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The Impact of ESG Ratings on Value Creation in Mergers and Acquisitions

Do Sustainability Metrics Lead to Higher Valuations? Empirical Evidence from European Markets

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ABSTRACT:
This thesis critically investigates the role of ESG factors in shaping value creation within European M&A. The study examines whether ESG practices help mitigate agency conflicts, strengthen stakeholder legitimacy, and serve as credible market signals that influence investor reactions and post-acquisition performance. The analysis focuses on stakeholder theory and signalling theory, which provide the conceptual foundations for understanding how ESG considerations may align managerial actions with stakeholder interests and reduce information asymmetry in M&A contexts. The research employs event study methodology and multivariate regression analyses, supplemented by robustness tests (IV regressions and PSM) to evaluate market-based (CARs and BHARs) and accounting-based (ROA and ROE) outcomes.

The final sample comprises 45 publicly disclosed transactions executed between 2010 and 2023 involving listed acquirers and targets headquartered in Germany, the United Kingdom, and the Nordic countries. The results reveal a complex and asymmetrical relationship between ESG and M&A performance. Acquirers of low-ESG targets achieved the highest and statistically significant short-term abnormal returns (CARs), while acquisitions involving high-ESG targets generated modest but positive market reactions. However, acquirers with high ESG scores frequently underperformed or produced insignificant results across market and accounting metrics.

Long-term performance analysis (BHARs) further confirms these findings, demonstrating a mean underperformance relative to market benchmarks. Regression models indicate that low-ESG acquirers consistently outperform their high-ESG peers in ROA and ROE outcomes, while continuous or binary ESG variables fail to predict long-term success reliably. ESG momentum (ESGUPG) also failed to explain superior outcomes, reinforcing the conclusion that financial and strategic fundamentals outweigh ESG alignment in driving M&A value creation.

Robustness checks confirmed that variations in firm characteristics and deal specifics, rather than ESG scores, primarily determined performance outcomes. The findings highlight the potential of ESG overinvestment to dilute managerial focus and undermine financial discipline when not strategically integrated, challenging the assumptions that ESG alignment inherently enhances financial or operational synergies in M&A.

In the context of expanding ESG disclosure mandates such as the Corporate Sustainability Reporting Directive (CSRD), the study underscores that firms pursuing ESG-driven acquisitions must articulate clear economic rationales. Without demonstrable synergies and value-creation mechanisms, ESG motives alone are unlikely to satisfy investors or withstand market scrutiny.

KEYWORDS: ESG, value creation, mergers and acquisitions, sustainable finance, abnormal returns, European markets, M&A premium, post-merger performance

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TIIVISTELMÄ:
Tässä tutkielmassa tarkastellaan kriittisesti ESG-tekijöiden roolia yritysjärjestelyjen julkistamisilmoitusten tuotoissa sekä pidemmän aikavälin suorituskyvyssä Euroopassa. Tutkimuksessa selvitetään, auttavatko ESG-käytännöt lieventämään agenttiongelmia, vahvistamaan sidosryhmien legitimiteettiä ja toimimaan uskottavina markkinasignaaleina, jotka vaikuttavat sijoittajien reaktioihin ja yritysoston jälkeiseen suorituskykyyn. Analyysi perustuu sidosryhmäteoriaan ja signalointiteoriaan, jotka tarjoavat käsitteellisen perustan ESG-tekijöiden vaikutusten ymmärtämiselle siitä, miten ESG-käytännöillä voidaan ohjata johtajien toimia sidosryhmien etujen mukaisesti ja vähentää informaation epäsymmetriaa yritysjärjestelyissä. Tutkielmassa hyödynnetään tapahtumatutkimusmenetelmää ja monimuuttujaregressio-analyysejä, joita täydennetään robustisuustesteillä (IV-regressiot ja PSM). Tutkielma arvioi tuloksia sekä markkinaperusteisten (CAR ja BHAR) että tilinpäätösperusteisten (ROA ja ROE) mittareiden avulla.

