Stockholm School of Economics

The ESG Advantage: Exploring the Relationship Between Sustainability and Corporate Acquisitions

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Abstract

This thesis investigates the impact of ESG scores on corporate acquisitions in Europe and the United States, examining whether firms with ESG scores are more likely to be acquired, and to which extent the ESG score of a target firm may affect the bid premium. Findings suggest that firms with an ESG score are more likely to be acquired compared to firms without, and that a high score implies a lower probability of being acquired compared to a low score. This is statistically significant at the 1% level. The correlation is stronger in the US market. Additionally, no correlation for firms with high ESG scores and bid premiums has been confirmed statistically, indicating that deals are unaffected by the ESG performance of a target firm in terms of bid premiums.

Keywords: Environmental, Social & Governance (ESG), Mergers & Acquisitions (M&A), Bid Premium

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1 Introduction

Environmental, social, and governance (ESG) is best described as a framework to understand how organisations manage risks and opportunities related to various sustainability issues. ESG factors are gaining prominence as an integral aspect of investment decision-making, with global sustainable assets under management experiencing rapid growth in recent years, projected to represent one-third of global assets under management by 2025 (Bloomberg, 2021). ESG was first mentioned in the United Nations' Principle for Responsible Investment report in 2006, which has led to the emergence of several scoring systems evaluating a company's ESG performance. Firms can integrate these factors into their operations through various initiatives, including reducing their environmental footprint, enhancing board and management diversity, and promoting shareholder rights, among other strategies.

The research on the ESG topic remains limited, partly due to inadequate reporting on these measures. The novelty of ESG means that standardisation for ESG measures is lacking, leading to complexity in comparison and reliability, which makes the subject challenging to study. A report by McKinsey (2020) indicates that executives at acquirer firms are willing to pay a ten percent premium for a company that performs well within ESG, as opposed to one that performs poorly. Given that over 90 percent of companies have developed or are developing an ESG strategy (Sustainalytics, 2022), it is relevant to understand if there is an underlying monetary value in these efforts that can be empirically demonstrated. The question is therefore whether investors are willing to pay more for a company that performs well in terms of sustainability or not.

The literature on the value-creating implications of ESG can be summarised based on two opposing views: Friedman's shareholder theory (1970) and Freeman's stakeholder theory (1984). The former theory entails that the sole responsibility of a firm is to generate profits for its shareholders and that any activity not aimed toward this goal, including sustainability, is value destructive. Freeman's stakeholder view, on the other hand, suggests that managing the interests of all stakeholders is essential for a company's performance, and will ultimately benefit the value of the firm. Prior studies on the subject have produced ambiguous conclusions while supporting either Friedman's or Freeman's view.

In the context of mergers and acquisitions (M&A), measuring the potentially value-creating

aspects of ESG becomes slightly more tangible. As corporate investors engaging in M&A activity have more information available to them prior to an investment than a retail investor, the ESG premium can be studied more reliably by examining the bid premium paid in an acquisition. Existing literature has not shown any consistent evidence supporting Freeman or Friedman's theory in the context of M&A premiums. Prior literature is further constrained by the selection bias that comes from the lack of available ESG data, and from the fact that it is hard to disentangle ESG aspects from other determinants of a M&A deal.

The aim of this thesis is to increase the understanding of the value creation abilities of ESG, by studying the bid premiums in acquisitions of targets holding an ESG score. With regulations and reporting demands tightening, evaluating the potential upside of performing well within ESG becomes interesting. Despite increasing interest and proliferating studies on ESG topics, the research on M&A premiums in relation to target ESG performance is still limited and incomplete. This paper contributes to the existing literature as it analyses the effect of ESG on M&A premiums while mitigating the selection bias present in similar studies. This is achieved by controlling for the probability of an acquisition based on the target having an ESG score or not, and the quality of the potential score while evaluating the premium. This provides a result that is more reliable and therefore contributes to bringing the literature on ESG in a M&A context forward. To the knowledge of the authors, no study on the M&A premium for ESG targets while considering the probability of the same targets being acquired has been conducted which contributes to the novelty of this paper.

Using a sample of 16,802 public companies and 2,959 transactions, where 521 target firms have available ESG scores, in Europe and the US between 2010 and 2019, this paper studies the probability of a firm to be acquired based on the existence and magnitude of an ESG score, and subsequently the bid premium in these acquisitions. The ESG score is obtained from Asset4, which considers over 600 reported parameters within each rated company. The findings of the study imply that the probability of a target being acquired is negatively correlated with having an ESG score and that the higher the score, the lower the probability of being acquired. This correlation is stronger for US firms compared to European. Furthermore, we find no support for a premium based on ESG score.

The paper proceeds as follows: Section 2 analyses previous literature on the topic of ESG and

M&A, and presents the thesis' hypotheses. Section 3 presents the process of data retrieval, an overview of the sample and the methodology for the thesis. Section 4 includes the findings of the regressions and their implications. Section 5 discusses and analyses the findings from the regression and connects to the existing literature. Section 6 intends to cover the limitations of the study as well as suggested topics for future research. Section 6 provides a conclusion.

2 Literature review and Hypotheses

In order to investigate the relationship between deal premium and ESG, prior literature on the subject is presented to facilitate the analysis. The first section provides an introduction to relevant literature on ESG and its value creation implications, while the second section introduces previous research on ESG and value creation in the context of M&A.

2.1 ESG

2.1.1 ESG and Value Creation

The value implications of ESG are yet unclear, and empirical evidence has not found an unambiguous answer. The fundamental question of whether firms should invest in ESG or not can be boiled down into two opposing views. These views, alongside a selection of empirical evidence supporting them, will be presented in the following sections.

The shareholder expense view, established by Freidman (1970) proposes that the sole responsibility of a firm is to generate profits to its shareholders, and that investing in ESG is generating benefits to stakeholders at the expense of shareholders. In other words, when executives invest in ESG, they are spending shareholders' money on social interests for the sake of other stakeholders, acting in their own self-interest to appear responsible to society. The argument is that resources that are wasted on ESG activities could instead be invested in profit generating initiatives or distributed to shareholders. This implies that companies that engage in ESG activity are reducing shareholder value (Friedman, 1998) in their sustainability pursuit, as costs for shareholders outweigh benefits. Wang et al. (2021) provide empirical evidence that supports this view, indicating that ESG is not value creating. Their study shows that companies who overinvest in ESG have a negative announcement effect in the market, indicating that excess ESG investments could lead to value destruction in terms of market value.

