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The effect of ESG-performance on M&A premiums

An Empirical Analysis of ESG in M&A's

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Abstract

We conduct a multiple regression on 1,498 M&A transactions from North America and Europe to study the relationship between ESG and M&A premium. Further on, we examine if it exists differences across industries and whether these differences can give us an economic intuition of the relationship. Our findings suggest that, overall, the premium reflects the ESG-performance of the target firm; however, we acquired somewhat ambiguous results when differentiating between industries. The industries are in different stages of the ESG evolution, which underscores the reasoning behind the ambiguous results. When increasing the target ESG-scores by one standard deviation, we were able to prove that there is an economic gain by focusing on improving ESG-scores to increase premiums.

Acronyms

CSR	Corporate Social Responsibility
ESG	Environmental, Social & Corporate Governance
M&A	Mergers & Acquisitions
CFP	Corporate Financial Performance
MV	Market Value
BV	Book Value
OLS	Ordinary Least Square
GHG	Greenhouse gas
SDGs	Sustainable Development Goals
STD	Standard Deviation

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1 Introduction

1.1 Motivation & Purpose

The world is constantly changing as sustainability, and environmental issues are addressed and have become beneficial for businesses to focus on. Therefore, in this thesis, we aim to investigate the effect of target ESG-scores on M&A premiums and explore if differences in the effects on premiums across industries exist.

M&As are increasingly becoming a common strategy companies apply to achieve their goals and objectives (Gaughan, 2005). As PwC (2022a) has reported, 2021 was a record-breaking year in deal volume, and the focus on value creation and responsible investing (ESG) needs to be sharpened. ESG has grown in tandem with M&A and has become a worldwide phenomenon for corporations, investors, and consumers; it is promptly shaping our markets and economies (Mayer Brown, 2022). Especially since the demand for climate action is growing rapidly and has gone from something you can do to practically becoming a necessity. Hence, we want to examine how valuable ESG is perceived by acquiring firms.

When premiums are paid in M&As, the acquirer usually has an underlying ulterior motive that the transaction will create synergies. M&A premiums reflect numerous factors and contain comprehensive information, requiring both quantitative and qualitative understanding. To gain additional knowledge on the target firm, potential acquirers perform comprehensive due diligence. Consequently, as ESG has risen in the last decades, it has become a separate part of the due diligence process, aiming to ensure the robustness and efficacy of ESG - policies and performance. One M&A characteristic that usually demands a higher premium is Hostile Takeovers, whereas higher leverage will make the target less attractive and thereby reduce the premium. Alongside these characteristics, there are nine key variables that distinctly impact the premium; *capex*, *value*, *investment rate*, *ROE*, *market capitalization*, *market to book*, *growth*, *leverage*, and *deal size*. These variables will have an asymmetric impact on the premium between different industries, given their different weights and industry-specific - characteristics and financials[1].

[1]Examples of industry-specific characteristics; Energy & Power companies have a higher capex, Real Estate companies are highly leveraged, Technology companies have a market capitalization above average (Damodaran, 2022; PwC, 2022b; Stern Value Management, 2020, July 13)

We will examine M&A transactions in North America and Europe from 2002 - 2022, such that we cover a broad time period and include the last observed merger wave. From these macro constraints and our variable constraints, we ended up with a total of 1,498 transactions. To conduct our statistical approach, we employ a multiple regression to investigate the impact ESG-scores have on M&A premiums. The regression includes numerous variables that earlier research has shown to affect the premium, such that the regression decreases the likelihood of an omitted variable problem. Further on, we want to examine the differences in how valuable ESG is perceived between industries and the potential economic benefit. The same structure of the multiple regression will be used, but run one for each industry, as this then allows us to analyze the differences.

Even though we reduce the probability of an omitted variable problem, our chosen topic is non-random events which still leaves a probability of endogeneity being present in terms of selection bias. We address this concern by running an instrumental variable two-stage least-square regression. Further on, we tested our regressions for multicollinearity using a Variance Inflation Factor for each explanatory variable.

To our knowledge, research has not been conducted on the effect ESG has on the M&A premium across industries. At the same time, our time frame on the data is significantly longer than other research papers, and our methodology differs as well. As our thesis stands out from earlier studies, we believe that it will be highly interesting to interpret our results, both statistically and economically.

2 Background

This chapter will introduce essential background knowledge for our master thesis. We will lay the foundation needed in terms of definitions and subjects that appear throughout the entire thesis.

2.1 ESG and ESG-Score

ESG has been defined in many different ways since its beginning, with different weights on the different pillars and subsections. For consistency, we follow the three pillars "E", "S" and "G" outlined by Refinitiv (2022)[2]. To dig further into ESG, we provide some key characteristics:

E: The environmental aspect of ESG focuses on companies' energy sources and how they affect and approach the issues surrounding climate change. Some measures within the environmental aspect are waste management programs, air or water pollution and deforestation (Corporate Finance Institute, 2021).

S: The social aspect of ESG investigates how companies treat their employees (i.e., wages, retirement plans), social relationships, working conditions for the employees in general, workplace policies, gender equality, gender diversity, customer relationships and so forth. (Corporate Finance Institute, 2021).

G: The governance aspect of ESG looks at how the executive management and board of directors manage a company in terms of how their decisions appeal to the interests of the various stakeholders. Stakeholders are among other shareholders, employees, suppliers, and customers. A key element that signalizes good corporate governance is transparency—the latter both in financial and accounting. The nature of the board of directors and the executive management is also in question. Whether they are diverse and inclusive, and whether they prioritize the companies' best interests/outcomes. Another concern can be whether executives receive large executive compensations at the expense of employees' salaries, which are the focus of ESG-investors (Corporate Finance Institute, 2021).

[2]The 10 main categories included in ESG by Refinitiv (2022): **Environmental (E)**: Resource use, emissions and innovation, **Social (S)**: Workforce, Human Rights, Community and Product responsibility, **Governance (G)**: Management, stakeholders and CSR

In order to measure ESG on a company level, ESG-scores were introduced. They came to light for the first time in the 1980s. Eiris was the first established ESG-rating agency. ESG-scores enabled investors to screen companies on ESG-performance, which gave roots to sustainable investing. Since then, numerous ESG-rating agencies have emerged to assess a corporation's ESG-performance to the benefit of investors, among others (Berg et al., 2019). The research of Friede et al. (2015) studied the relationship between ESG and CFP that incorporated a total of 2200 findings from separate empirical studies. The results yield a positive relation between ESG & CFP for roughly 90% of studies, and the positive relation is stable over time. Thus the accumulated findings allow for more generalized statements.

2.2 ESG due diligence

Due diligence in M&A is a process that aims to assess a company from a commercial, financial and legal perspective. Critical aspects of due diligence involve understanding the business, the underlying risks, potential issues and post-deal integration in the business being acquired (Howson, 2017). In the book Due diligence: The critical stage in mergers and acquisitions, Peter Howson (2017) divides the definition into the lawyer and deal-maker: the lawyer definition as a process of enquiry and investigation made by a prospective purchaser to confirm that it is buying what it thinks it is buying. Moreover, from a deal-maker perspective, due diligence is about reducing risk. In this case, risks can be issues which could impact the price negotiations. Gole and Hilger (2009) defines three elements in their view of due diligence in a plan to create value:

1. Strategic purpose - the reasoning and purpose of pursuing the acquisition

2. Value drivers - an evaluation of the magnitude and variability of the drivers to generate increased value

3. Key risks - an extensive analysis of the deal's intrinsic downside risks

Further, we have ESG due diligence. Refinitiv (n.d.) defines that a detailed ESG due diligence "should deliver insights into the efficacy of a company's ESG policies, performance and track record". ESG due diligence within M&A is becoming more significant as time goes by. As Eleanor Reeves (Counsel at Ashurst, international law firm) said "for example, the UN Principles of Responsible Investment (PRI) are now widely adopted. ESG factors are therefore more likely to be included as part of assessing how attractive a target is" (Franklin, 2019). ESG influences both the short – and long-term performance, as well as the valuation of companies. In fact, according to a survey performed by KPMG, Otterström (n.d.) "in a recent global survey of private equity general partners, over half (54 percent) had reduced a bid price after ESG due diligence, and one-third (32 percent) had increased one". Research and surveys outline the interplay between M&A and ESG, which we will elaborate further on in the literature review.

2.3 Corporate Social Responsibility

The concept of CSR tracks back to as early as the 1950s. Occasionally this is referred to as the "Modern era of social responsibility". In the 1950s, social responsibility (SR) was accredited more than CSR (Carroll, 1999). The 1980s were a critical decade for CSR research in terms of searching for relationships, and links between CSR and CFP were soaring in quantity (Carroll & Shabana, 2010; Lee, 2008). The trend continued where CSR further developed where; Carroll (1999) found that in the 1990s, "the CSR concept transitioned significantly to alternative themes such as stakeholder theory, business ethics theory, corporate social performance, and corporate citizenship". The European Commission (2011) defined CSR as "a concept whereby companies integrate social and environmental concerns in their business operations and their interaction with their stakeholders on a voluntary basis". By other means, CSR defines actions that go above and beyond companies' legal - and financial obligations (European Comission, 2011; Zubeltzu-Jaka et al., 2018).

2.4 Asymmetric information in M&A

During a transaction, asymmetric information is when one party possesses more information than the other (Bloomenthal, n.d). Asymmetric information can create issues when valuing a company in more complex M&A deals. For instance, where the value of a target company relies heavily on intangible assets such as human capital, proprietary rights and brands (Cooper & Finkelstein, 2014). Hence, with asymmetric information being present, deals may fall through, and there is an over-payment risk (Reuer, 2005).

Research has shown that cross-border deals entail asymmetric information and uncertainty. Different factors like business practices, government regulations, national culture, customer preferences, and institutional forces can significantly impact the premium (Gomes & Marsat, 2018; Kogut & Singh, 1988; Zaheer, 1995). Hence, cross-border deals can have a higher degree of information asymmetry, which leads to a higher risk of inaccurate valuations (Gatignon & Anderson, 1988; Gomes & Marsat, 2018; Shimizua et al., 2004).