Lopullinen otos koostuu 45 yritysjärjestelystä, jotka toteutettiin vuosina 2010–2023 Saksassa, Yhdistyneessä kuningaskunnassa ja Pohjoismaissa pörssinoteerattujen yritysten välillä. Tulokset osoittavat, että ESG-tekijöiden ja yritysjärjestelyjen lopputulosten välillä on moniulotteinen ja epäsymmetrinen suhde. Matalan ESG-luokituksen kohdeyhtiöihin kohdistuvissa järjestelyissä havaitaan suurimmat ja tilastollisesti merkittävimmät lyhyen aikavälin epänormaalit tuotot (CAR). Korkean ESG-luokituksen kohteisiin liittyvissä järjestelyissä esiintyy hillitympiä, mutta myönteisiä markkinareaktioita. Korkean ESG-luokituksen ostajayritykset kuitenkin suoriutuvat usein heikommin, eikä tuloksia havaita tilastollisesti merkittäviksi.

Pitkän aikavälin suorituskykyä mittaava analyysi (BHAR) vahvistaa nämä havainnot ja osoittaa keskimääräisen alisuoriutumisen suhteessa vertailuindeksiin. Regressiomallit osoittavat, että matalan ESG-luokituksen ostajayritykset menestyvät johdonmukaisesti korkean ESG-luokituksen ostajayrityksiä paremmin ROA- ja ROE-analyyseissä. Jatkuvat tai binääriset ESG-muuttujat eivät kuitenkaan ennusta luotettavasti pitkän aikavälin menestystä. Myöskään ESG-momentum (ESGUPG) ei selitä parempia tuloksia, mikä tukee päätelmää, että taloudelliset ja strategiset perusteet ovat ESG-lähtökohtia merkityksellisempiä yritysjärjestelyjen arvonluonnissa. Robustisuustestit vahvistavat, että yhtiökohtaiset ja järjestelykohtaiset tekijät määrittävät ensisijaisesti yritysjärjestelyjen tuloksellisuuden.

Tutkielman havainnot kyseenalaistavat oletukset, joiden mukaan korkea ESG-luokitus parantaa automaattisesti taloudellisia tai operatiivisia synergioita. Tutkielman tulokset osoittavat, että ilman konkreettisia synergiaetuja ja selkeitä arvonluontimekanismeja ESG-motiivit eivät yksin riitä vakuuttamaan sijoittajia tai markkinoita yritysjärjestelyn tuloksellisuudesta.

AVAINSANAT: ESG, arvonluonti, yritysostot ja -fuusiot, kestävä rahoitus, epänormaalit tuotot, Euroopan markkinat, yrityskauppapreemio, yrityskaupan jälkeinen suorituskyky

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Abbreviations

AUM	Assets Under Management
CAPEX	Capital expenditure

CAR	Cumulative Abnormal Returns
CSDDD	Corporate Sustainability Due Diligence Directive
CSR	Corporate Social Responsibility
CSRD	Corporate Sustainability Reporting Directive
CSP	Corporate Social Performance
DCF	Discounted Cash Flow analysis
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization
ECB	European Central Bank
ESG	Environmental, Social, and Governance
ESRS	European Sustainability Reporting Standards
EU	European Union
EV	Equity value
FCF	Future Cash Flow
IV	Instrumental Variables
LSEG	London Stock Exchange Group
M&A	Mergers and Acquisitions
OECD	The Organization for Economic Cooperation and Development
OLS	Ordinary Least Squares
P/B	Price to Book ratio
P/E	Price to Equity ratio
PRI	Principles of Responsible Investing
PSM	Propensity Score Matching
ROIC	Return on Invested Capital
SDG	Sustainable Development Goals
SRI	Socially Responsible Investing
TRESGCS	Thomson Reuters ESG Combined Score
UN	United Nations
WACC	Weighted Average Cost of Capital

1 Introduction

Mergers and acquisitions (M&A) constitute a cornerstone of corporate strategy, enabling firms to achieve growth, enhance operational efficiency, and reposition themselves competitively. Through access to new markets, economies of scale, and the reallocation of resources, M&A transactions offer considerable value-creation potential. However, the empirical literature has long acknowledged the mixed outcomes of such transactions. Studies such as those by Jensen and Ruback (1983) have shown that, over extended periods, cumulative abnormal returns (CARs) to acquirers often tend to be negative. Renneboog and Vansteenkiste (2019) further emphasise that, despite the theoretical advantages of M&A, the practical realisation of shareholder value remains highly uncertain. This discrepancy underscores the necessity for more nuanced frameworks that consider both financial fundamentals and non-financial dimensions of corporate performance.