The stakeholder view, that was established by Freeman (1984), offers an opposing view. It argues that in regards to profits and ethical behaviour, one does not have to exclude the other. The stakeholder view argues that a firm should aim to create value for all their stakeholders, and thus balance multiple objectives. It is based on the belief that firms need the support of their stakeholders to succeed, and that this can be achieved by managing these interests well. ESG can therefore improve the profitability and value of a firm. Eccles (2014) argues that

companies that invest in ESG are better at managing stakeholder interests, in turn making stakeholders more committed to supporting firm activities. Freeman (1984) defines a company's stakeholders as "... any group or individual who can affect, or is affected by, the achievement of a corporation's purpose", and argues that each of these has a role in the value creation of a firm. The stakeholder view claims that aligning the interests of stakeholders with that of shareholders will lead to long-term growth for the firm while also creating value. According to Porter and Kramer (2006), whose standpoint aligns with Freeman, engaging in ESG should not be seen as a constraint or zero-sum game, but instead, as a source of innovation, opportunity and competitive advantage, but instead imply that ESG creates value.

The ability of ESG to create value is partly motivated by reputational factors, as presented by Weber (2018). Her article states that ESG will offer benefits to the firm engaging in it such as improved reputation, image, brand value and employee motivation. Eccles et al. (2014) investigate the ESG performance and financial returns relationship quantitatively and find that firms classified as *high sustainability* companies significantly outperform their counterparts both in terms of stock market performance and accounting performance in the long term, supporting the stakeholder view.

Despite many studies having been conducted in an attempt to decide which of these views triumphs, an unambiguous answer has not been reached in the existing literature. The potentially value-creating aspects of ESG are often related to reputation and brand (Weber, 2018), and are to their nature intangible. This makes ESG factors hard to quantify and compare, and may contribute to the difficulty in determining their effect on a firm's value. Additionally, collecting reliable and extensive ESG data is difficult (Moser & Martin, 2012) as the disclosure of ESG data is not mandatory as well as due to the lack of standardisation which reduces comparability and reliability. Lastly, the variation in the time period and geographic region of the samples in the various studies can affect results. These factors could to some extent explain the varying conclusions in the empirical evidence.

2.2 M&A and ESG

2.2.1 ESG and Target Choice

The literature on the probability of being acquired based on a target's ESG performance finds that there is a positive relationship between high performance and higher probability and that ESG is a factor in M&A decision-making. The literature on this relationship is however scarce, and the most prominent studies are summarised below. As the probability of acquisition is examined in this study, the previous literature on this specific topic will be described in greater detail than other parts of the literature review.

ESG influence on M&A target choice has been studied by Gomes (2019) who finds that firms with high ESG scores are more likely to be the target of an acquisition. The paper considers 608 deals over the 2003-2014 time period from a worldwide sample (excluding non-developed countries) and uses propensity score matching analysis to compare the deals with comparable non-target firms. Results show statistically significant higher ESG scores for target firms than comparable non-targets. The correlation holds for overall ESG performance as well as all three aspects of ESG individually, namely environmental, social and governance. The author attributes the correlation to the risk-reducing implications of ESG in terms of increased transparency, the cost associated with turning around non-ESG firms, as well as the reputational and brand value of ESG in the target company. Environmental attributes specifically will decrease the likelihood of future claims and litigation costs associated with pollution-related hazards thus making the firm more attractive to acquire.

Krishnamurti et al. (2019) study the likelihood of an acquisition based on the ESG performance of both target and acquirer. They find that targets with ESG activities are more likely to be acquired by an ESG-oriented firm. They further find that the acquiring firms with ESG activities are more specific in their target choice, as these firms tend to perform no more than one acquisition per year. Their acquisitions also tend to be domestic.

2.2.2 ESG Value Creation in M&A

The value-creating effects of ESG in the context of M&A have not been fully established in prior research. Deng et al. (2013) study the value-creating effects of ESG in M&A deals in the US market and find that socially responsible acquirers realise higher returns in connection

to M&A announcements as well as face better long-term operating performance after the deal. Through these findings the authors conclude that ESG does create value for acquirers in line with the stakeholder theory, and that the ESG activities of a company can be a determinator of the success of the M&A they engage in. These results are explained by the ability for ESG to increase stakeholder support in the integration of the firms, allowing for synergies to be realised to a greater extent, resulting in value creation from the deal. Their study further looks at value creation for the different stakeholders post transaction. They concluded that high ESG acquirers generated better value both for shareholders and stakeholders, supporting the argument of the stakeholder theory. Similarly, Giakoumelou et al. (2018) find that acquirers that opt for "green deals" reach better financial outcomes in terms of post deal return on assets, compared to comparable firms engaging in other M&A activity.

2.2.3 M&A Premiums

The reason for firms to engage in M&A activity can be motivated by several different factors, including those mentioned below. To understand the effect of ESG on premiums, the already determined factors in literature are considered.

A merger premium appears when shareholders of a target company receive a payment for their shares that values the company higher than before the merger. This premium is rationalised by merger synergies in terms of financial or operational synergies (Nielsen & Melicher, 1973). Without creating synergies, the companies are engaging in a deal where zero value creation is achieved, and the deal does not make financial sense (Berk and DeMarzo, 2017). Despite the fact that deals are motivated with the potential for synergies, few firms manage to realise these (Garzella & Fiorentino, 2016). There are also studies suggesting that intangible assets bring value to a deal, including knowledge and capabilities (Qiao & Wu, 2019). Aktas et al. (2011) present the theory that ESG can be considered part of a company's capabilities, in that it can be used when dealing with crises or other challenges, and therefore constitutes an important intangible asset for a firm. Based on this assumption, an additional source of synergies is the learning effect, meaning improved ESG through the learnings and overlap from the shared knowledge. The study by Aktas et al. (2011) found that acquiring a socially and environmentally responsible firm had a positive effect on the corresponding performance of the acquiring company following the acquisition.

While the motivation for an acquisition is generally supported by the potential value creation of synergies between the target and the acquiring company, it can sometimes be explained by the empire-building theory (Trautwein, 1990). This refers to the fact that the prestige of running a larger company can motivate managers to pursue M&A opportunities regardless of their value-creating potential. Additionally, it may be used as a strategy for growth, to exploit market imperfections, particularly in terms of information asymmetry, as well as to achieve diversification (Gaughan, 2013).

2.2.4 ESG and M&A Premiums

There are contradicting findings on whether targets with high ESG performance are offered a premium in M&A deals compared to firms that don't perform as well in this field, and the number of studies examining this are few. Due to the similarities to this thesis, the literature on the topic of ESG and M&A premiums is described in greater detail compared to other literature presented.