Adverse selection is another theory that falls within asymmetric information; it explains a situation where the information regarding product quality is missing for either the buyer or the seller (Akerlof, 1970). There is an example of market failure provided by Akerlof (1970) that includes two types of cars, good cars and bad cars (lemons), where the sellers of lemons have incentives not to disclose information to maximize profits. Drawing a line to M&A, the uncertainty lies within the value creation aspect, leading to a valuation gap between the buyer and the seller. As previously outlined, due diligence can assist in minimizing this gap. The KPMG survey by Otterström (n.d.) concluded that ESG due diligence could lead to positive and negative discoveries that impact the bid price. When considering ESG due diligence, several key characteristics in the S & G pillars are intangible, which will complicate the valuation.

3 Literature Review

This chapter will lay the grounds for our thesis with previous studies and research papers. The literature review concerns every aspect of our research question, and some articles investigate the same topics but from different perspectives.

3.1 How can ESG create value?

To begin with, Witold et al. (2019) presents five different ways ESG can create value: (1) facilitating top-line growth, (2) reducing costs, (3) minimizing regulatory and legal interventions, (4) increasing employee productivity, and (5) optimizing investment and capital expenditures (see exhibit 1). As Davis and Lescott (2019) said, "gathering information on ESG issues along with financial research offers richer data and, therefore, a more informed perspective". FTI Consulting (2019) substantiates the concept of ESG creating value, where they surveyed how an injection of ESG complements corporate value. The survey was conducted in 2018, covering 130 global institutional investors. 87% of the investors believe that ESG does add value, and if a company has an extraordinary high ESG-score, it can yield up to a 22% higher corporate value.

Signori et al. (2021) performed a test within their research on whether "there is a positive and robust relationship between ESG-performance and Value Added". To test this hypothesis, they used the ESG-scores provided by Refinitiv and a data sample of 1932 companies in Europe in 2018. To compute value-added (VA), Signori et al. (2021) used the following approximation:

VA = Net Revenues - Suppliers(purchase of goods and services)

Signori et al. (2021) results were somewhat ambiguous. The reasoning is that the results firstly yielded a positive relationship between ESG and VA, but after adjusting for company sizes, the results were not statistically significant anymore. Further on, they adjusted for the number of employees, but the results were also no longer significant. These results underscore the fact that many factors must be taken into account when performing research related to ESG.

3.2 Variables that affect the M&A premium

As M&As has become a more frequent phenomenon worldwide, the magnitude of their premiums has also become more volatile (Zhang, 2019). Moreover, the determinants of M&A premiums has also become a popular research topic.

When determining M&A premiums, research has shown that macro-factors are significantly important. Moreover, industries have proven to be a key characteristic. Research conducted by Rhoades (1987) argued that banks in the high growth environment carry more significant M&A premiums than other industries. This has been shown through the fact that the premium is influenced by the value of the target company and its financial ability. The stronger the financial ability of the target company, the greater increase in the premium is discovered (Zhang, 2019). The most common component when determining the company value is the expected future developments. These estimates can lead to larger M&A premiums as the synergies can be lower than expected (Andrade & Stafford, 2004).

One can argue that key financial figures can be used to determine deal size premiums. Hammoud and Tarabay (2018) conducted a multiple regression analysis on growth rates, liquidity, size and performance, where they included several sub-variables. Their output indicated a negative correlation between target MV and premium sizes. Thus, it resulted in a higher premium for smaller-sized target companies and vice versa. Furthermore, Hammoud and Tarabay (2018) disproves Miller-Modigliani's irrelevance theory regarding leverage. They proved that the Debt/Equity ratio was statistically significantly different from zero, revealing that the high leveraged target companies can expect to obtain a higher premium. The output of the regressions can be argued not to be robust as the data sample is a considerable small amount with only 37 transactions. It can be problematic as every transaction is given a high percentage of the total data and will significantly impact the output. If the data have been chosen manually from a more extensive data set, it can be considered p-hacking[3]. The reasoning is that they can manipulate the output and choose data that fits their regression better to obtain a specific output.

[3]P-hacking is described as a misuse of data to present a statistically significantly output when in fact, it is not (Science in the Newsroom, n.d)

3.3 How does CSR impact the premium in M&A?

CSR and ESG correlate in several ways; therefore, the research conducted on CSR is highly relevant for our study. Both CSR and ESG are associated with the social responsibilities of a business. CSR grasp the social commitment qualitatively, while ESG supports CSR by measuring or quantifying such social commitments (Hung, 2021). Jost et al. (2021) conclude that the CSR-performance alone does not significantly impact the premium. However, Gomes and Marsat (2018) investigated the same topic, but received opposite results of Jost et al. (2021). Gomes and Marsat (2018) discovered that target companies with higher CSR performance strongly correlate to higher acquirer bid premiums. As they have received opposite outputs when researching the same topic, it is interesting to look at the data they have used to perceive the differences.

Jost et al. (2021) conducted their research based on the earlier research paper written by Gomes and Marsat (2018). Their sample is primarily based on the same data, but Jost et al. (2021) ends up with 139 fewer transactions as they have an extra constraint that excludes deals with a value below $1M. Another difference between the research papers is how they have calculated the premiums. Both are formulated down below in equation 3.1 and equation 3.2.

$$Premium_{Gomes\ and Marsat\ (2018)} = \frac{(P_0 - P_{-42Days})}{(P_{-42Days})} \tag{3.1}$$

$$Premium_{Jost\ etal.\ (2021)} = \frac{(P_0 - P_{-4Weeks})}{(P_{-4Weeks})} \tag{3.2}$$

If acquisition rumours circled between 4-6 weeks before the announcement, the research articles might have material differences in their premium. This is a well-known phenomenon labelled Pre-acquisition volatility. The share value tends to increase well before a merger - or acquisition announcement. This can be a consequence of rumours being spread which can lead to share price fluctuations. Many investors buy stocks based on expectations, and the demand can increase, leading to an increase in the share price (Bloomenthal, 2022).

4 Methodology & Hypotheses

Throughout this section, we will outline the methods we will use to investigate our chosen hypotheses. We will also describe how we will interpret the results from our analyzes. The selected tests will be used in all regressions, and we will judge the validity of our chosen models.

4.1 Hypotheses

4.1.1 Hypothesis 1

We want to examine whether the ESG-performance of the target firm can affect the deal premium. Hence, our null hypothesis will be as stated in 4.1, and the alternative hypothesis will be as stated in 4.2.

$$H_0 : \beta_{ESG} = 0 \tag{4.1}$$

$$H_A : \beta_{ESG} \neq 0 \tag{4.2}$$

When investigating our hypothesis, it is crucial to understand which of the explanatory variables in the model have a significant effect on the premium. Further on, we will run an OLS-regression with our chosen variables, including firm-specific - and financial - variables. Depending on pValues, we can decide whether or not to reject our hypothesis and state whether ESG is statistically significantly different from zero.

4.1.2 Hypothesis 2

To build further on our first hypothesis, we will analyze if there is a significant difference in the ESG-impact on M&A premiums when differentiating between industries. We will run OLS-regressions on all the industries separately. By conducting this hypothesis, we can see if specific industries increase or decrease the significance of our first hypothesis or if it is relatively similar in every industry.

$$H_0 : \beta_{ESG-industry_i} = 0 \tag{4.3}$$

$$H_A : \beta_{ESG-industry_i} \neq 0 \tag{4.4}$$

The time span of our data will affect our output. For example, the energy sector has extensively developed ESG focus over the last years but was seen as one of the more "brown" sectors a decade ago. Since the sector drastically has converted its focus, the old data will influence the output we retrieve.

4.2 Methodology

Our quantitative research aims to analyze whether the ESG-performance of the target company will affect the premium paid in M&A. We will run an OLS-regression, and the investigation will be conducted with the data described in chapter 5. The structure of the model will be outlined in section 4.3. It would be optimal to use randomized data, but it will be difficult in our case since we have constraints such as the target firm having an ESG-score. To check for robustness, we have explained our tests and provided a walk-through in section 4.4.

The two key variables to run our regressions and conduct our hypotheses are the paid M&A premium and the ESG-score of the target company. In order to investigate on a large scale, we will include as much relevant data that we can retrieve in a set time span as the value of more information has been proved to complement the probability of more accurate outcomes (Canessa et al., 2015).

4.3 Model Structure

From the fundamental OLS, we run multiple regressions. Firstly, we will run a regression to test hyp. 1. Secondly, we will run one regression per industry to test hyp. 2. We will include a set of control variables and time-fixed effects to analyze the relationship between ESG-score and the M&A premium. The reason for adding these follows the theoretical background provided in chapter 2 and 3. All the variables used to run our regressions will be explained in chapter 5. Since we include time-fixed effects, we have separated this section into two steps to explain our methodology.

4.3.1 Step 1 - Time-fixed effects

We implement time-fixed effects to control for systematic differences between the observed time units in our sample, both observable and unobservable (Brooks, 2019). By doing this, we can adjust for the differences across years. Our approach follows the methodology explained by Brooks (2019). We create a dummy for each year to retrieve the systematic difference captured by every individual year, and is listed down below as 4.5; which is a least-squares dummy variable (LSDV) model, where the intercept is set equal to zero:

$$\mathrm{P}_{it} = \beta FV_{it} + \beta FSV_{it} + \beta CV_{it} + \lambda_1 D1_t + \lambda_2 D2_t + ... + \lambda_T DT_t + v_{it} \tag{4.5}$$

The dependent variable P is the premium in M&A, the independent variables FV are the financial variables, FSV are the firm-specific variables, and CV are the control variables outlined in chapter 5 table 5.2. The dummy variables listed from $D1_t$ to DT_t capture the time variation. Further, $D1_t$ is the first period from our data sample, $D2_t$ in the second and up to the last year DT_t. In the LSDV, $D1_t$ equals 1 for the first time period in our sample, zero for the rest, and so on. The λ_t is the time-varying intercept. Finally, we have v_{it}, which is the remainder disturbance.