In recent years, environmental, social, and governance (ESG) factors have emerged as pivotal components of corporate decision-making, influencing strategic intent and capital allocation. Regulatory developments, such as the European Union's Green Deal, the EU Taxonomy, and the Corporate Sustainability Reporting Directive (CSRD), have reinforced the integration of sustainability into financial and operational reporting. At the same time, global initiatives like the United Nations' 2030 Agenda and the Principles for Responsible Investment (PRI) signal a shift in investor expectations toward long-term resilience, transparency, and sustainability. According to Eurosif and ACCA (2013), institutional investors are increasingly demanding more meaningful non-financial disclosure, while Christensen et al. (2022) point to the growing role of ESG ratings in shaping financial markets.

M&A represents a critical setting for ESG analysis. These transactions offer a unique opportunity for acquirers to evaluate and absorb not only the financial position of the target but also its sustainability practices and risk exposure. ESG metrics serve as potential signals of corporate governance quality, operational maturity, and reputational

capital. However, the degree to which these signals translate into measurable financial, or market benefits remains contested. On the one hand, studies such as Wang et al. (2021) caution against ESG overinvestment, suggesting that excessive attention to sustainability may detract from value-maximising strategies. Conversely, Zheng et al. (2023) identify ESG as an effective signalling tool that may enhance market confidence without guaranteeing long-term financial performance.

1.1 Purpose of the study

Given these diverging perspectives, this thesis aims to contribute to the existing body of academic literature by conducting an in-depth examination of the role of ESG factors in mergers and acquisitions within the European context. By including domestic and cross-border transactions, this thesis aims to offer insights for corporate decision-makers, policymakers, and investors. The objective is to explore the extent to which ESG considerations influence key financial outcomes of M&A transactions, ultimately to isolate and quantify the financial implications associated with ESG integration in M&A. The methodological framework utilizes an event study and multiple linear regression model to provide empirical evidence on the relationship between ESG factors and M&A performance. This dual focus enables a comprehensive evaluation of whether ESG alignment functions as a mechanism of value creation or primarily as a reputational asset. Methodologically, the study employs an event study design following the approach of Wang et al. (2021) complemented by multivariate regression analysis in line with Zheng et al. (2023).

The data set comprises 45 M&A transactions, each between an individual acquirer and target, that occurred between 2010 and 2023, involving acquirers and targets publicly listed in Germany, the United Kingdom, and the Nordic countries. Each transaction meets strict inclusion criteria: disclosed deal value exceeding €1 million, a transfer of controlling interest, and available ESG ratings for both parties retrieved from LSEG Datastream. By applying both market-based and accounting-based performance measures, the research

aims to capture the multifaceted implications of ESG in M&A decision-making, ultimately shedding light on the potential benefits and risks.

1.2 Hypothesis development

Prior research indicates that strong ESG performance may contribute to firm value, both indirectly, by fostering stakeholder relationships, improved risk management, lower cost of capital, and stronger financial performance, and directly, by influencing acquisition premiums (Li, K. et al., 2021). Nonetheless, other studies have presented mixed or even negative findings, suggesting an inverse relationship between ESG and value creation (Lins et al., 2021). These divergent results emphasize the complexity of the ESG factors impact on value and highlight the necessity for further empirical investigation. Given the potential role of ESG factors in shaping valuation outcomes and strategic choices in mergers and acquisitions, this study seeks to address the following research question:
Do sustainability metrics lead to higher valuations in M&A?

Building upon Wang et al. (2021), who report that acquirers of firms with excessive CSR investments experience significant negative market reactions to M&A announcements and declining post-acquisition performance, the first hypothesis is formulated as follows:

H1: Announcement returns, and post-acquisition performance are related to target ESG ratings.

