min. :-40.4110	Min. :0.312
1st Qu.:49.77	1st Qu.:39.59	1st Qu.: 2.103	1st Qu.: 7.144	1st Qu.: 0.6155	1st Qu.:1.196
Median :65.56	Median :46.39	Median : 7.900	Median : 8.491	Median : 3.8645	Median :1.546
Mean :62.24	Mean :51.93	Mean :14.177	Mean : 8.274	Mean : 0.6337	Mean :2.115
3rd Qu.:76.74	3rd Qu.:60.43	3rd Qu.:21.483	3rd Qu.: 9.652	3rd Qu.: 6.8270	3rd Qu.:2.077
Max. :91.43	Max. :93.97	Max. :57.570	Max. :12.020	Max. : 19.7520	Max. :9.961

Lev.1_w	Rev_gr_w	Age_w	Mark.size	Inn.Cap	Rule.of.Law
Min. :0.0646	Min. :-72.320	Min. : 3.00	Min. :57.80	Min. :45.10	Min. :0.2132
1st Qu.:0.5262	1st Qu.: -6.340	1st Qu.:14.00	1st Qu.:65.40	1st Qu.:74.50	1st Qu.:1.1806
Median :0.6110	Median : 3.878	Median :25.00	Median :81.60	Median :78.15	Median :1.5512
Mean :0.5940	Mean : 6.322	Mean :29.36	Mean :76.16	Mean :77.99	Mean :1.4366
3rd Qu.:0.6990	3rd Qu.: 13.120	3rd Qu.:38.00	3rd Qu.:86.00	3rd Qu.:86.80	3rd Qu.:1.6040
Max. :1.4029	Max. :173.305	Max. :90.00	Max. :86.00	Max. :86.80	Max. :1.9670

Industry		RD1	
C - Manufacturing	:50	Min.	: 2
M - Professional, scientific and technical activities	: 7	1st Qu.:	10758
J - Information and communication	: 6	Median :	39757
B - Mining and quarrying	: 3	Mean	: 179231
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	: 3	3rd Qu.:	112252
H - Transportation and storage	: 3	Max.	:6214000
(Other)	: 4		

Appendix 3 – Descriptive statistics of subsample with low R&D spending

ESG.1	FO.2023	DO.2023	log.Empl.2023_w	ROA.1_w	CR.1_w
Min. : 3.218	Min. :33.33	Min. : 0.000	Min. : 2.327	Min. :-55.9730	Min. :0.1490
1st Qu.:39.340	1st Qu.:41.97	1st Qu.: 0.435	1st Qu.: 6.100	1st Qu.: -1.9745	1st Qu.:0.7312
Median :56.206	Median :53.40	Median : 7.070	Median : 7.883	Median : 1.6610	Median :1.0865
Mean :52.821	Mean :56.30	Mean :13.754	Mean : 7.636	Mean : -0.5121	Mean :1.5481
3rd Qu.:67.719	3rd Qu.:64.46	3rd Qu.:23.130	3rd Qu.: 9.235	3rd Qu.: 5.5643	3rd Qu.:1.7465
Max. :87.930	Max. :98.78	Max. :61.690	Max. :12.827	Max. : 22.8335	Max. :8.8780

Lev.1_w	Rev_gr_w	Age_w	Mark.size	Inn.Cap	Rule.of.Law
Min. :0.009194	Min. :-72.320	Min. : 3.00	Min. :57.80	Min. :45.10	Min. :0.2132
1st Qu.:0.454334	1st Qu.: -3.466	1st Qu.: 14.00	1st Qu.:65.40	1st Qu.:65.50	1st Qu.:1.1806
Median :0.593929	Median : 6.037	Median : 23.00	Median :71.70	Median :77.20	Median :1.5512
Mean :0.598501	Mean : 9.953	Mean : 29.30	Mean :72.13	Mean :73.54	Mean :1.3553
3rd Qu.:0.733973	3rd Qu.: 17.567	3rd Qu.: 37.75	3rd Qu.:81.60	3rd Qu.:79.10	3rd Qu.:1.6040
Max. :1.428346	Max. :173.305	Max. :127.00	Max. :86.00	Max. :86.80	Max. :1.9670

Industry		RD1	
J - Information and communication	:22	Min.	:-100.0000
C - Manufacturing	:17	1st Qu.:	0.0000
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	:14	Median :	0.0000
L - Real estate activities	:12	Mean	: -0.8772
M - Professional, scientific and technical activities	: 8	3rd Qu.:	0.0000
H - Transportation and storage	: 6	Max.	: 0.0000
(Other)	:35		