4.3.2 Step 2 - Final regression models

After step 1, we build the regression models we are running to check our two hypotheses outlined in section 4.1. Down below, we have illustrated the final regression models for hypothesis 1 and hypothesis 2 as 4.6 and 4.7 respectively:

$$\mathrm{P}_{it} = \alpha + \beta FV_{it} + \beta FSV_{it} + \beta CV_{it} + \lambda_2 D2_t + \lambda_3 D3_t + ... + \lambda_T DT_t + v_{it} \quad (4.6)$$

$$\mathrm{P}_{industry,t} = \alpha + \beta FV_{it} + \beta FSV_{it} + \beta CV_{it} + \lambda_2 D2_t + \lambda_3 D3_t + ... + \lambda_T DT_t + v_{it} \quad (4.7)$$

4.4 Validity

This section will concern the robustness tests we will run and why we have chosen to use these specific tests. It is crucial to run several robustness tests to identify whether our result is significant or uncertain.

4.4.1 Heteroskedasticity

To test our data for heteroskedasticity, we will use White´s test to analyze if the variance of the residuals is constant or not from our regression model. Our test hypothesis will therefore be:

$$H_0 : \sigma_i^2 = \sigma^2 \quad (4.8)$$

$$H_A : \sigma_i^2 \neq \sigma^2 \quad (4.9)$$

The null hypothesis states that the residuals are homoscedastic, which indicates that the variance is constant. In this case, the residuals do not significantly vary when the predictor value changes. The alternative hypothesis is that the variance of the residuals is not constant, also called heteroskedasticity. When the residuals are classified as heteroscedastic, it tends to produce pValues that are smaller than intended, and it occurs because the coefficient estimates' fluctuations increase. However, the OLS procedure cannot detect this increase (Jim Frost, n.d).

4.4.2 Multicollinearity

Multicollinearity is a problem that occurs when the explanatory variables are highly correlated to one another. If multicollinearity exists but is ignored, it will severely affect the results. R^2 will be high, but the standard errors of every individual coefficient will also be high. The regression becomes very sensitive to small changes, and confidence intervals for the parameters will be broader, and the significance tests might therefore give inappropriate conclusions.

We will use a Variance Inflation Factor (VIF) indicator to test for multicollinearity. VIF allows us to quantify the magnitude of the variance of the estimated regression coefficient that increases by the presence of multicollinearity. VIF is calculated by taking an independent variable and regressing it against all other independent variables. Further on, we can calculate VIF by:

$$VIF = \frac{1}{1 - R_i^2} \tag{4.10}$$

- 1 = Not correlated.
- 1-5 = moderately correlated.
- >5 = Highly correlated

It is a highly discussed topic what size VIF have to be to cause issues. Normally a VIF that exceeds 10 indicates high correlation and is a cause for concern. However, the more VIF increases, the less reliable the regression will be (Stephanie Glen, n.d).

4.4.3 Endogeneity

Endogeneity emerges when an unobserved or omitted variable is confounding both dependent and explanatory variables or when the independent variables are measured with error terms (Khartit, 2020). When discussing endogeneity, it fundamentally means that one of the dependent variables is correlated with the error terms. Therefore our regression can suffer from reverse causality bias or bias that stems from other omitted variables.

To investigate possible endogeneity, we have decided to use an instrumental variable regression two-stage least-square (2sls). When adding a new variable (Z), it is a variable that is correlated with an explanatory variable but not directly correlated with the dependent variable (Singh et al., n.d.).

$$Corr(Z_i, X) \neq 0 \tag{4.11}$$

$$Corr(Z_i, e_i) = 0 \tag{4.12}$$

Our instrumental variables are based on earlier research done by Ioannou and Serafeim (2012). They indicated that country-year and country-industry CSR means impacted the CSR-performance of other firms. Hence, our two instrumental variables are country-year and country-industry means of ESG-score. Further on, we will run a 2sls test with our chosen instrumental variables and investigate the change in estimated coefficients from our original OLS-regression and the 2sls. If we find endogeneity concerns, it will have severe consequences in terms of output from our OLS-regression, producing biased and inconsistent parameter estimates.

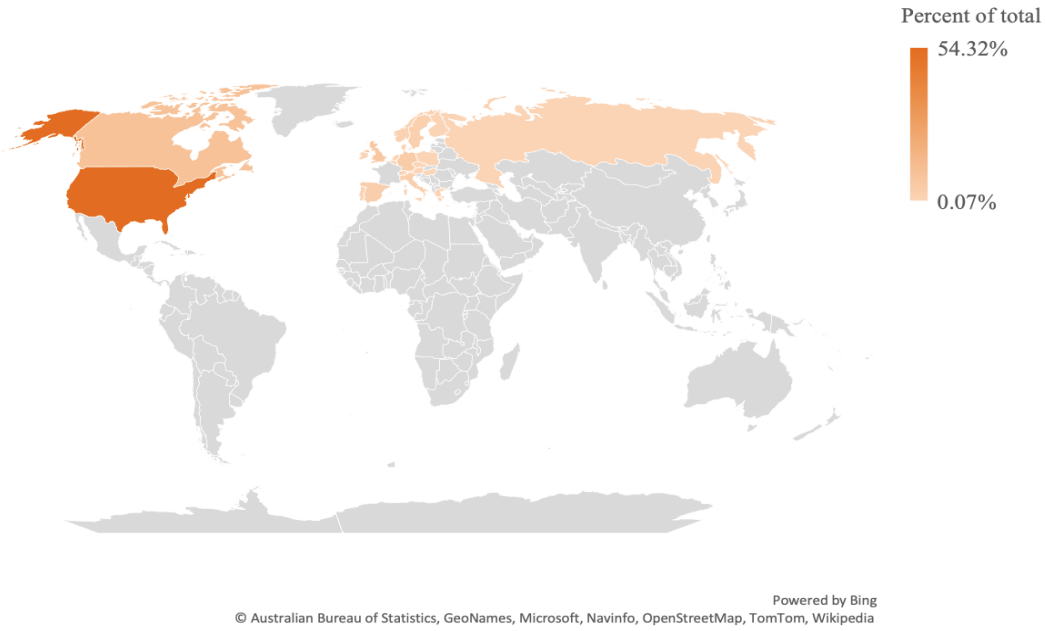
5 Data

5.1 Data collection

We collected financial data and ESG-scores on companies from 01.01.2002 - 17.02.2022 from the Refinitiv Eikon database. We applied the Deals Screener from the database to sort financial data for M&A deals. Further, we used the Refinitiv Eikon database to find the latest ESG scores given to the target companies.

In the Deals Screener, we sorted by deals completed in the time span of 2002-2022 in North America and Europe. We will receive comparable data and avoid noise by only including these two regions. To obtain the necessary data to run our hypotheses, we included all the variables shown in table 5.2. Before adding these constraints, our initial sample contained 6,177 deals. Further on, we sorted on ESG scores which decreased the sample to 2,269 deals. Then, after removing the deals that do not contain all the variables and removing extreme outliers[4], we are left with 1,498 deals.

Figure 5.1: Map of Deals by Nations



[4]Removed premiums above 130% and below -40%, such that they do not represent measurement error.

5.2 Data variables

In this section, we will discuss our chosen data variables and their reasoning. Firstly, we will examine the dependent variable; further on, we will discuss the independent - and the control variables.

5.2.1 Dependent Variable

From our research question, our dependent variable is the deal premium from every M&A transaction. We discovered the lack of deal premiums presented by the Refinitiv Eikon database. Therefore, we decided to calculate it ourselves as shown in (5.1) following the methodology of Jost et al. (2021) outlined in chapter 3.

$$Premium = \frac{\text{Price paid by Acquirer} - \text{Share Price}_{4Wprior}}{\text{Share Price}_{4Wprior}} \tag{5.1}$$

The reason for choosing the share price four weeks before the announcement is that it minimizes the pre-acquisition volatility, where the share price tends to increase (Bloomenthal, 2022). After the data cleaning described in section 5.1, our statistical distribution on the premium is as presented in table 5.1.

Table 5.1: Premium Paid

Mean	**STD**	**Min**	**Max**	**#Deals**
24.92%	23.65%	-40%	129.4%	1,498

5.2.2 Independent - and Control - Variables

The data consists of two categories of independent variables. These are financial - and firm-specific variables. In table 5.2, we have listed all the independent and control variables that we consider relevant for the analysis. It also states a brief description and expected sign of each variable's impact on the premium. We used Refinitiv Eikon as our provider for ESG-scores, as Refinitiv (2022) provides ESG-performances that track back to 2002 for over 11,000 companies globally. In exhibit 3, we have presented the ESG-scores calculation methodology provided by Refinitv.

Table 5.2: Data Variables

Firm-specific Variables	**Description**	**Expected sign**
ESG-score	As defined in exhibit 3: ESG-score methodology, it takes on a value from 0 to 100.	?
Rel. Deal Size	Deal Value/Assets. Larger target companies correspond with higher integration costs and should result in lower premiums	-
Financial Variables	**Description**	**Expected sign**
LN_{Capex}	Natural logarithm of the capital expenditures. Capex can influence the takeover synergies.	+/-
LN_{Value}	Natural logarithm of the deal size.	+/-
Inv. rate	CAPEX/Assets.	+/-
ROE	High-earning firms could expect higher bids. However, high earnings could reduce future growth.	+/-
Mkt. Cap	Larger target firms do have higher integration costs, and should lower the premium.	-
MTB	Market-to-Book ratio which is a financial valuation method to measure the market value to its book value.	+/-
Growth, 3Y	Growth over the last 3 years.	+/-
Leverage	If the leverage is high, the target company is less attractive	-
Control Variables	**Description**	**Expected sign**
NOB	When the number of bidders is high, it can increase the premium.	+
HS	Hostile takeover will usually demand a higher premium	+
CB	Cross-border deals increases the asymmetric information. Therefore, the valuation can be more imprecise.	+/-

Source: Refinitiv Eikon Database, Comment and Schwert (1995)

5.2.3 Descriptiv statistics

Table 5.3 displays the descriptive statistics of the different variables from our data set. By studying the table, we can see that the average ESG-score is 42.546, with a standard deviation of 20.26%. The worldwide average ESG-score is 46 for companies that are listed on S&P500 (S&P500, 2022). Further on, an ESG-score above 70 is considered a 'good' score, and below 50 will be considered 'bad' (Marson, 2022).