A key objective is determining whether acquiring companies' shareholders can mitigate losses and achieve financial gains from M&A transactions. Given the limited number of studies focusing specifically on ESG contributions within M&A contexts, this research seeks to contribute to the existing literature. As the corporate landscape rapidly evolves with changes in market conditions, regulatory frameworks, and stakeholder expectations, this study addresses a timely and pertinent area.

The motivation for the second hypothesis stems from the mixed findings in existing literature regarding the relationship between CSR and firm performance. Buchanan et al. (2018) observed that, on average, firms with high CSR engagement exhibited higher firm value compared to low CSR firms before the financial crisis. However, in the post-crisis period, these high CSR firms experienced a more significant decline in value, which the authors attribute to potential overinvestment in CSR activities. In contrast, Zheng et al. (2023) found that acquirers with high environmental, social, and governance (ESG) ratings tend to have better post-merger and acquisition (M&A) performance compared to those with lower ESG ratings. Given these conflicting findings, this study aims to contribute to the ongoing research with the second hypothesis:

H2: The relationship between target ESG ratings and post-acquisition performance depends on the acquirer's pre-acquisition ESG rating.

1.3 Definitions

In order to understand and discuss the impact of ESG ratings on value creation, it is important to separate fundamental concepts from each other, CSR, SRI, and ESG. Although these terms are often used interchangeably in conversations, these concepts cover different topics, and there are differences in how they are applied. This study focuses on ESG and its subfactors as they represent a quantitative measure of a company's environmental, social, and governance practices, impacting performance and valuation directly.

1.3.1 Corporate Social Responsibility

CSR reflects a company's voluntary, often narrative-driven initiatives that proactively seek to generate social benefits beyond the interests of a company and legislation. Engaging in such initiatives may increase the company's reputation, showcasing the company's commitment to sustainable economic development and to improving the stakeholder's quality of life (Carroll, 2021). In short, CSR is about taking responsibility for

the company's impact on the world and balancing profits with social and environmental contributions. While these initiatives may indirectly support longer-term value-enhancing activities, they tend to be challenging to measure and integrate consistently regarding company valuation.

1.3.2 Socially Responsible Investing

SRI can be defined as an investment strategy where the investor integrates personal values and social objectives into their decision-making and prefers companies that are socially and environmentally conscious, i.e. doing their bit to create a better future. Nowadays, a widely used strategy to make socially responsible investments is to screen out companies that produce harmful products, pollute, or participate in otherwise immoral behaviour. However, according to Berry and Junkus (2013), most SRI-minded investors not only value companies based on excluding negative actions but also increasingly require companies to actively do positive ones. In essence, SRI means employing an investment strategy that aims to generate profits while simultaneously catalysing positive social and environmental changes in companies, ultimately making a difference.

1.3.3 Environmental, social, and governance

In 2004, The United Nations released the 'Who Cares Wins' report, which is commonly referred to as spearheaded the change of dialogue from SRI to ESG investing by introducing a more systematic and data-driven approach to the positive effects of ESG integration in long-term financial performance. Consequently, this evolution shifted the focus of SRI strategies to quantitively measure companies' ESG performance, directly embedding the concept of sustainability in companies' performance, risk assessment, and valuation. There are three pillars that build the ESG criteria, which are analysed further in detail in Chapter 3. ESG Framework. Following the framework of Li, T. et al. (2021), the environmental pillar reflects actions that, both in the positive and negative, impact the environment. The social pillar describes the interaction between a company and its stakeholders, both internal and external. Lastly, the governance pillar highlights

the company's internal systems, management, and all their methods to align shareholders' and stakeholders' interests while also balancing with their personal interests. It also quantifies the managerial efforts to implement effective strategies, boiling down to the following question: When doing good for society is good for shareholders and value creation?