Appendix 4 – Descriptive statistics of subsample with high analyst attention

ESG.1	FO.2023	DO.2023	log.Empl.2023_w	ROA.1_w	CR.1_w
Min. :29.03	Min. :33.12	Min. : 0.000	Min. : 4.174	Min. :-37.0910	Min. :0.307
1st Qu.:62.87	1st Qu.:40.84	1st Qu.: 1.343	1st Qu.: 8.006	1st Qu.: 0.3982	1st Qu.:0.953
Median :69.79	Median :51.88	Median : 5.965	Median : 9.271	Median : 3.6890	Median :1.274
Mean :68.70	Mean :54.45	Mean :11.404	Mean : 8.989	Mean : 2.3545	Mean :1.700
3rd Qu.:78.35	3rd Qu.:64.37	3rd Qu.:18.148	3rd Qu.: 9.925	3rd Qu.: 7.1368	3rd Qu.:1.746
Max. :91.43	Max. :93.97	Max. :57.570	Max. :12.727	Max. : 21.5310	Max. :9.691

Lev.1_w	Rev_gr_w	Age_w	Mark.size	Inn.Cap	Rule.of.Law
Min. :0.1945	Min. :-72.320	Min. : 3.00	Min. :57.80	Min. :45.10	Min. :0.2132
1st Qu.:0.5301	1st Qu.: -3.893	1st Qu.:10.75	1st Qu.:74.30	1st Qu.:75.47	1st Qu.:1.1806
Median :0.6288	Median : 3.106	Median :20.50	Median :81.60	Median :77.20	Median :1.5512
Mean :0.6170	Mean : 5.632	Mean :25.12	Mean :77.51	Mean :76.86	Mean :1.3899
3rd Qu.:0.7107	3rd Qu.: 13.317	3rd Qu.:37.25	3rd Qu.:86.00	3rd Qu.:86.80	3rd Qu.:1.6040
Max. :0.9946	Max. :124.441	Max. :76.00	Max. :86.00	Max. :86.80	Max. :1.9670

Industry		Analysts	
C - Manufacturing	:30	Min.	: 8.00
J - Information and communication	:13	1st Qu.	:11.00
L - Real estate activities	: 7	Median	:16.50
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	: 6	Mean	:16.32
M - Professional, scientific and technical activities	: 6	3rd Qu.	:20.25
H - Transportation and storage	: 5	Max.	:31.00
(Other)	:13		

Appendix 5 – Descriptive statistics of subsample with low analyst attention

ESG.1	FO.2023	DO.2023	log.Empl.2023_w	ROA.1_w	CR.1_w
Min. : 3.218	Min. :33.37	Min. : 0.000	Min. : 2.327	Min. :-55.973	Min. :0.1490
1st Qu.:30.567	1st Qu.:40.45	1st Qu.: 0.215	1st Qu.: 5.338	1st Qu.: -8.027	1st Qu.:0.9815
Median :45.941	Median :50.21	Median :13.670	Median : 6.633	Median : 0.815	Median :1.5060
Mean :42.963	Mean :55.64	Mean :16.890	Mean : 6.666	Mean : -3.221	Mean :2.0138
3rd Qu.:57.076	3rd Qu.:63.69	3rd Qu.:28.310	3rd Qu.: 8.012	3rd Qu.: 5.107	3rd Qu.:2.3525
Max. :87.930	Max. :99.52	Max. :61.690	Max. :12.827	Max. : 22.834	Max. :9.9614

Lev.1_w	Rev_gr_w	Age_w	Mark.size	Inn.Cap	Rule.of.Law
Min. :0.009194	Min. :-72.320	Min. : 3.00	Min. :57.80	Min. :45.10	Min. :0.2132
1st Qu.:0.401915	1st Qu.: -6.941	1st Qu.: 15.50	1st Qu.:65.40	1st Qu.:75.15	1st Qu.:1.2954
Median :0.579280	Median : 5.770	Median : 25.00	Median :65.40	Median :79.10	Median :1.6040
Mean :0.567404	Mean : 10.899	Mean : 32.31	Mean :70.62	Mean :75.25	Mean :1.4289
3rd Qu.:0.699501	3rd Qu.: 16.988	3rd Qu.: 41.00	3rd Qu.:81.60	3rd Qu.:79.10	3rd Qu.:1.6040
Max. :1.428346	Max. :173.305	Max. :127.00	Max. :86.00	Max. :86.80	Max. :1.9670

Industry		Analysts	
C - Manufacturing	:25	Min.	:0.00
J - Information and communication	:11	1st Qu.	:1.00
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	:10	Median	:2.00
M - Professional, scientific and technical activities	: 8	Mean	:1.94
L - Real estate activities	: 7	3rd Qu.	:3.00
F - Construction	: 3	Max.	:4.00
(Other)	:19		