When analyzing the remainder of Table 5.3, we can observe several standard deviations, which are significantly high. Market capitalization, market-to-book, and the 3-year growth variables are the ones that stand out. The reasoning is that there is no constraint when extracting our data on how the target firm has performed or its size. Hence, it results in various firm sizes and contrasting financial performances. Table 5.4 presents the average premium and ESG-score when differentiating between industries.

Table 5.3: Descriptive statistics

Variables	Mean	STD	Min	Max
ESG-score	42.54	20.26%	3.37	94.08
Rel. Deal Size	2.23	43.98%	0	1.7e+03
LN_{Capex}	3.86	2.34%	-5.65	9.53
LN_{Value}	6.67	2.29%	-1.66	11.52
Inv. Rate	4.47%	5.92%	0%	61.17%
ROE	14.08	42.92%	0	1.1e+03
Mkt. Cap(M$)	6.8e+03	2.2e+04%	3.16	5.9e+05
MTB (M$)	18.11	558.85%	-635.77	2.2e+04
Growth, 3Y	21.20%	213.85%	-98.44%	5.7e+03%
Leverage	0.91	3.98%	0	91.45
Control Variables				
NOB	0.0387	0.19%	0	1
HS	0.004	0.0632%	0	1
CB	0.321	0.467%	0	1
N	1,498			

Table 5.4: Deals by Industry

Industry	Number of Deals	Mean Premium	Mean ESG-score
Consumer Products and Services	70	22.66%	40.43
Consumer Staples	75	29.25%	53.88
Energy and Power	187	22.58%	44.35
Financials	225	21.14%	39.82
Healthcare	160	33.67%	38.05
High Technology	179	27.31%	38.07
Industrials	168	26.27%	49.95
Materials	132	24.17%	38.56
Media and Entertainment	89	23.27%	42.91
Real Estate	100	19.40%	43.62
Retail	65	24.32%	45.79
Telecommunications	48	22.79%	43.09

Source: Refinitiv Eikon Database

6 Analysis

6.1 Hypothesis 1

Table 6.1 reports the results from the first regression presented in equation 4.6. As shown in the table, the ESG-score is significant at the 5%-level. Accordingly, we reject the null hypothesis (4.1) and can say with 95% confidence that the ESG-score is statistically significantly different from zero. The coefficient estimate for the ESG-score is undoubtedly low but does have a positive impact on the premium. It is worth mentioning that ESG disclosure can impact both ways. I.e., a high disclosure should be able to inflate the premium, whereas a low disclosure might deflate the premium. To better grasp the economic interpretation of this estimate, we have calculated the effect of one STD increase in ESG-score. One STD increase will yield 1.47% higher premium on average. To quantify this increase, we use the average market capitalization of \$6.76 Billion[5], which will result in an increase of the premium by \$99.4 million. Nevertheless, the cost of increasing the ESG-score must be lower than the value-added in the premium.

As expected, when a deal contains several bidders, it positively impacts the premium. Our data set contains a total of 58 deals that had multiple bidders involved. The coefficient estimate is considerably high, with a reasonable SE that is presented in table 6.1. This result aligns with earlier research that has been discussed. The hostile takeover variable has the most considerable impact on the premium of all our explanatory variables; however, it also has a larger SE. The reasoning is that hostile takeovers are not that common, and our data set only contains six hostile deals. Cross-border deals do also have a significant impact on the premium. This possibly stems from the asymmetric information problem that occurs. Every variable that has been discussed in this paragraph is also significant at the 1% level.

In terms of the goodness of fit for the model, the R-squared estimate seems reasonable as of earlier research presented in chapter 3. The regression contains every deal in our data sample; hence, it gives a holistic view of the impact and is significant at the 1%-level. The signs of the estimates of our control variables correspond with our expectations set out in

[5]The market capitalization have been used to calculate the deal premium.

chapter 5 table 5.2 based on literature and intuition. Equivalently, the expectations and results match the literature review. Interestingly, the control variables in our regression have mostly the same signs as the two CSR articles in chapter 3.

Table 6.1: Regression output - Hypothesis 1

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESG-score	0.0007	0.0003	2.2878	0.0223**
LN_{Capex}	-0.01352	0.00372	-3.6346	0.0003***
LN_{Value}	0.0334	0.0034	9.7441	8.8e-22***
Inv. Rate	0.0269	0.1144	0.2349	0.8143
ROE	-0.0004	0.0001	-2.6461	0.0082***
Mkt. Cap	-4.1e-07	2.8e-07	-1.4265	0.1539
MTB	-0.0007	0.0002	-4.4515	9.2e-06***
Growth, 3Y	-2.2e-05	2.6e-05	-0.8364	0.4030
Leverage	-0.0007	0.0014	-0.477	0.6334
Rel. Deal Size	0.0097	0.0022	4.3954	1.2e-05***
DummyCB	0.0557	0.0120	4.6509	3.6e-06***
DummyHS	0.2284	0.0876	2.6075	0.0092***
DummyNOB	0.2009	0.0289	6.9585	5.2e-12***
(Intercept)	-0.0189	0.0272	-0.6956	0.4867
Time-fixed effects	yes	yes	yes	yes
$N = 1498$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	1498
Error degrees of freedom	1464
Root Mean Squared Error	0.212
R-squared	0.212
Adjusted R-Squared	0.194
F-statistic vs. constant model	12.3
p-value	1.6e-55***

$N = 1498$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

6.2 Hypothesis 2

Table 6.2 reports the results from the second regression presented in equation 4.7 for each industry[6]. As shown in the table, the ESG-score is significant for the industries: Media and Entertainment, Financials and Real Estate for the 10%, 5% and 1% respectively. In contrast, the remaining nine industries were not significant. By comparing the different industries, we have the following statistics on the number of observations: min of 48, a median of 116 and a max of 225. Hence, there is a relatively large difference between the twelve industries. These differences impact the results in separate ways. Firstly, the higher number of observations, the more accurate results, as the standard errors will be smaller. Secondly, some of the dummies are without effect on some of the industries. This is either because some industries have too small sample sizes, or the M&A processes in these industries do not typically include these factors. To dig deeper into the results, we will firstly discuss the industries where ESG-score has a significant impact on the premium and then on the non-significant. We will look at industry-specific ESG risks that can rationalize the results.

First, we have **Media and entertainment** (M&E) that obtains a higher coefficient estimate than our first hypothesis. When a one STD increase in ESG-score in the M&E industry is added, we can expect a 5.81% increase in the premium. Considering the industry's average market capitalization ($6.23B[7]), this will increase the premium by $361M. Hence, it is beneficial for companies in M&E to focus on ESG. The pillar from ESG that M&E is primarily engaged in is the "S" pillar, as customer relationship is crucial. Without a good customer relationship and bringing the desired content to the viewers/public, the M&E business is not well driven. The study of McKinsey & Company (2020, February 13) shows that the M&E industry is better represented in terms of women than other industries (see exhibit 2). McKinsey & Company (2020, February 13) also mentions that 49% of the total workforce are women in M&E. Thereby, the industry is likely to score better than average on gender diversity. Although the study is based on the United States, 54.32% of our data sample is from the United States. Hence, it gives a

[6]Appendix: Tables - Regression outputs, we have included the total regression outputs of the 12 regression ran per industry from table A2.1 - A2.12. Additionally, table A1.1 gives a brief definition of each industry and table A1.2 gives a brief outline of industry-specific ESG-risks.

[7]The average market capitalization is extracted from our data-set

relatively good indication in correspondence with our sample. Without going deeper into the interplay between M&E and ESG, the M&E industry has some features within ESG that can raise or aggravate the interest of M&E concerning ESG aspects.

Secondly, we have the **Financials** industry. Synonymously with M&E, the most direct focus is on the "S" and "G" pillars. Although, indirectly, "E" also plays a role with "S" and "G" through financing, investing and advisory services. In 2008, The World Bank became the first institution to issue green bonds (The World Bank, 2021, December 8). Green bonds combined with reporting mechanisms such as Task Force on Climate-related Financial Disclosures (TCFD) spiked the green lending initiative (TCFD, n.d; The World Bank, 2021, December 8). This is where banks and financial institutions focus on providing finance to green projects, and become ESG-friendly through it. By studying tables 6.1 and 6.2, we can clearly see that the coefficient estimate is more significant for the Financial industry than for our first hypothesis, which included all industries. This implies that the Financial industry yields a higher payoff for investing in ESG than all industries' average yield, indicating that it is beneficial to focus on ESG. By one STD increase in ESG-score, the premium will expand by 3.05%. As the average market capitalization in the industry is $4.12B, this implies an increase of $125M in premium.

Further on, we will elaborate on many explanations why the Financials industry is one of few significant. A large shift in the Financials industry was the SDGs (United Nations, n.d). These goals are relevant for the past, present and future. Goals such as the SDGs have redefined numerous investment philosophies, investment strategies, and investing - and financing policies. For example, divestments related to companies that are perceived as "brown" or that go against one or more of the SDGs and increase investments in "green" companies, e.g., renewable companies. With a linkage to how decision-makers manage a company and how their decisions appeal to the interested stakeholders. The Financials industry has several measures that can be used to determine the degree of ESG. E.g., companies that are heavily invested in ESG companies should imply a higher ESG-score. Hence, ESG disclosure is more transparent and transferable than in other industries. To sum up, numerous ESG-performance-related factors in the Financials industry could motivate or demotivate M&A.