1.4 Structure of thesis

This thesis is organised into seven chapters, beginning with an introduction that outlines the research objectives, significance, and hypotheses. Chapter 2 establishes the foundational M&A framework by defining key concepts, exploring merger waves, and categorising acquisition types. It delves into both buy- and sell-side motivations, valuation principles, and behavioural elements, concluding with a discussion on characteristics associated with successful transactions. Chapter 3 introduces the ESG framework, connecting sustainable development goals to corporate strategy. It analyses how ESG may influence firm value creation and financial performance and unpacks each ESG pillar. It further addresses ESG's relationship with the cost of capital and critically examines the limitations of ESG rating methodologies. Chapter 4 describes the data and methodological approach. Chapter 5 presents the empirical results. It begins with descriptive statistics and then reports the findings of the event study, scenario analysis, and regression models. The results distinguish between high- and low-ESG acquirers and targets, analysing short-term market reactions and long-term operating performance. Chapter 6 interprets the results, evaluating the proposed hypotheses and drawing practical implications for corporate strategists and investors. Finally, Chapter 7 concludes by summarising key findings, highlighting limitations, and suggesting avenues for future research into ESG integration in corporate transactions.

2 M&A framework

This chapter focuses on the core concepts and characteristics of M&A, aiming to shed light on the complex nature of transactions and the fundamentals of M&A, ultimately to encase the factors shaping these transactions.

Section 2.1. starts off by introducing the concepts and elements of the M&A process while differentiating the key terms established in academic discussions. Section 2.2. explores the underlying motives for M&A, ultimately elaborating the rationale behind acquisitions. Section 2.3. discusses the value creation aspect and section 2.4. continues the discussion focusing on valuation and factors affecting the final transaction price. Finally, section 2.5. concludes the M&A framework by describing the characteristics of successful transactions that contribute to value realisation and long-term success.

2.1 Mergers and acquisitions

In academic discussion, ‘mergers’ and ‘acquisitions’ are often used interchangeably, although each carries a distinct technical meaning individually. According to Sherman and Hart (2006), acquisition refers to the process by which corporations purchase an asset, a division, a majority of shares, or even the entirety of another company. Given the nature of the transaction, acquisitions are often referred to as corporate takeovers. Takeovers can be either friendly or hostile, which are discussed further in chapter 2.1.1. The process of an acquisition.

Consequently, Sherman and Hart (2006) define a merger as a combination of two or more companies in which assets and liabilities are united. In other words, a merger is an acquisition where the boards of directors of two companies agree to combine and seek shareholder approval for the combination. When successful, the target ceases to exist and becomes a part of the acquirer. Moreover, some mergers are discussed as consolidations. Damodaran (2002, chapter 25) describes that in a consolidation, the

original companies involved in the merger cease to exist and are combined into a new single entity.

Additionally, some acquisitions are discussed as buyouts. Unlike in previously introduced corporate transactions, buyouts occur when a group of investors is acquiring a company. Damodaran (2002, chapter 25) distinguishes two types of buyouts: managerial buyout (MBO) and leveraged buyout (LBO). In an MBO, a company is acquired by its own management, while if the buyout is predominantly financed by debt, it is discussed as an LBO. This thesis focuses on all mergers, acquisitions, and takeovers, regardless of the term used to describe the transaction. That said, detailed semantics are not as essential.

2.1.1 Merger waves and market timing

Not all growth is created equally. Growing companies organically allows management to pursue their vision fully. Moreover, consistently growing revenue and sales is mandatory for companies to succeed. However, organic growth consumes time and internal resources, and as competition drives the market, it may dull the company's competitive edge. Consequently, Sherman (2010) describes that as managers today prefer acquiring a company to access new markets, products, technology, resources, or management talent, the number of M&A transactions globally has increased rapidly over time, which can also be observed from the figure AAA introduced earlier in Chapter 1. Introduction. On the flip side, the efficiency of inorganic growth exposes companies to additional management challenges, cultural differences, and upfront outlay. This chapter demonstrates the key phases of an acquisition.