Gomes and Marsat (2018) find that ESG is significantly positively associated with M&A premiums, examining a worldwide sample of 588 transactions during 2003-2014. Their findings suggest that ESG does offer positive signals to an acquirer, motivating them to pay a higher price. They suggest the premium is motivated by the reduction in information asymmetry and target-specific risk, as opposed to solely reflecting higher expected returns. Further relevant findings from their study include that the social aspects of ESG were only valued in cross-border deals. Assigning more importance to the social performance in these deals is motivated by the increased risk and information asymmetry of acquiring foreign targets, and a larger premium is paid to mitigate this additional risk. This is explained by Godfrey et al. (2009) who state that acquiring firms take on a large amount of risk in engaging in M&A activity, and a good relationship between stakeholders and the target company, which includes ESG initiatives, can therefore reduce firm-specific risk. Engaging in ESG activities can, according to the authors, act as an insurance-like protection against challenges.

Cho et al.'s (2021) findings suggest that M&A bidders positively value the target's ESG performance. They further take into account the ESG performance of the acquirer and find that targets performing better within ESG than their acquirer, receive higher bid premiums, a relationship that is more prominent when the acquirer has effective governance. Their study considers 199

mergers in the 1993-2016 time period in the US market. Their findings are therefore consistent with the stakeholder theory, that satisfying stakeholders through ESG investments will also benefit shareholders. Qiao and Wu (2019) similarly find a positive relationship between target ESG performance and bid premiums from studying 252 cross-border deals from 1991 to 2016 for firms publicly listed in China. Their results show that the acquirer's ESG performance is significantly and positively related to the long-term M&A performance. The performance measure is based on realised synergies, returns and customer retention.

There are however studies that show the opposite results. Chen and Gavious (2015) examine the ESG performance and sale price in 134 M&A transactions in the Israeli market in 2007-2012, but contrary to Gomes and Marsat find no relationship in this setting. They find that while private and transient investors value ESG positively, long-term institutional and M&A investors do not, believing that ESG does not offer firms any real profit. The different types of investors have varying degrees of how informed they are, as well as the stake they hold in the firm. The authors thus conclude that informed investors are unaffected by the ESG activity of a company. The results could also be explained by the fact that more sophisticated investors are better able to access information about the target's ESG which may contradict general information available to the marginal investor, thereby resulting in a lower ESG premium. Similar results are reached in a more recent study by Jost et al (2022), where the 449 target deals in an international setting between 2003 and 2018 are considered. Their findings suggest that neither targets' nor acquirers' ESG performance significantly impacts the M&A premiums. They did however find that the governance quality of the acquirer had a negative relationship with the M&A premium.

Krishnamurti et al. (2019) studied ESG-oriented acquirers' bid premiums in acquisitions, and found they tend to pay lower premiums when they acquire, compared to less ESG-oriented acquirers. Their sample consists of 771 deals in the Australian market, covering the time period from 2000 to 2016. Furthermore, these firms experience positive abnormal returns as they announce their acquisitions. This is not directly comparable to the results of the aforementioned studies on the subject, as it focuses on ESG-oriented acquirers as opposed to targets. It does however provide insight into the value investors place in ESG performance.

2.3 Research Hypotheses

Due to the scarce and contradictory evidence on ESG premiums within M&A, the subject calls

for further evidence. As ESG is becoming increasingly important, the hypotheses of the study are in line with the stakeholder view, expecting ESG oriented firms to be attractive targets. The hypotheses are built upon the discussion and prior literature presented in the previous section. The first hypotheses relate to the probability of being acquired in relation to ESG score, whereas hypothesis two studies the premium for acquisitions with ESG scores.

2.3.1 Part 1: Probability of Being Acquired

A firm's ESG score is the result from the company providing extensive reporting, allowing for a score to be calculated. The transparency would make the company easier to evaluate and conduct due diligence on in a potential acquisition. The company would for this reason be expected to constitute an attractive target, and more likely to be acquired than a company without a score. The first hypothesis (a) therefore expects that the probability of being acquired is higher for companies with an ESG score compared to those without.

H1(a): Companies with an ESG score are more likely to be the target of an acquisition.

Stakeholders' expectations on firms to consider ESG are increasing, as are the costs related to not acting responsibly. With ESG constituting an intangible asset, while also reducing M&A risk, firms are expected to benefit from acquiring a company performing well in this area. Examining the probability of being acquired before studying the premium mitigates selection bias that otherwise results from the limited number of companies having an ESG score. The first hypothesis (b) aims to validate if companies performing well in regards to ESG are more likely to be acquired. In line with Gomes (2018) it expects the likelihood of being acquired to increase based on ESG score.

H1(b): Companies with high ESG scores are more likely to be the target of an acquisition.

2.3.2 Part 2: ESG Premium

In the second step, we explore the premium acquirers have paid to acquire the same targets based on ESG performance. Due to the anticipated benefits of acquiring a target performing well within ESG, acquirers are expected to be willing to pay a premium. The second hypothesis therefore expects to find a positive correlation between bid premium and ESG score, and thus aims to validate the following:

H2: Acquisitions of targets with high ESG scores are associated with a higher bid premium.

3 Data and Methodology

The study uses data from the financial databases Refintiv Eikon, Refinitiv Datastream and the Thomson Securities Data Company (SDC) Platinum database, a global provider of information on M&A transactions and other financial data. In addition, the study utilises data from the Refinitiv Asset4 database, which provides ESG scores on a global level.

3.1 Scope of Investigation

We focus on all publicly traded companies in the United States and Europe. This dataset consists of company information including financial metrics and potential ESG scores. It is merged with all completed transactions of public targets in the same geographic area between 2010 and 2019. Given the limited availability of ESG data, the study focuses on companies in both the US and Europe in order to increase the sample size and secure statistical significance. Furthermore, the selected geographic scope comprises developed markets where ESG factors have been considered by investors for several years. The study is further limited to the time period between 2010 and 2019 due to the underdeveloped state of ESG reporting and disclosure practices before 2010. Additionally, the availability of ESG data to the public has increased significantly in recent years, making it more pertinent to investigate the value implications of ESG for corporate acquirers. To avoid any possible noise from the COVID-19 pandemic that started in 2020, which may have influenced investors' perception of the importance of ESG, the study excludes transactions that occurred after 2019. All industries are included in the sample except for companies in the financial industry. The exclusion of financial firms is justified by their divergent capital structures and specific regulatory requirements, making them less comparable to other firms (Berk and DeMarzo, 2017). The exclusion of the financial industry is consistent with previous research on the subject (Deng et al., 2013).