Lastly, we have the **Real Estate** industry. When examining the statistics for the Real Estate industry, we can identify that it has the highest estimated coefficient of the three significant industries and is statistically significant on the 1% level. When increasing the ESG-score by one STD, we can expect a 6.71% addition on the premium. From the mean market capitalization of $2.69B, it then insinuates an increase of $180M in the premium. Hence, according to our results, Real Estate is the industry where it is the most luxurious to invest in based on their ESG-scores. To interpret why we arrived at these results, we will begin by explaining a factor influencing the green transition in Real Estate. BREEAM (Building Research Establishment Environmental Assessment Method) is a certification system to assess the sustainability of buildings, which would fall under both the "E" and "G" in ESG. "E" in terms of the degree of energy efficiency and pollution, and "G" in terms of transparency. BREEAM can be traced back to the early 1990s; hence, the Real Estate industry has had tools to assess sustainability even before the beginning of our sample (Ebert et al., 2011). It has shown that sustainability in Real Estate has been beneficial in terms of value creation[8]. BREEAM is one factor that gives an indication that the Real Estate industry have taken measures towards a more sustainable future. Additionally, the Real Estate industry is not labor-intensive and it doesn't face material safety issue. Where maintaining good community relations is key for operations (S&P Global, 2019, May 13). Hence, the social risks attached to the industry are relatively low.

When studying the nine non-significant industries in table 6.2, the majority still has a positive coefficient estimate, implying that the dependent variable will still increase, but the probability is low. The results can be explained by the differences in how the various industries have implemented ESG in their strategy or business practices. The ESG implementation can be more visible in some industries than others[9], and the implications of determining ESG-performance beyond the ESG-score. It is typically difficult to perform ESG due diligence for industries like **Consumer Product and Services**, **Consumer Staples**, and **Retail**. These three industries can typically have more complex supply chains and logistic setups, which limits the transparency[10]. Thereby the ESG disclosure might not be large enough to incentivize ESG-driven M&As. Moreover, the three industries

[8]BREEAM certified buildings have shown a 30% increase in sales price, 24.9% increase in rental rates and 15% reduction in energy costs (Soulti & Leonard, 2016)

[9]For example in the Financials industry vs the Telecommunications industry

[10]One extreme example of this is H&M, where they were caught employing 14-year-old workers in Myanmar, which is a clear violation of human rights (Butler, 2018, July 2)

mentioned in addition to **Telecommunications** have all below 100 observations, which decreases the probability of significance and accuracy of the regressions.

Three industries that are more clear is the **High technology** (HT), **Industrials**, and **Materials**. Firstly, the tech boom in the late 1990s and the last decades have spiked the interest, growth and necessity of IT. Innovations and solutions have intensified the competitiveness of the HT industry, but also for firms which need improved IT solutions to stay competitive (Canace & Mann, 2013). Hence, HT M&As are most likely driven by acquiring new technology, getting a competitive edge, and innovation rather than ESG-performance. When it comes to Industrials and Materials, they face a lot of environmental risks, such as GHG emissions and waste. Factories, transportation, and chemicals are some of the components of the two industries that face these risks and could demand drastic innovation or change to reach close to - or net zero[11]. Innovation in Industrials and Materials has not seen daylight on a larger scale yet, where the industries have other motivations for M&As than ESG-performance according to our results and intuition.

Lastly, we have the **Healthcare** (HC) - and **Energy and Power** (E&P) industry. The former has ESG challenges that are hard to resolve related to bio-hazardous materials and social aspects in terms of transparency and access. The New York Times (2006, July 24) commented, HC companies are attractive since they generate significant and steady cash flows; other factors seem to outweigh the ESG incentives and potential in the industry. E&P, on the other hand, has a wide spectre from innovative renewables to oil and gas. Where the former helps to reach the goals of European Commission (n.d), the latter goes the opposite way. Our sample contains ESG-driven M&As[12], but they are outweighed by the non-ESG-driven M&As given the pValue of 0.1088. Hence, a larger sample with the most recent years could likely yield a different conclusion.

To conclude, we can argue that the ESG-score of the target company does have a significant impact on the premium in M&A. The economic significance also exists as we have proven it creates value for the firm. As the majority of the industries had positive estimated coefficients, we can underscore that the results of hypothesis 1 stem from the contribution of the different industries.

[11]Tesla's Gigafactories powered by renewable energy are one innovative solution

[12]E.g., Equinor bought a minority stake in Scatec Solar ASA, where the target is a renewable company and Equinor (2018, November 15) stated it was made for their long term perspectives

Table 6.2: Regression output - Hypothesis 2

ESG-score				
Industry	**Estimate**	**SE**	**tStat**	**pValue**
Consumer Product and Services	-0.0002	0.0015	-0.1136	0.9102
Consumer Staples	0.0008	0.0016	0.5359	0.5948
Energy and Power	0.0016	0.0010	1.6131	0.1088
Financials	0.0017	0.0008	2.0032	0.0466**
Healthcare	0.0005	0.0013	0.4089	0.6833
High Technology	-0.0001	0.0011	-0.1134	0.9098
Industrials	-6.4e-05	0.0011	-0.0589	0.9531
Materials	-0.0006	0.0010	-0.5662	0.5725
Media and Entertainment	0.0031	0.0018	1.7384	0.0876*
Real Estate	0.0037	0.0013	2.8297	0.0061***
Retail	0.0038	0.0028	1.3710	0.1799
Telecommunications	0.0047	0.0031	1.4936	0.1560
$N = 1498$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic				
Industry	**N**	R^2	**Adj.** R^2	**pValue**
Consumer Product and Services	70	0.626	0.338	0.0117**
Consumer Staples	75	0.511	0.177	0.0977*
Energy and Power	187	0.321	0.185	0.0003***
Financials	225	0.385	0.290	1.3e-09***
Healthcare	160	0.471	0.353	2.9e-08***
High Technology	179	0.298	0.156	0.0021***
Industrials	167	0.348	0.199	0.0005***
Materials	132	0.412	0.238	0.0008***
Media and Entertainment	89	0.439	0.176	0.0481**
Real Estate	100	0.418	0.188	0.0224**
Retail	65	0.509	0.127	0.0207**
Telecommunications	48	0.785	0.439	0.0363**
$N = 1498$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

6.3 Robustness test

Throughout this section, we will present our test results from our robustness tests described in section 4.3. Firstly discuss our results regarding heteroskedastic data. Further on, check for multicollinearity, and finally discuss endogeneity concerns in the regression model.

6.3.1 Heteroskedasticity

First, we tested our data for heteroskedasticity. We ran White´s test as outlined in subsection 4.4.1. As the results in table 6.2 show, we obtain a p-value close to zero, which implies that we reject H_0 that our standard errors are homoskedastic. Hence, we conclude that the standard errors are shown to be robust heteroskedastic according to our test results. The primarily reason for heteroskedasticity is that the raw data consists of some outliers or caused by omitted variables (Statistics Solution, n.d). This is reasonable when considering our raw data. It accommodates highly different firm sizes, which will also influence other variables.

Table 6.3: White's test: Chi square test

alpha	**pValue**	**testStat**	**critValue**
0.05	1.6e-07	195.13	128.8
Reject H_0 *if* $p < alpha$			

6.3.2 Multicollinearity

Further on, we conducted a VIF-test to investigate if our regression variables suffered from multicollinearity. The output from VIF is presented in table 6.4. When studying the results and with the attached ranking system below, we can confirm that none of the explanatory variables suffers from multicollinearity.

- 1 = Not correlated.
- 1-5 = moderately correlated.
- >5 = Highly correlated

When considering the VIF-output from the ESG-score of 1.3071, it explains what percentage of the variance (i.e., SE^2) is enlarged for each coefficient. Hence, a VIF-score of 1.3071 reports that the variance of the ESG-score is 30.71% larger than expected if there was no correlation with other explanatory variables. Our regression model would suffer significantly if we found explanatory variables that experienced multicollinearity. The reasoning is that it would weaken our coefficient estimates in terms of precision, thereby weakening our regression's statistical power.

Table 6.4: Variance Inflation Factor

Variance Inflation Factor	
Variables	**VIF-Output**
ESG-Score	1.3071
LN_{Capex}	2.3995
LN_{Value}	1.9955
Inv. Rate	1.4858
ROE	1.0353
Mkt. Cap	1.2456
MTB	2.6854
Growth, 3Y	1.0082
Leverage	1.0253
Rel. Deal Size	2.9620
DummyCB	1.0420
DummyHS	1.0089
DummyNOB	1.0574

6.3.3 Endogeneity

When investigating endogeneity concerns, we have run instrumental variable two-stage least-squares regression. The output is presented in table 6.5. The table displays both the coefficient and SE from our original OLS-regression and the output from when we added instrumental variables and ran a two-stage least-square regression. Our instrumental variables consist of country-year and country-industry means of ESG-scores. These instrumental variables affect firms' ESG-score but do not directly correlate with deal-premium. When studying table 6.5, we can see that the estimated coefficients do not

vary largely from OLS-regression to the two-stage least-square regression. This output indicates that there is no endogeneity resulting from omitted variables. However, we cannot say that ESG-score is significantly different from zero based on the p-value. Hence, the output is somewhat inconclusive as to if endogeneity is a significant problem for our model or not.

To sum up, we cannot solely disregard the likelihood of endogeneity concerning ESG-score in our regression model. We recapitulate that the estimated coefficients and SE submit homogeneous output, which indicates that our regression model do not suffer any considerable amount from endogeneity. It is important to restate that our output from the two-stage least-square regression assumes that our instrumental variables are not endogenous but exogenous.