Appendix 6 – Descriptive statistics of subsample with high investor attention

ESG.1	FO.2023	DO.2023	log.Empl.2023_w	ROA.1_w	CR.1_w
Min. : 8.462	Min. :33.33	Min. : 0.00	Min. : 3.871	Min. :-39.7320	Min. :0.183
1st Qu.:49.465	1st Qu.:40.82	1st Qu.: 2.00	1st Qu.: 6.967	1st Qu.: -0.4200	1st Qu.:0.747
Median :59.496	Median :50.26	Median : 7.91	Median : 8.292	Median : 2.5810	Median :1.125
Mean :59.330	Mean :53.82	Mean :14.60	Mean : 8.236	Mean : 0.5295	Mean :1.445
3rd Qu.:71.151	3rd Qu.:64.21	3rd Qu.:22.72	3rd Qu.: 9.853	3rd Qu.: 6.6220	3rd Qu.:1.648
Max. :89.534	Max. :98.37	Max. :57.57	Max. :12.827	Max. : 21.5310	Max. :8.878

Lev.1_w	Rev_gr_w	Age_w	Mark.size	Inn.Cap	Rule.of.Law
Min. :0.1945	Min. :-32.950	Min. : 3.00	Min. :57.80	Min. :45.10	Min. :0.2132
1st Qu.:0.5197	1st Qu.: -4.488	1st Qu.: 15.00	1st Qu.:65.40	1st Qu.:65.50	1st Qu.:1.1806
Median :0.6224	Median : 6.701	Median : 25.00	Median :74.30	Median :77.20	Median :1.5512
Mean :0.6374	Mean : 11.001	Mean : 32.17	Mean :74.05	Mean :73.61	Mean :1.3083
3rd Qu.:0.7426	3rd Qu.: 17.252	3rd Qu.: 45.00	3rd Qu.:81.60	3rd Qu.:79.10	3rd Qu.:1.6040
Max. :1.4283	Max. :165.502	Max. :127.00	Max. :86.00	Max. :86.80	Max. :1.9670

Industry		GT.att	
C - Manufacturing	:26	Min. :	70
J - Information and communication	:11	1st Qu.:	187
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	: 8	Median :	500
L - Real estate activities	: 8	Mean :	33513
H - Transportation and storage	: 5	3rd Qu.:	1250
M - Professional, scientific and technical activities	: 5	Max. :	870000
(Other)	:14		

Appendix 7 – Descriptive statistics of subsample with low investor attention

ESG.1	FO.2023	DO.2023	log.Empl.2023_w	ROA.1_w	CR.1_w
Min. : 3.218	Min. :33.12	Min. : 0.00	Min. : 2.327	Min. :-50.485	Min. :0.149
1st Qu.:39.085	1st Qu.:40.73	1st Qu.: 0.01	1st Qu.: 6.038	1st Qu.: -3.147	1st Qu.:1.026
Median :55.703	Median :51.77	Median : 7.00	Median : 7.830	Median : 1.759	Median :1.542
Mean :53.424	Mean :55.37	Mean :13.39	Mean : 7.368	Mean : -1.654	Mean :2.166
3rd Qu.:70.008	3rd Qu.:64.29	3rd Qu.:21.98	3rd Qu.: 8.696	3rd Qu.: 5.659	3rd Qu.:2.504
Max. :87.930	Max. :99.52	Max. :61.69	Max. :11.941	Max. : 22.834	Max. :9.961

Lev.1_w	Rev_gr_w	Age_w	Mark.size	Inn.Cap	Rule.of.Law
Min. :0.009194	Min. :-72.320	Min. : 3.00	Min. :57.80	Min. :45.10	Min. :0.2132
1st Qu.:0.400875	1st Qu.: -6.125	1st Qu.: 14.00	1st Qu.:65.40	1st Qu.:75.80	1st Qu.:1.2954
Median :0.584510	Median : 4.870	Median : 21.00	Median :69.30	Median :79.10	Median :1.6040
Mean :0.551416	Mean : 3.145	Mean : 28.79	Mean :72.31	Mean :76.67	Mean :1.4560
3rd Qu.:0.684814	3rd Qu.: 13.881	3rd Qu.: 34.00	3rd Qu.:81.60	3rd Qu.:79.10	3rd Qu.:1.6040
Max. :1.055282	Max. : 72.355	Max. :108.00	Max. :86.00	Max. :86.80	Max. :1.9670

Industry		GT.att	
C - Manufacturing	:28	Min.	:0.0000
J - Information and communication	: 9	1st Qu.	:0.0000
M - Professional, scientific and technical activities	: 9	Median	:0.0000
G - Wholesale and retail trade; repair of motor vehicles and motorcycles	: 5	Mean	:0.7733
L - Real estate activities	: 4	3rd Qu.	:0.0000
D - Electricity, gas, steam and air conditioning supply	: 3	Max.	:7.0000
(Other)	:17		