3.2 Data Collection

3.2.1 Publicly Traded Companies

Data on publicly traded companies in the United States and Europe is retrieved from Refinitv Eikon's screener for public companies. The criteria applied are the following:

1. Company value is over USD 1 million;

2. Only non-financial firms.

To compute the necessary control variables, financial time series data covering the years 2010 to 2019 is collected from Refinitiv Datastream for all companies in the sample. This results in a final sample of 16,802 firms after applying the criteria and removing firms where data related to the control variables are missing.

3.2.2 M&A Data

M&A data is retrieved from the Thomson Securities Data Company (SDC) Platinum database. The database provides comprehensive historical information about global M&A activity and has been used extensively in previous research (Cho et al., 2021; Gomes and Marsat, 2018). The sample consists of transactions where both the target and acquirer firms are incorporated in Europe or the US. In order to make the dataset more suitable for the purpose of this study and to increase the comparability of the transactions in our sample, the data was extracted after applying the following criteria:

1. Transaction completed between 2010-01-01 and 2019-12-31;
2. Only completed deals;
3. Target is publicly traded;
4. The disclosed deal value is over USD 1 million;
5. Only non-financial firms;
6. Only control bids, i.e. where the acquirer obtains over 50% of the target shares.

The sample consists of 2,959 transactions after applying the criteria and removing deals where data related to the control variables are missing.

3.2.3 ESG Data

To investigate the impact of ESG performance on the probability of acquisition and bid premium, data on companies' ESG performance is obtained from the Refinitiv Asset4 ESG database. The Asset4 ESG database is chosen for this study due to its extensive coverage and leading position within its field. The database is one of the most comprehensive databases available as it provides ESG data on over 12,000 companies worldwide, offering time series data dating back to 2002. The data is reported on a yearly basis and is collected through publicly available sources. Its

broad use in similar research studies adds comparability to our findings (Gomes & Marsat, 2018).

The Asset4 ESG scores are used in this study as a measurement of a company's ESG performance. The ESG score ranks companies' ESG performance on a scale between 0 to 100, where a low score represents poor relative ESG performance and vice versa. Each individual ESG factor is scored based on an assessment of over 600 parameters which are aggregated into an overall score. For acquired companies, the ESG score has been obtained from the year prior to the acquisition.

ESG scores are collected for all firms in the aforementioned datasets, resulting in a total of 521 public companies with an available ESG score that have been acquisition targets. An overview of the final sample is presented in Table 3.

3.2.4 Dependent Variables

Probability of Acquisition

The first dependent variable which aims to examine the probability of acquisition is a binary variable that takes the value of 1 if a firm has become a target in a given year, and 0 otherwise.

Bid Premium

The second dependent variable is the bid premium. The SDC database provides information on bid premiums based on the share price one day, one week and four weeks prior to the deal announcement. This study uses the four-week premium to remove the effects of rumours and insider trading, which is consistent with previous studies.

3.2.5 Independent Variables

Reported ESG Score

The first independent variable refers to if the firm has an available ESG score or not. The variable is binary, taking the value of 1 if the firm has an available ESG score, and 0 otherwise.

ESG Score

The second independent variable refers to the magnitude of the ESG score of those firms that have one. This score is on a scale from 0 till 100, where 100 means the firm is performing very well within ESG.

3.2.6 Control Variables

Prior research has identified various firm-specific and deal-specific characteristics that significantly influence the probability of acquisition and the bid premium. To maintain consistency with past studies, these variables have been controlled for in the empirical analysis. The use of control variables helps to prevent biased outcomes and to isolate the effects of ESG performance to the maximum extent possible.

The variables controlled for in the first regression are the target's $ESG\ score$, $firm\ size$, financial positions measures $leverage$ and $liquidity$, as well as performance measures that include $return\ on\ equity$ and $free\ cash\ flow$, $tangibility$ and $market-to-book\ ratio$ which can signal over- or undervaluation. The included firm-specific variables are summarised and defined in Table 1 below. Furthermore, all tests control for year and firm fixed effects.

Table 1: Probability of Acquisition: Control Variables

Variable	**Abbreviation**	**Definition**
Firm size	Firm Size	Natural logarithm of the book value of the target's total assets
Leverage	Leverage	Target's total debt to total assets
Market-to-book ratio	MTB	Target's market valuation relative book value
Liquidity ratio	Liquidity	Target's current assets in relation to current liabilities
Tangibility	Tangibility	Target's tangible assets as a percentage of total assets
Return on equity	ROE	Target's net income relative equity
Free cash flow	FCF	Target's free cash flow, defined as cash flow from operations, as percentage of assets

The second analysis includes similar control variables. These have been used in previous research as they are considered to impact bid premiums. These include the firm-specific variables $firm\ size$, $leverage$ and $market-to-book\ ratio$ which indicates a potential over or undervaluation, followed by the deal-specific variables including $allcashdeals$, $cross\ border\ deals$, $diversification$ in terms of industry, if the bid was a $tender\ offer$ or if it was $hostile$, and if the acquirer held a $toehold$ prior to the acquisition. The estimates from the first regression are

also included as a control variable in the model, namely the *Probability of Acquisition*, to control for any selection biases. The included firm- and deal-specific characteristics are summarised and defined in Table 2 below. Furthermore, all tests control for year and firm fixed effects.

Table 2: ESG Premium: Control Variables

Variable	**Abbreviation**	**Definition**
Firm Size	Firm Size	Natural logarithm of the book value of the target's total assets
Leverage	Leverage	Target's total debt divided by total assets
Market-to-book ratio	MTB	Target's market value relative book value
Cash deal	All Cash	A dummy variable taking the value 1 if the deal is fully cash financed, and 0 otherwise
Hostile Takeover	Hostile	A dummy variable taking the value 1 if the deal is reported as a hostile takeover, and 0 otherwise
Cross border	Cross border	A dummy variable taking the value 1 if the countries of incorporation of the target and acquirer differs, and 0 otherwise
Diversification	Diversifying	A dummy variable taking the value 1 if the industries of the target and acquirer differs based on SDC's industry classification, and 0 otherwise
High technology	High Tech	A dummy variable taking the value 1 if the target's industry is defined as high tech based on SDC's industry classification, and 0 otherwise
Tender offer	Tender offer	A dummy variable taking the value 1 if the transaction was a tender offer according to SDC, and 0 otherwise
Toehold	Toehold	A dummy variable taking the value 1 if the acquirer held over 5% before acquisition, and 0 otherwise
Probability of Acquisition	Prob. of Acquisition	The estimates from the probability of acquisition model

3.3 Methodology

The aim of this study is to examine if the existence and magnitude of a firm's ESG score affects the probability of acquisition, and if the score subsequently affects the bid premium. A fixed effects regression model is used to examine the effect a reported ESG score has on the probability of acquisition. The most common tool to analyse how certain variables impact M&A is to perform multivariate ordinary least squares (OLS) regressions, which is the method used in this study to examine the effect an ESG score has the bid premium. As a first step, the impact of ESG scores on the dependent variables is examined for the total US and Europe sample. Thereafter, the analyses are performed separately for the US and Europe, allowing for comparability across the two regions.