Table 6.5: Instrumental Variable Two-Stage Least-Square

Variables	**Coefficient OLS**	**SE OLS**	**Coefficient 2sls**	**SE 2sls**
ESG-score	0.0007	0.0003	0.0006	0.0005
LN(Capex)	-0.0135	0.00372	-0.000012	0.000009
LN(Value)	0.0334	0.0034	0.034530	0.002821
Inv. Rate	0.0269	0.1144	-0.214665	0.109037
ROE	-0.0004	0.0001	-0.000496	0.000149
Mkt. Cap()	-4.1e-07	2.8e-07	-0.000001	0.000000
Growth, 3Y	-2.2e-05	2.6e-05	-0.000030	0.000028
Leverage	-0.0007	0.0014	-0.000603	0.001581
MTB (M)	-0.0007	0.0002	0	0
Rel. Deal Size	0.0097	0.0022	0	0
		Control Variables		
NOB	0.2009	0.0289	0.242302	0.032728
HS	0.2284	0.0876	0.227773	0.102342
CB	0.0557	0.0120	0.071403	0.013485
N	1,498			
R-Squared (2sls)	0.1063			

6.4 Research gaps

As outlined in chapter 3 under "Variables that affect the M&A premium", there are several factors to take into account. There is one variable in particular that we were unable to extract applicable data regarding our data sample, which is the type of payment. This refers to Comment and Schwert (1995) findings, showing that pure or close to pure cash payments would trigger a significant tax effect; should lead to a substantial increase in the premium. Thereby, since we did not adjust for the type of payment, there might be some incremental increase we could not adjust for, which leads to a research gap.

ESG is currently a hot topic, but for the last decades, ESG has been more "in the wind". As previously mentioned, there are many different perceptions of ESG and different meanings on the degree of importance between the three letters. Correspondingly, this also holds for our master thesis using one specific ESG-score provider. It is a third-party, unbiased provider, but there are many providers of such services. The problem stems from the different perceptions of ESG, and thereby, providers and businesses rate and calculate ESG-scores and ESG-matrices differently. As of today, there is still no consensus on how to measure ESG-scores. European Commission (2020) presents the EU taxonomy, which most likely will help close this gap between the providers.

There are different opinions on what number of observations is optimal to get a reliable answer. In our case, the more observations, the better. After the selected constraints, we could not retrieve more than 1,498 deals in our data sample. Although, that is a fair amount. The problem occurs under the second hypothesis when we differentiate between industries. Optimally, we would like a lot more observations on all the industries and the same number of observations on each industry. Following the journal article of Charter (1999), a minimum of 400 observations is recommended for the study to be reliable. Hence, with a minimum of 48 and a maximum of 225, we fall short of this recommendation.

7 Concluding remarks

This thesis investigates the existence of the willingness to pay a higher premium when the target firm has a higher ESG-score. To expand our research, we also investigate the impact ESG has when differentiating between industries. The data used in our research is collected from the Refinitiv Eikon database focusing on deals performed in North America and Europe from 2002-2022.

Our findings concerning the first hypothesis yield a positive relationship between target ESG-score and premium paid. Further on, when conducting economic analysis, we discovered that firms could expect to receive a higher premium if ESG-scores are increased. Our second hypothesis studies if the impact of ESG differentiates between the different industries. In this case, our findings were somewhat ambiguous. Three industries were statistically significantly different from zero; however, the remaining industries were not. We argue that the reasoning is that the industries in our sample are in different stages of the ESG evolution. The robustness tests provide some ambiguous results in regards to our endogeneity concerns. 2sls regression suggests some form of endogeneity exists, but the regression does not suffer significantly from it.

Throughout our thesis, criticism has been presented, and the most significant is the substantial data cleaning that was required. The notable decrease in transactions had to be removed since it did not have ESG-score presented in Refinitiv Eikon. This constraint shrunk the data-set drastically, making the data not randomly selected. When splitting the industries, we had unpleasantly few transactions, making the results less robust. As ESG is getting more acknowledged, more data will be available in the future, which will result in more accurate research.

Overall, through our empirical analysis, we can confidently declare that the ESG performance of the target firm does have an impact on the premium paid in a M&A transaction. Consequently, from hypothesis 2, we can see that the result stems from differences between industries, where the majority obtained a positive estimate coefficient.

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Appendix

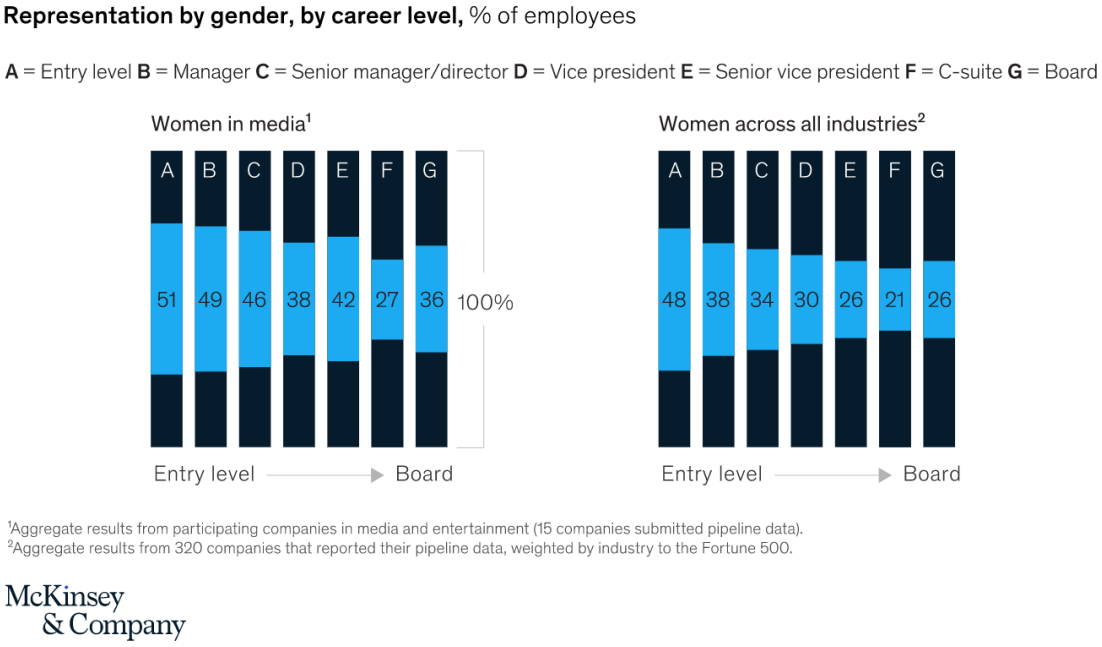
A1 Tables

Exhibit 1: A strong environmental, social, and governance (ESG) proposition links to value creation in five essential ways

	Strong ESG proposition (examples)	**Weak ESG proposition** (examples)
Top-line growth	Attract B2B and B2C customers with more sustainable products Achieve better access to resources through stronger community and government relations	Lose customers through poor sustainability practices (eg, human rights, supply chain) or a perception of unsustainable/unsafe products Lose access to resources (including from operational shutdowns) as a result of poor community and labor relations
Cost reductions	Lower energy consumption Reduce water intake	Generate unnecessary waste and pay correspondingly higher waste-disposal costs Expend more in packaging costs
Regulatory and legal interventions	Achieve greater strategic freedom through deregulation Earn subsidies and government support	Suffer restrictions on advertising and point of sale Incur fines, penalties, and enforcement actions
Productivity uplift	Boost employee motivation Attract talent through greater social credibility	Deal with "social stigma," which restricts talent pool Lose talent as a result of weak purpose
Investment and asset optimization	Enhance investment returns by better allocating capital for the long term (eg, more sustainable plant and equipment) Avoid investments that may not pay off because of longer-term environmental issues	Suffer stranded assets as a result of premature write-downs Fall behind competitors that have invested to be less "energy hungry"

(Witold et al., 2019)

Exhibit 2: Women are better represented in media and entertainment than in industries overall



(McKinsey & Company, 2020, February 13)

Exhibit 3: ESG-score methodology

The calculation of the ESG-scores are divided into five steps. Refinitiv (2022) has the following five steps:

Step 1: ESG category scores

Step 1 consist of 1.1 Treatment of underlying data points, 1.2 Category scores calculation methodology and 1.3 Peer group/category an benchmark. 1.1 is divided in Boolean data, Numeric data and Industry group relevancy. 1.2 measures the percentile rank where they compare the company in question and rank it to similar companies and find out how many companies are worse, same or have value at all. Percentile rank score is calculated as below (Refinitiv, 2022):

$$Score = \frac{\#\text{Companies with a worse value} + (\#\text{Companies with the same value inc. in the current one}) \times 0.5}{(\#\text{of companies with a value})}$$

1.3 Within this section Refinitiv (2022) The Refinitiv Business Classification (TRBC - Industry Group) is being used as the benchmark to calculate the "E" and "S" scores. Whereas for the G, Refinitiv (2022) applies the country's policies and practices as a benchmark for consistency purposes.

Step 2: Materiality Matrix

Step 2 consist of 2.1 Introduction to Refinitiv ESG materiality matrix, 2.2 Two methods for calculating the magnitude matrix, and 2.3 Category weight calculation. In 2.1 Refinitiv provides a detailed table where they have included the three pillars divided in their 10 category groups mentioned "Refinitiv ESG score" with under themes, data points and weight method. 2.2 explains the methods that are explained; industry median and transparency weights. 2.3 shows that the weights summed up for the given industry group containing the 10 categories. The category weight of the respective industry group is calculated as below (Refinitiv, 2022):

$$\text{Category weight of an industry group} = \frac{\text{Magnitude weight of a category}}{\text{Sum of magnitude of all categories}}$$

Step 3: Overall ESG score calculation and pillar score

Step 3 consist of 3.1 Calculation of overall ESG score and 3.2 Calculation of pillar scores. 3.1 calculates the aggregate of the 10 category weights, whereas the 3.2 calculates the individual category weights (Refinitiv, 2022).

Step 4: Controversies scores calculation

Step 4 evolves around the latest controversies that have been reflected, the number of controversies used are 23. Some examples of controversies are: child labour controversies, business ethics controversies, tax fraud controversies and responsible R&D controversies (Refinitiv, 2022).

Step 5: ESGC score

The last step involves calculating an average of the ESG score and the ESG controversies score (C-score = controversies score) which Refinitiv Eikon lables the ESGC score. In this process(Refinitiv, 2022) has two constraints as shown in the two equations below:

If C-score is >= ESG score, then ESG score = ESGC score
If C-score is < ESG score, then ESG score = average of ESG and ESGC score

Table A1.1: Industry definitions

Industry	Definition
Consumer Products and Services	The former is typically shopping products, specialty products or unsought products. Whereas the latter can be auto repairs, landscaping, haircuts and so forth (CFI, 2022, May 7).
Consumer Staples	Common examples include essential products such as food, beverages, household goods, and hygiene products (Investopedia, 2021, May 1).
Energy and Power	Companies that produce or supply energy. Examples of non-renewable energy are oil, natural gas, diesel fuel, and nuclear. Examples of renewable energy are solar power, wind power, and hydro power (Investopedia, 2021, December 27).
Financials	Companies are typically financial institutions, banks, insurance companies and investment companies (Investopedia, 2021, June 29).
Healthcare	Relates to medical companies with related goods and services. Examples are hospitals, nursing homes, labs and clinics (Investopedia, 2021, October 31).
High Technology	Relates to technology services with R&D and distribution of tech related goods and services. Examples are artificial intelligence, software, blockchain, semiconductors and autonomous vehicles (Investopedia, 2022, January 2b).
Industrials	E.g., companies that produce capital goods, which is further used in processes like manufacturing, resource extraction, and construction (Investopedia, 2021, July 29).
Materials	Evolves around businesses that take part in discovery, development and the processing of raw materials. E.g., mining, forestry products and metals (Investopedia, 2022, January 2a).
Media and Entertainment	Companies that do TV shows, news, radio and print, music, magazines etc
Real Estate	The four main categories that falls under real estate are residential, industrial, commercial and land (CFI, 2022, May 8).
Retail	Relates to consumer products of durable and non-durable goods. E.g., clothing & accessories stores, electronic stores, furniture stores (Investopedia, 2022, February 19).
Telecommunications	Companies that enables communication on a large or global scale. E.g., through the internet, phone, cables, wireless or wirelessly (Investopedia, 2022, October 7).

Notes: Brief definition of every industry in the sample.

Table A1.2: Industry-specific ESG-risks

Industry	**ESG-risks**
Consumer Products and Services	**Environmental:** waste management, transition from plastic packaging. **Social:** labor-intensive, human capital management, consumer behavior.
Consumer Staples	**Environmental:** waste management, transition from plastic packaging. **Social:** labor-intensive, human capital management, consumer behavior.
Energy and Power	**Environmental:** GHG emissions, pollution, transportation leaks, water use, contamination risks. **Social:** Safety management (highest in oil and gas), social cohesion (license to operate etc.), relationship to governments and communities, consumer behavior towards the energy transition. **Governance:** New regulations, new requirements.
Financials	**Environmental/Social:** Indirectly through who they grant finance and/or invest in (ref. SDGs).
Healthcare	**Environmental:** Toxicity, bio-hazardous materials. **Social:** Transparency, access, costs (in some countries it is to expensive for the average).
High Technology	**Environmental:** GHG emissions (e.g., through energy, chemicals and water used to manufacture new equipment and dispose old equipment), sourcing of minerals. **Social:** Privacy - and security concern, consumer preferences, gender inequality, workforce diversity.
Industrials	**Environmental:** GHG emissions, pollution, waste risks, toxic fluids that hurts the environment, realese of toxic elements. **Social:** Safety management risk. **Governance:** New regulations, new requirements.
Materials	**Environmental:** GHG emissions, pollution, waste risks, toxic fluids that hurts the environment, realese of toxic elements. **Social:** Safety management risk. **Governance:** New regulations, new requirements.
Media and Entertainment	**Environmental:** Waste management (mainly in the print.based media). **Social:** IP theft, social media activism, content regulation.
Real Estate	**Environmental:** Energy to heat or cool buildings, lower risk of: GHG emissions, water use, waste, pollution, and toxicity. **Social:** Change in consumer behavior (i.e., demographic trends). **Governance:** New regulations, new requirements
Retail	**Environmental:** Emissions risks through regulations, emissions risks related to logistics operations. **Social:** Demographics, human capital, customer brand perceptions.
Telecommunications	**Environmental:** low risk of waste, pollution, toxicity, GHG emissions, climate change in terms of extreme weather conditions. **Social:** Consumer behavior, societal impact of excessive social media use, misinformation, human capital.

Notes: A brief outline of industry-specific ESG-risks (S&P Global, 2019, May 13).

A2 Tables - Regression outputs

Table A2.1: Regression output - Consumer Products and Services

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	-0.0002	0.0015	-0.1136	0.9102
LN_{Capex}	0.0226	0.0208	1.0834	0.2854
LN_{Value}	0.0235	0.0149	1.5754	0.1235
Inv. Rate	-0.1467	0.4643	-0.3167	0.7537
ROE	-0.0026	0.0013	-2.0883	0.0435**
Mkt. Cap	-4.3e-06	3.7e-06	-1.1769	0.2465
MTB	0.0044	0.0030	1.4551	0.1539
Growth3Y	0.0007	0.0013	0.5693	0.5725
Leverage	-0.0586	0.0824	-0.7125	0.4805
Rel. Deal Size	0.0003	0.0217	0.01187	0.9906
DummyCB	0.0941	0.0593	1.5867	0.1209
DummyHS	0	0	0	0
DummyNOB	0.1491	0.1045	1.4267	0.1618
(Intercept)	0.0082	0.0881	0.0926	0.9267
Time-fixed effects	yes	yes	yes	yes
$N = 70$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	70
Error degrees of freedom	39
Root Mean Squared Error	0.132
R-squared	0.626
Adjusted R-Squared	0.338
F-statistic vs. constant model	2.17
p-value	0.0117**

$N = 70$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Table A2.2: Regression output - Consumer Staples

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	0.0008	0.0016	0.5359	0.5948
LN_{Capex}	-0.0321	0.0322	-0.9984	0.3238
LN_{Value}	0.0668	0.0362	1.8450	0.0721*
Inv. Rate	2.2646	1.5987	1.4166	0.1640
ROE	-0.0033	0.0015	-2.2077	0.0329
Mkt. Cap	-4.7e-06	3.0e-06	-1.5819	0.1212
MTB	0.0100	0.0081	1.2333	0.2243
Growth3Y	-0.0003	0.0009	-0.2699	0.7885
Leverage	0.2427	0.1177	2.0623	0.0454
Rel. Deal Size	-0.0014	0.0451	-0.03197	0.9746
DummyCB	0.1002	0.0736	1.3621	0.1804
DummyHS	0	0	0	0
DummyNOB	0.0556	0.1473	0.3776	0.7076
(Intercept)	-0.3018	0.2389	-1.2632	0.2135
Time-fixed effects	yes	yes	yes	yes
$N = 75$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	75
Error degrees of freedom	44
Root Mean Squared Error	0.228
R-squared	0.511
Adjusted R-Squared	0.177
F-statistic vs. constant model	1.53
p-value	0.0977*

$N = 75$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Table A2.3: Regression output - Energy and Power

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	0.0016	0.0010	1.6131	0.1088
LN_{Capex}	0.0061	0.0150	0.4032	0.6874
LN_{Value}	0.0139	0.0145	0.9631	0.3370
Inv. Rate	-0.4352	0.2804	-1.5518	0.1227
ROE	-0.0004	0.0005	-0.8351	0.4050
Mkt. Cap	-3.9e-06	2.1e-06	-1.9097	0.0580*
MTB	0.0025	0.0032	0.7925	0.4293
Growth3Y	-0.0001	0.0005	-0.3765	0.7071
Leverage	0.01425	0.0077	1.8413	0.0675*
Rel. Deal Size	0.0462	0.0290	1.5911	0.1136
DummyCB	0.0108	0.0365	0.2959	0.7677
DummyHS	-0.3204	0.2078	-1.5422	0.1251
DummyNOB	0.3734	0.0924	4.0423	8.3e-05***
(Intercept)	-0.0408	0.0983	-0.4158	0.6781
Time-fixed effects	yes	yes	yes	yes
$N = 187$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	187
Error degrees of freedom	155
Root Mean Squared Error	0.198
R-squared	0.321
Adjusted R-Squared	0.185
F-statistic vs. constant model	2.36
p-value	0.0003***

$N = 187$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Table A2.4: Regression output - Financials

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	0.0017	0.0008	2.0032	0.0466**
LN_{Capex}	0.0032	0.0089	0.3560	0.7223
LN_{Value}	0.0361	0.0102	3.5497	0.0005***
Inv. Rate	-0.5551	0.8874	-0.6256	0.5323
ROE	-0.0002	0.0019	-0.0980	0.9220
Mkt. Cap	-5.6e-06	2.2e-06	-2.5520	0.0115**
MTB	-0.0078	0.0032	-2.4445	0.0154**
Growth3Y	-0.0008	0.0006	-1.3673	0.1731
Leverage	-0.0034	0.0017	-1.9389	0.0540*
Rel. Deal Size	0.0991	0.0406	2.4421	0.0155***
DummyCB	0.0417	0.0380	1.0961	0.2744
DummyHS	0.7576	0.1986	3.8139	0.0002***
DummyNOB	0.3928	0.0947	4.1476	5.0e-05***
(Intercept)	-0.1362	0.0781	-1.7445	0.0827*
Time-fixed effects	yes	yes	yes	yes
$N = 225$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	225
Error degrees of freedom	194
Root Mean Squared Error	0.187
R-squared	0.385
Adjusted R-Squared	0.290
F-statistic vs. constant model	4.05
p-value	1.3e-09***

$N = 225$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Table A2.5: Regression output - Healthcare

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	0.0005	0.0013	0.4089	0.6833
LN_{Capex}	0.0025	0.0153	0.1656	0.8688
LN_{Value}	0.0316	0.0148	2.1301	0.0351**
Inv. Rate	-1.4746	0.8669	-1.7011	0.0913*
ROE	-0.0002	0.0008	-0.2153	0.8299
Mkt. Cap	-2.2e-06	1.4e-06	-1.6171	0.1083
MTB	0.0003	0.0007	0.4595	0.6466
Growth3Y	8.4e-05	0.0002	0.5148	0.6076
Leverage	0.0007	0.0524	0.0141	0.9888
Rel. Deal Size	0.0281	0.0068	4.1120	7.0e-05***
DummyCB	0.0732	0.0431	1.6972	0.0921*
DummyHS	0	0	0	0
DummyNOB	-0.0805	0.2897	-0.2780	0.7815
(Intercept)	-0.0022	0.1004	-0.0216	0.9828
Time-fixed effects	yes	yes	yes	yes
$N = 160$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	160
Error degrees of freedom	130
Root Mean Squared Error	0.230
R-squared	0.471
Adjusted R-Squared	0.353
F-statistic vs. constant model	3.98
p-value	2.9e-08***