3.3.1 Probability of Acquisition

To answer the first hypothesis, a fixed effects model including control variables of firm-specific characteristics that impacts the probability of acquisition found in previous M&A research is conducted. All deal data within the studied time period has been matched with the Asset4 ESG index to obtain ESG scores. A binary variable is used to denote the deal outcome. The regression uses one year lagged variables.

Hypotheses 1(a) and 1(b):

$$\begin{aligned} P(Acquisition_i = 1) \quad = \quad & \beta_0 + \beta_1 ReportedESGscore_i \\ & + \beta_2 ReportedESGscore_i * ESGscore_i \\ & + \beta_2 FirmSize_i + \beta_3 Leverage_i \\ & + \beta_4 MTB_i + \beta_5 Liquidity_i \\ & + \beta_6 Tangibility_i + \beta_7 ROE_i \\ & + \beta_8 FCF_i + \lambda_1 Firm_{F_E} \\ & + \lambda_2 Year_{F_E} + \epsilon_i \end{aligned} \tag{1}$$

3.3.2 ESG Premium

The second hypothesis is answered using a multivariate OLS regression to investigate whether ESG performance affects the bid premium. Several firm-specific and deal-specific control vari-

ables are included to control for other factors that can have an effect on the premium, as discussed in previous sections. The probability of acquisition is incorporated into the model to control for selection biases. The regression uses one year lagged variables.

Hypothesis 2:

$$\begin{aligned} BidPremium_i &= \beta_0 + \beta_1 ESGscore_i \\ &+\beta_2 FirmSize_i + \beta_3 Leverage_i \\ &+\beta_4 MTB_i + \beta_5 Liquidity_i \\ &+\beta_6 AllCash_i + \beta_7 CrossBorder_i \\ &+\beta_8 Diversifying_i + \beta_9 HighTech_i \\ &+\beta_{1_0} TenderOffer_i + \beta_{1_1} Toehold_i \\ &+\beta_{1_2} Hostile_i + \beta_{1_3} Prob.of Acquisition_i \\ &+\lambda_1 Firm_{F_E} + \lambda_2 Year_{F_E} + \epsilon_i \end{aligned} \tag{2}$$

3.4 Sample Distribution & Summary Statistics

Table 3 on the following page presents the sample distribution across years and countries for both the total deals sample (All Deals) and for all deals where the target firm has an available ESG score (ESG Deals). Table 4 and 5 show the summary statistics of the dependent and control variables used in the Probability of Acquisition model and ESG Premium model respectively.

Table 3: Sample Distribution

	All Deals		ESG Deals	
Panel A. Distribution across years	Deals	Proportion (%)	Deals	Proportion (%)
2010	377	12.74	32	6.14
2011	340	11.49	41	7.87
2012	327	11.05	24	4.61
2013	271	9.16	24	4.61
2014	289	9.77	37	7.10
2015	297	10.04	57	10.94
2016	280	9.46	62	11.90
2017	261	8.82	77	14.78
2018	261	8.82	69	13.24
2019	256	8.65	98	18.81
Panel B. Distribution across countries				
Austria	14	0.47	2	0.38
Belgium	25	0.84	4	0.77
Bosnia and Herzegovina	2	0.07	-	-
Bulgaria	6	0.20	-	-
Cyprus	9	0.30	1	0.19
Czech Republic	6	0.20	1	0.19
Denmark	31	1.05	3	0.58
Estonia	2	0.07	-	-
Finland	27	0.91	3	0.58
France	170	5.75	9	1.73
Germany	113	3.82	16	3.07
Gibraltar	2	0.07	1	0.19
Greece	25	0.84	2	0.38
Guernsey	4	0.14	-	-
Hungary	4	0.14	-	-
Ireland	17	0.57	3	0.58
Isle of Man	1	0.03	-	-
Italy	74	2.50	12	2.30
Jersey	2	0.07	1	0.19
Latvia	2	0.07	-	-
Lithuania	5	0.17	-	-
Luxembourg	7	0.24	2	0.38
Malta	2	0.07	-	-
Monaco	1	0.03	-	-
Montenegro	2	0.07	-	-
Netherlands	45	1.52	11	2.11
Norway	63	2.13	1	0.19
Poland	107	3.62	6	1.15
Portugal	4	0.14	1	0.19
Romania	8	0.27	-	-
Russia	79	2.67	3	0.58
Serbia	9	0.30	-	-
Slovakia	1	0.03	-	-
Slovenia	8	0.27	-	-
Spain	25	0.84	5	0.96
Sweden	98	3.31	2	0.38
Switzerland	36	1.22	10	1.92
Turkey	30	1.01	-	-
Ukraine	11	0.37	-	-
United Kingdom	327	11.05	68	13.05
United States	1555	52.55	354	67.95
Total	2959	100.00	521	100.00

Table 4: Summary Statistics: Probability of Acquisition

	count	mean	sd	min	median	max
Acquisition	184822	0.02	0.13	0.00	0.00	1.00
Reported ESG score	168020	0.14	0.35	0.00	0.00	1.00
ESG score	168020	6.26	17.23	0.00	0.00	95.16
Firm Size	109858	12.13	3.09	0.00	12.29	21.95
Leverage	107823	1.21	42.81	-0.04	0.17	7516.00
MTB	97869	58.74	3931.79	0.00	0.76	1050000.00
Liquidity	89795	4.83	109.69	0.00	1.58	18554.81
Tangibility	102123	0.24	0.27	-0.31	0.13	1.67
ROE	108023	0.07	102.45	-10311.64	0.03	24214.50
FCF	106506	-0.33	8.53	-1348.00	0.04	389.94
Observations	184822					