$N = 160$, p-value where; *p<0.1, **p<0.05, ***p<0.01

Table A2.6: Regression output - High Technology

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	-0.0001	0.0011	-0.1134	0.9098
LN_{Capex}	-0.0022	0.0194	-0.1149	0.9086
LN_{Value}	0.0230	0.0136	1.6882	0.0935*
Inv. Rate	-0.2508	0.5750	-0.4361	0.6634
ROE	0.0004	0.0006	0.6836	0.4953
Mkt. Cap	-2.3e-07	8.8e-07	-0.2569	0.7976
MTB	-0.0032	0.0015	-2.1471	0.0334**
Growth3Y	-0.0002	0.0009	-0.2265	0.8211
Leverage	-0.0196	0.0501	-0.3909	0.6965
Rel. Deal Size	0.0251	0.0104	2.4099	0.0172**
DummyCB	0.0652	0.0392	1.6645	0.0982*
DummyHS	0	0	0	0
DummyNOB	0.0843	0.0833	1.0127	0.3129
(Intercept)	-0.0069	0.0875	-0.0795	0.9367
Time-fixed effects	yes	yes	yes	yes
$N = 179$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	179
Error degrees of freedom	148
Root Mean Squared Error	0.218
R-squared	0.298
Adjusted R-Squared	0.156
F-statistic vs. constant model	2.09
p-value	0.0021***

$N = 179$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Table A2.7: Regression output - Industrials

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	-6.4e-05	0.0011	-0.0589	0.9531
LN_{Capex}	-0.0102	0.0162	-0.6318	0.5286
LN_{Value}	0.0394	0.0128	3.0884	0.0024***
Inv. Rate	0.2074	0.5210	0.3980	0.6912
ROE	-0.0008	0.0008	-0.9377	0.3501
Mkt. Cap	-7.6e-07	9.1e-07	-0.8373	0.4039
MTB	0.0008	0.0012	0.6299	0.5298
Growth3Y	-0.0007	0.0012	-0.5672	0.5715
Leverage	0.0054	0.0026	2.0525	0.0421**
Rel. Deal Size	0.0463	0.0287	1.6125	0.1092
DummyCB	0.0235	0.0383	0.6125	0.5412
DummyHS	0.3280	0.1508	2.1748	0.0314**
DummyNOB	0.1044	0.0918	1.1379	0.2572
(Intercept)	-0.0212	0.0955	-0.2220	0.8246
Time-fixed effects	yes	yes	yes	yes
$N = 168$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	168
Error degrees of freedom	135
Root Mean Squared Error	0.201
R-squared	0.348
Adjusted R-Squared	0.199
F-statistic vs. constant model	2.33
p-value	0.0005***
$N = 168$, p-value where; *p<0.1, **p<0.05, ***p<0.01	

Table A2.8: Regression output - Materials

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	-0.0006	0.0010	-0.5662	0.5725
LN_{Capex}	0.0083	0.0163	0.5085	0.6122
LN_{Value}	0.0145	0.0145	0.9933	0.3230
Inv. Rate	0.1590	0.2605	0.6103	0.5430
ROE	-0.0029	0.0009	-3.0981	0.0025***
Mkt. Cap	-1.1e-06	2.2e-06	-0.4810	0.63156
MTB	-0.0005	0.0004	-1.2681	0.20772
Growth3Y	-0.0010	0.0005	-2.0757	0.0405**
Leverage	0.0438	0.0250	1.7474	0.0837*
Rel. Deal Size	0.0326	0.0175	1.8606	0.0658*
DummyCB	0.0203	0.0394	0.5153	0.6074
DummyHS	0.1950	0.1487	1.3112	0.1928
DummyNOB	0.1961	0.1062	1.8465	0.0678*
(Intercept)	0.0573	0.0818	0.7054	0.4822
Time-fixed effects	yes	yes	yes	yes
$N = 132$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	132
Error degrees of freedom	101
Root Mean Squared Error	0.188
R-squared	0.412
Adjusted R-Squared	0.238
F-statistic vs. constant model	2.36
p-value	0.0008***

$N = 132$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Table A2.9: Regression output - Media and Entertainment

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	0.0031	0.0018	1.7384	0.0876*
LN_{Capex}	0.0275	0.0267	1.0301	0.3074
LN_{Value}	0.0408	0.0210	1.9451	0.0568*
Inv. Rate	-0.6324	0.6541	-0.9669	0.3378
ROE	-0.0010	0.0013	-0.7185	0.4754
Mkt. Cap	-4.9e-06	4.0e-06	-1.2247	0.2258
MTB	-0.0005	0.0052	-0.1035	0.9179
Growth3Y	0.0001	0.0017	0.0616	0.9511
Leverage	-0.0677	0.0452	-1.4951	0.1405
Rel. Deal Size	0.0238	0.0305	0.7816	0.4377
DummyCB	0.0260	0.0651	0.4001	0.6906
DummyHS	0	0	0	0
DummyNOB	-0.0102	0.1177	-0.0867	0.9312
(Intercept)	-0.2070	0.1766	-1.1723	0.2460
Time-fixed effects	yes	yes	yes	yes
$N = 89$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	89
Error degrees of freedom	60
Root Mean Squared Error	0.234
R-squared	0.439
Adjusted R-Squared	0.176
F-statistic vs. constant model	1.67
p-value	0.0481**
$N = 89$, p-value where; *p<0.1, **p<0.05, ***p<0.01	

Table A2.10: Regression output - Real Estate

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	0.0037	0.0013	2.8297	0.0061***
LN_{Capex}	-0.0044	0.0149	-0.2960	0.7682
LN_{Value}	0.0197	0.0140	1.4013	0.1657
Inv. Rate	0.1006	0.3950	0.2547	0.7997
ROE	-0.0043	0.0023	-1.9104	0.0604*
Mkt. Cap	-7.2e-08	8.5e-06	-0.0085	0.9932
MTB	0.0005	0.0004	1.4607	0.1488
Growth3Y	1.1e-05	2.3e-05	0.4927	0.6238
Leverage	0.0245	0.0147	1.6654	0.1005
Rel. Deal Size	0.0691	0.0480	1.4384	0.1550
DummyCB	0.0474	0.0391	1.2114	0.2300
DummyHS	0	0	0	0
DummyNOB	0.1229	0.0704	1.7462	0.0853*
(Intercept)	-0.1806	0.1051	-1.7185	0.0903*
Time-fixed effects	yes	yes	yes	yes
$N = 100$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	100
Error degrees of freedom	71
Root Mean Squared Error	0.152
R-squared	0.418
Adjusted R-Squared	0.188
F-statistic vs. constant model	1.82
p-value	0.0224**
$N = 100$, p-value where; *p<0.1, **p<0.05, ***p<0.01	

Table A2.11: Regression output - Retail

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	0.0038	0.0028	1.3710	0.1799
LN_{Capex}	-0.0187	0.0639	-0.2932	0.7713
LN_{Value}	0.0408	0.0409	0.9994	0.3251
Inv. Rate	-0.7574	1.7629	-0.4296	0.6703
ROE	-0.0003	0.0010	-0.3263	0.7463
Mkt. Cap	-2.9e-07	6.5e-06	-0.0452	0.9642
MTB	-0.0018	0.0026	-0.7164	0.4790
Growth3Y	-0.0042	0.0032	-1.3160	0.1975
Leverage	0.0310	0.1327	0.2338	0.8170
Rel. Deal Size	0.0525	0.0436	1.2060	0.2367
DummyCB	-0.0061	0.1237	-0.0493	0.9610
DummyHS	0	0	0	0
DummyNOB	0.3615	0.1725	2.0960	0.0441**
(Intercept)	0.2807	0.2373	1.1829	0.2456
Time-fixed effects	yes	yes	yes	yes
$N = 65$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	65
Error degrees of freedom	36
Root Mean Squared Error	0.272
R-squared	0.509
Adjusted R-Squared	0.127
F-statistic vs. constant model	1.33
p-value	0.0207**
$N = 65$, p-value where; *p<0.1, **p<0.05, ***p<0.01	

Table A2.12: Regression output - Telecommunications

Variables	**Estimate**	**SE**	**tStat**	**pValue**
ESGScore	0.0047	0.0031	1.4936	0.1560
$\text{LN}_{C}apex$	0.0891	0.0856	1.0399	0.3149
$\text{LN}_{V}alue$	-0.0314	0.0814	-0.3863	0.7047
Inv. Rate	-1.4793	2.1383	-0.6918	0.4996
ROE	-0.0009	0.0003	-2.9999	0.0090***
Mkt. Cap	-1.2e-05	7.5e-06	-1.5602	0.1396
MTB	0.0054	0.0024	2.2653	0.0387**
Growth3Y	-0.0020	0.0042	-0.4842	0.6352
Leverage	-0.0097	0.0945	-0.1031	0.9193
Rel. Deal Size	0.1960	0.1574	1.2448	0.2323
DummyCB	0.0796	0.0943	0.8450	0.4114
DummyHS	0	0	0	0
DummyNOB	0	0	0	0
(Intercept)	-0.2578	0.4817	-0.5352	0.6003
Time-fixed effects	yes	yes	yes	yes
$N = 48$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01

Regression statistic	**Value**
Number of observations	48
Error degrees of freedom	18
Root Mean Squared Error	0.200
R-squared	0.785
Adjusted R-Squared	0.439
F-statistic vs. constant model	2.27
p-value	0.0363**

$N = 48$,	p-value where;	*p<0.1,	**p<0.05,	***p<0.01