Table 5: Summary Statistics: ESG Premium

	count	mean	sd	min	median	max
Premium	485	34.41	49.57	-99.69	28.89	697.57
Firm Characteristics						
ESG score	23992	43.82	20.82	0.44	41.74	95.16
Firm Size	23936	15.39	1.88	6.52	15.32	21.95
Leverage	23925	0.26	0.22	0.00	0.24	3.92
MTB	23556	1.42	3.63	0.00	0.85	245.83
Deal Characteristics						
All Cash	521	0.53	0.50	0.00	1.00	1.00
Cross Border	521	0.25	0.43	0.00	0.00	1.00
Diversifying	521	0.48	0.50	0.00	0.00	1.00
High Tech	521	0.08	0.27	0.00	0.00	1.00
Tender Offer	521	0.24	0.43	0.00	0.00	1.00
Toehold	521	0.11	0.31	0.00	0.00	1.00
Hostile	23992	0.00	0.01	0.00	0.00	1.00
Prob. of Acquisition	23992	0.79	0.41	0.00	1.00	1.00
Observations	23992					

4 Empirical Results

The findings from the empirical analysis will be presented below, aiming to examine whether firms with ESG scores are more likely to be acquired, and to which extent the ESG score of a target firm may affect the bid premium. A further analysis of the findings is provided in the subsequent section. The results from the regression will therefore only be presented factually.

4.1 Probability of Acquisition

First, the results in regard to hypothesis 1(a) and 1(b) will be presented, evaluating the probability of a firm to be acquired based on if the target has an ESG score and if so, its magnitude. Table 6 presents an overview of the regression results. As evident in the table, the results regarding hypothesis one are significant at the 1% level for the combined US and Europe sample. The coefficient for having a reported ESG score is positive and significant, indicating that a direct effect on the probability of being acquired can be statistically confirmed. Furthermore, the results for US firms are significant, while the results for European firms are not statistically significant. An interaction term between Reported ESG score and ESG score is used to examine the effect of the magnitude of the ESG score. The results show that the magnitude of the ESG score of the target firm has a significant but negative effect on the probability of acquisition, although the coefficients are low.

4.2 ESG Premium

The objective of the second hypothesis is to examine the effect of a target's ESG score on the bid premium. The sample consists of all transactions used in the previous regression where the target firm has an available ESG score, amounting to 521 transactions. Table 7 presents the regression results. Columns (1), (2) and (3) reports the results of a regression without the incorporation of the probability of acquisition. Columns (4), (5) and (6) reports the results of a regression where the probability of acquisition is incorporated into the model. The results show an insignificant negative correlation between ESG score and bid premium. This indicates that the bid premium is not influenced by the ESG score of the target firm. Nonetheless, it is observed that the coefficients are negative, suggesting that a higher ESG score would decrease the bid premium.

Table 6: Probability of Acquisition

	(1)	(2)	(3)
	US & Europe	US	Europe
Reported ESG score	0.019***	0.016**	0.001
	[0.005]	[0.007]	[0.009]
Reported ESG score * ESG score	-0.000**	-0.001***	-0.000
	[0.000]	[0.000]	[0.000]
Firm Size	0.000	-0.003*	-0.001
	[0.001]	[0.002]	[0.002]
Leverage	0.000	-0.000	0.001
	[0.000]	[0.000]	[0.001]
MTB	0.000	0.000	0.000
	[0.000]	[0.000]	[0.000]
Liquidity	0.000	-0.000	0.000
	[0.000]	[0.000]	[0.000]
Tangibility	0.011	0.013	0.006
	[0.008]	[0.012]	[0.010]
ROE	-0.000	-0.000	-0.000
	[0.000]	[0.000]	[0.000]
FCF	0.000	0.000	0.005***
	[0.000]	[0.000]	[0.001]
Fixed effects	Yes	Yes	Yes
No. Observations	75577	31628	43949
Within R^2	0.0137	0.0254	0.0074

Standard errors in brackets

* p<0.1, ** p<0.05, *** p<0.01

Table 7: ESG Premium

	(1)	(2)	(3)	(4)	(5)	(6)
	US & Europe	US	Europe	US & Europe	US	Europe
ESG score	-0.019	-0.017	-0.297	-0.020	-0.000	-0.405
	[0.148]	[0.105]	[0.417]	[0.150]	[0.103]	[0.430]
Firm Size	2.118	1.495	2.746	2.135	1.261	4.087
	[2.536]	[1.982]	[5.786]	[2.542]	[1.912]	[5.934]
Leverage	-7.737	-2.937	-10.938	-7.701	-3.126	-6.813
	[8.163]	[7.095]	[20.536]	[8.032]	[7.102]	[21.485]
MTB	7.768**	8.936**	-0.403	7.785**	8.562**	-0.725
	[3.843]	[3.772]	[3.006]	[3.714]	[3.439]	[3.087]
All Cash	5.361	7.582*	-1.677	5.319	7.870**	-5.636
	[4.334]	[3.981]	[10.356]	[4.377]	[3.959]	[11.223]
Cross Border	-1.173	-1.582	-9.182	-1.184	-1.190	-10.674
	[6.127]	[5.210]	[11.423]	[6.106]	[5.140]	[11.378]
Diversifying	-9.436**	-8.673**	-19.930*	-9.404***	-8.571**	-16.029
	[3.735]	[3.701]	[11.166]	[3.635]	[3.746]	[9.983]
High Tech	-10.453	-7.304	-23.887	-10.466	-6.673	-22.778
	[6.946]	[7.433]	[17.105]	[6.922]	[7.265]	[17.513]
Tender Offer	24.945***	20.042***	27.149	24.976***	20.285***	29.718*
	[7.824]	[6.265]	[16.823]	[7.909]	[6.237]	[17.141]
Toehold	-21.749***	5.312	-42.426***	-21.764***	5.695	-44.780***
	[7.071]	[11.266]	[12.326]	[7.117]	[11.175]	[12.992]
Hostile	-2.988	-8.048	-9.397	-3.021	-8.781	-12.576
	[12.366]	[13.671]	[12.032]	[12.463]	[13.396]	[13.533]
Prob. of Acquisition				0.946	-17.056	44.786*
				[13.361]	[17.925]	[25.472]
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
No. Observations	478	334	144	478	334	144
Adjusted R^2	0.12	0.27	0.03	0.12	0.27	0.04

* p<0.1, ** p<0.05, *** p<0.01. Standard errors in brackets.

5 Analysis

5.1 Probability of Acquisition

The primary prediction for hypothesis 1(a) was to find that companies with an ESG score are more likely to be acquired.

The prediction for hypothesis 1(b) was to find evidence that targets performing well within ESG are more likely to become targets of an acquisition, in line with the findings of Gomes (2018). There is an additional use of the first regression to reduce selection bias in the second regression pertaining to hypothesis 2.

The results show a statistically significant positive correlation for whether a company has an ESG score or not, in line with hypothesis 1(a). Results further show a statistically negative correlation with the magnitude of the score, thus rejecting hypothesis 1(b). This implies that a target with an ESG score has a higher probability of being acquired than one without, but that a high score means a lower probability compared to having a low score.

A reason for the positive correlation in regard to having an ESG score or not could potentially be attributed to the value of transparency. According to the previously mentioned study by Gomes and Marsat (2018), M&A activity implies a risk, where ESG can provide some security to mitigate that risk, specifically related to social and governance issues. The transparency provided by an ESG score could make a company a more attractive acquisition target as it gives the acquirer better insight into the company's operations and performance and potentially correlates with better overall reporting. The ESG score is based on public information that is self-reported metrics which means that companies that don't provide information of this kind will not receive a score. If having an ESG score entails that the company provides extensive reporting, one may expect it to be associated with a well-run company and other quality attributes. It also facilitates the due diligence process in a potential acquisition, which may increase the likelihood of being acquired.

A higher score implies a lower probability of being acquired. This entails that firms with a high ESG score are more likely to operate as an independent company than to be acquired compared to a company with a low score. A suggested explanation is the fact that acquirers could be more interested in acquiring firms where they can develop and transform the target firm's ESG

as part of the combined entity post-acquisition, as opposed to acquiring a firm that is already doing well within the area. Additionally, there could be an expectation that it is more expensive to acquire a firm that is successful within ESG than not and that it is a better investment to develop this area post-acquisition instead of paying to acquire it. There is generally an interest for acquirers to look for targets in which they see room for improvement, regardless of what area that may be in, in order to make a good investment. It is further possible that firms with ESG scores are overvalued due to the high importance assigned to ESG in recent years. In this case, it could simply be that acquirers find targets with an ESG score to be valued higher by the market than what they are willing to pay, or what they consider the underlying value to be. This would imply that ESG is value-creating from a general market point of view.

Differences between Europe and the US have been observed, where a statistically significant result can only be obtained from firms in the US market. This indicates that ESG scores have a stronger correlation to the probability of being acquired in the US compared to Europe. It could result from the fact that reporting is generally more extensive in Europe than in the US, making firms that are transparent enough to obtain an ESG score more attractive in the US.

Since the results do not confirm whether ESG is value-creating or not, this regression does not support Friedman or Freeman's view. It merely indicates that acquirers are more willing to acquire a firm with an ESG score than one without and less willing to acquire a firm that performs well within ESG.

These results differ partly from those reached by Gomes (2019), which concludes that there is a positive relationship between ESG and probability. In other words, Gomes indicates that companies with high ESG scores are more likely to be the target of an acquisition compared to those with low scores. This is the only paper on the topic done previously. They do however not consider the probability of being acquired seeing to the firm having a score or not. The paper uses the same source for ESG score, Asset4, as this paper. However, there are several other factors that could contribute to the ambiguity.

Firstly, the samples are collected from different geographies, where Gomes uses a worldwide sample, as opposed to the sample used in this paper, which covers Europe and the US. This may impact the results as different countries place different value in the importance of ESG. This

may be related to political reasons that affect a firm's governance or environmental regulations, as well as general reporting standards affecting transparency and information credibility.

Additionally, a different method for evaluating the probability of being acquired is used by Gomes. While this thesis considers all companies that were not the target of an acquisition, and compares them to all companies that were, Gomes uses propensity score matching to find comparable companies that were not the target of an acquisition.

Finally, Gomes studies the time period 2003 to 2014, while this thesis considers the years 2010 to 2019. As ESG has become more important in recent years, the differing results could be due to a potential overvaluation of ESG firms. If ESG was less considered by the market during the time of Gomes' study, it could imply that valuations of ESG targets were lower than in recent years, making them more attractive to acquire looking at market valuation. As briefly touched upon in a previous section, it could also lead to the expectancy of having to apply a significant premium to acquire targets performing well within ESG.

5.2 ESG Premium

For hypothesis 2 the expectation was to find a positive correlation between the target's ESG score and the bid premium paid by the acquirer, supporting Freeman's stakeholder view (1984).

The results of the regression however show a non-significant relationship between the ESG score and M&A premium, thereby rejecting the second hypothesis. This implies that acquirers are not willing to pay a premium for a firm exclusively due to having a high ESG score. The lack of correlation could potentially be explained by the level of information accessible to corporate investors. While retail investors could be more inclined to use the ESG score as a basis for an investment decision due to lack of additional information, a corporation in a due diligence process will be able to assess the company at a much deeper level, reducing the ESG score's impact on the premium offered in a potential bid. The value of the ESG score may therefore already be priced in the share price.

Additionally, there is still much uncertainty regarding ESG scores, both in terms of value and credibility, which may lead investors to not incorporate them into M&A decision-making. It may also become insignificant relative to other factors such as current and expected financial

performance, and industry outlook among other things. ESG may not be a priority when making M&A decisions.

The results indicate that ESG does not create value for shareholders, looking at M&A premiums. This supports the view presented by Friedman (1970), arguing that a firm's sole responsibility is to generate profits for its shareholders. The results being insignificant do however not indicate that ESG should constitute a value-destroying activity, but that it does not create any value in the context of M&A.

The results differ from those of Gomes and Marsat (2018), who find the ESG score to be positively correlated with the bid premium. They suggest the premium is motivated by the reduction in information asymmetry and target-specific risk. The study refers to the years 2003-2014, an earlier point in time than this thesis. This could contribute to the discrepancy in the findings, as ESG is becoming more important to all types of investors, when it previously may have only benefitted corporate investors. The transparency and risk reduction provided by investing in a target performing well within ESG a few years back is most likely still valuable to corporate investors, but will not be reflected in the premium as valuations may already include ESG information. Retail investors that a few years back did not consider if a firm had an ESG score to a such great extent, may now make this a priority, increasing the value of these assets. This would contribute to higher valuations for companies with high ESG scores, where the value of the score is reflected in the market value and not the bid premium.

Similarly, the results of this thesis differ from those of Cho et al. (2021) and Qiao and Wu (2019), who also find a positive correlation. The studied period ranges from 1993 to 2016 and 1991 to 2016 respectively, providing similar suggestions to those above as to why the results differ. Different geographical limitations may also contribute to differences.

The results are however in line with those of Chen and Gavious (2015) as well as Jost et al (2022), who find no relationship between ESG score and bid premium. Chen and Gavious conclude that informed investors are unaffected by ESG scores, similar to the suggested explanation in this thesis.

6 Limitations and Future Research

6.1 Limitations of the Study

Studies that involve ESG scores tend to result in a selection bias, as only a small portion of all companies obtain these scores, and their selection may involve a certain bias. This has been mitigated through the inclusion of the estimates from the first regression which studies the probability of being acquired based on if the company has an ESG score or not, and if so its magnitude. The sample for this regression involves all companies including those who have not obtained an ESG score. Using the results of the regression as a control variable when evaluating if there is an ESG premium, the selection bias is mitigated.

Due to the Asset4 ESG score availability the sample size is relatively small. This affects the reliability of the study, and is an issue faced when studying ESG as data on the topic is still limited.

As the available databases do not allow for screening of companies that have been formerly publicly listed, but in current time are not, the study is constrained by survivorship bias. The list of companies used in the first regression to obtain the probability of being acquired consists of all companies publicly listed in present time, with the addition of all companies that have been acquired in the studied time frame. The list does therefore not include companies that between 2010 and 2019 have been delisted for any reason other than a majority acquisition. Companies that have gone into bankruptcy or for any other reason are not listed anymore are therefore not included.

Furthermore, the sample is slightly biased toward the US market as it constitutes by far the largest market in terms of the number of observations.

6.2 Future Research

There are several interesting angles that could be applied to the topic to take the research a step further. These include applying geographical and industry perspectives. Analysing how the premium differs across geographies would provide valuable insight into how different countries or regions value ESG, as a statistically significant result on a US and Europe level was not obtained. An industry perspective would also be interesting, to see if the correlation is stronger for certain

industries than others, to understand which companies benefit the most from investing in their ESG from a M&A point of view, and which companies are less benefitted.

There is the possibility that ESG scores are more valuable for retail investors that do not have access to the same information as a corporate investor that invests in rigorous due diligence. Understanding how the market prices ESG could therefore be an interesting further step in the research, to evaluate market valuation in terms of market-book ratio or enterprise value relative performance measures. This would create the challenge of matching the sample with comparable firms to exclude other effects of market valuation, but would provide meaningful insight into how the market values ESG. If ESG is already priced into the market price, the premium will reflect this in a potential bid. We do however take into account market-to-book valuation in the regression, but it only provides a simple insight into potential under- or overvaluation.

7 Conclusion

This thesis has explored the impact of ESG scores on corporate acquisitions, examining whether firms with ESG scores are more likely to be acquired, and to which extent the ESG score of a target firm may affect the bid premium. Through this investigation, the study aimed to shed light on the importance of ESG considerations in the M&A landscape, contributing to a deeper understanding of the implications of sustainability performance for corporate strategy and decision-making. As the significance of ESG considerations continues to increase, it is reasonable to anticipate that acquiring a firm with strong sustainability performance would yield benefits for acquirers. Consequently, acquirers may demonstrate a willingness to pay a premium for such firms.

The thesis provides evidence that acquirers are more interested in acquiring a target that has an ESG score, but that a higher score implies a lower interest. As ESG scores are associated with extensive reporting, having a score may signal that the company is well run, thereby presenting itself as an attractive target, regardless of sustainability performance. This correlation is stronger in the US, which may be due to reporting being less extensive, making companies that provide enough information to obtain an ESG score more attractive to acquire. A suggested explanation for high scores being associated with a lower probability of being acquired is a potential overvaluation of ESG by the market.

Further, the findings suggest acquirers are not willing to pay a premium to acquire a company that performs well within ESG. It suggests ESG is not value-creating for shareholders in the context of M&A. This may result from the information accessibility for corporate investors being higher than that of retail investors, making the ESG score less important in investment decision-making. It may also be due to a high valuation of ESG companies in the market, where ESG factors are already fully priced in the share price. The results may however simply provide contradictory evidence against the expectation for ESG to be of increasing importance.

It appears *having* an ESG score is what corporate investors value, but not the extent of it. This may be due to a connection between having an ESG score and other factors such as transparency, reporting, and other quality metrics, that make a target attractive, but do not involve how *well* they perform within ESG.

To conclude, this thesis does not find that ESG creates value in the context of M&A and bid premium, and does not support the shareholder theory. It is however important to consider how different stakeholders value ESG. Even if corporations in M&A decisions do not, the market or other stakeholders may, and the thesis can not conclude whether ESG is value-creating on a larger scale or not.

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9 Appendix

The following pages include tables with correlation matrices for regression 1 and 2.

Table 8: Correlation Matrix: Probability of Acquisition

	Acquisition	Rep. ESG score	ESG score	Firm Size	Leverage	MTB	Liquidity	Tangibility	ROE	FCF
Acquisition	1.000									
Rep. ESG score	-0.025	1.000								
ESG score	-0.035	0.881	1.000							
Firm Size	0.028	0.612	0.625	1.000						
Leverage	-0.005	-0.014	-0.012	-0.098	1.000					
MTB	-0.003	-0.008	-0.007	-0.056	0.032	1.000				
Liquidity	-0.002	-0.023	-0.026	-0.037	-0.004	-0.001	1.000			
Tangibility	-0.004	0.039	0.051	0.193	-0.008	-0.009	-0.043	1.000		
ROE	0.002	0.007	0.007	0.038	0.002	-0.018	0.001	-0.003	1.000	
FCF	0.008	0.024	0.022	0.126	-0.378	-0.076	0.003	0.005	0.437	1.000

Table 9: Correlation Matrix: ESG Premium

	Premium	ESG score	Firm Size	Leverage	MTB	All Cash	Cross Border	Diversifying	High Tech	Tender Offer	Toehold	Hostile	Prob. of Acquisition
Premium	1.000												
ESG score	-0.016	1.000											
Firm Size	-0.057	0.546	1.000										
Leverage	-0.015	0.097	0.237	1.000									
MTB	-0.002	-0.009	-0.067	-0.020	1.000								
All Cash	0.025	-0.119	-0.202	-0.138	-0.029	1.000							
Cross Border	-0.012	0.074	0.023	0.018	-0.010	-0.012	1.000						
Diversifying	0.005	-0.066	-0.126	-0.026	-0.023	0.197	-0.049	1.000					
High Tech	0.005	-0.037	-0.086	-0.151	-0.006	0.064	-0.027	-0.369	1.000				
Tender Offer	-0.011	-0.106	-0.130	-0.091	-0.016	0.189	0.094	0.084	0.039	1.000			
Toehold	0.017	-0.093	-0.040	0.022	0.040	0.002	0.072	0.161	-0.112	0.275	1.000	1.000	
Prob. of Acquisition	0.008	0.019	0.047	-0.004	-0.124	0.065	-0.012	-0.057	0.033	-0.064	-0.073	0.011	1.000