Acquisitions require strategic foresight, meticulous planning, and efficient execution. Damodaran (2002, chapter 25) boils the acquisition process down to four, not necessarily sequential, key phases: defining the rationale, valuing the target, deciding on funding, and focusing on integration. In other words, acquiring a company is not an art or science but a process. In the first phase, acquirers define suitable strategic objectives to grow the company and identify potential targets that match these objectives. After identifying

a suitable target, the second phase focuses on a detailed analysis of the target's financials and operational risks, ultimately to value the company. The third phase is built around determining the price of the acquisition, with applicable premiums for the value of control, synergies, and goodwill, and then deciding on funding. According to Damodaran (2002, chapter 25), the final phase, post-deal integration, is often regarded as the most challenging phase. Only after a completed transaction does the achievement of strategic objectives and the realisation of synergies come into play, determining the longer-term success of the transaction.

Hitt, Ireland, and Hoskisson (2017, chapter 13) describe that acquisitions are an essential, even dominant, part of the strategy for companies to succeed in the 21st century. Therefore, understanding the components of an acquisition is crucial for stakeholders and shareholders better to assess the financial and strategic objectives of the transaction. Additionally, the nature of the acquisition can affect the process. Acquisitions, also known as takeovers, can either be friendly or hostile.

In a friendly takeover, the management and the target's board of directors negotiate the transaction terms with the acquirer, and the transaction is typically approved upon mutual consent. In contrast, Andrade et al. (2001) describe that if the management and the board of directors publicly reject the offer or the acquirers announce the acquisition unsolicited, the takeover is considered to be hostile. As a result of managerial resistance, acquirers often approach the shareholders directly by offering an attractive price for their shares, commonly with a tender offer, incentivising the shareholders to sell and ultimately overcome this resistance (Andrade et al., 2001).

2.1.2 Categorization of Acquisitions

Rosenbaum and Pearl (2020) describe that acquisitions are often categorised as horizontal, vertical, and conglomerate acquisitions in terms of the type of business relationship between the target and the acquirer. Horizontal acquisitions occur directly between competitors at the same value chain level. In vertical acquisitions, the

acquisition aims to extend its current value chain either up or down by acquiring direct ownership of different stages of production. Lastly, Vishwanath (2007) categorises conglomeration as an acquisition of companies that do not have overlapping business areas, ultimately forming a large parent company with smaller independent entities.

Additionally, the nationalities of the acquirer and the target are also recognised in terms of categorisation. Hitt, Ireland, and Hoskisson (2017, chapter 7) describe that domestic acquisitions happen within the country and cross-border acquisitions between countries. According to Marek (2018), the core motivating factors for cross-border acquisition include benefitting from synergies, achieving advancements in research and development, and rapidly expanding the business to new markets.

2.2 M&A motives

Understanding the underlying motives and value drivers of M&A is mandatory for assessing value creation, and at the very core of each acquisition is finding synergies, whether operational synergies accelerate growth or financial synergies lowering the cost of capital. According to Gaughan (2016, chapter 4), synergies are often regarded as the drivers of M&A, conforming to the neoclassical theory. In short, a combination of two companies can create more value than the companies could create individually; the whole is greater than the sum of the parts.

From the formation of monopolies in the 1920s, through the hostile merger mania of the 1980s and the burst of the technology bubble at the turn of the century, mergers and acquisitions have taken root in how companies are run and as a fundamental part of the global economy. According to Sherman (2010), the merger mania of the 1980s was dominated by financial acquirers focused on restructuring the company and improving its financial performance to increase profitability and value. In contrast, the 21st century represents a time in the history of M&A where transactions have become increasingly motivated by strategic objectives, ultimately to increase their profitability

not by single-handedly focusing on cost reductions and financial performance but by pursuing growth.

2.3 Merger waves and market timing

According to Gaughan (2016, chapter 2), M&A activity is largely affected by economic, regulatory, and technological shocks. Consequently, these shocks, hand in hand with the current economic outlook and credit market conditions, are the driving forces behind the increases and decreases in M&A activity. In short, as mergers and acquisitions coincide with the cyclical nature of the global economy, M&A activity also tends to move in waves. Figure 1. illustrates the global M&A activity from 1985 to 2024, showcasing multiple periods of high M&A activity followed by lower activity (The Institute for Mergers, Acquisitions and Alliances, 2025).

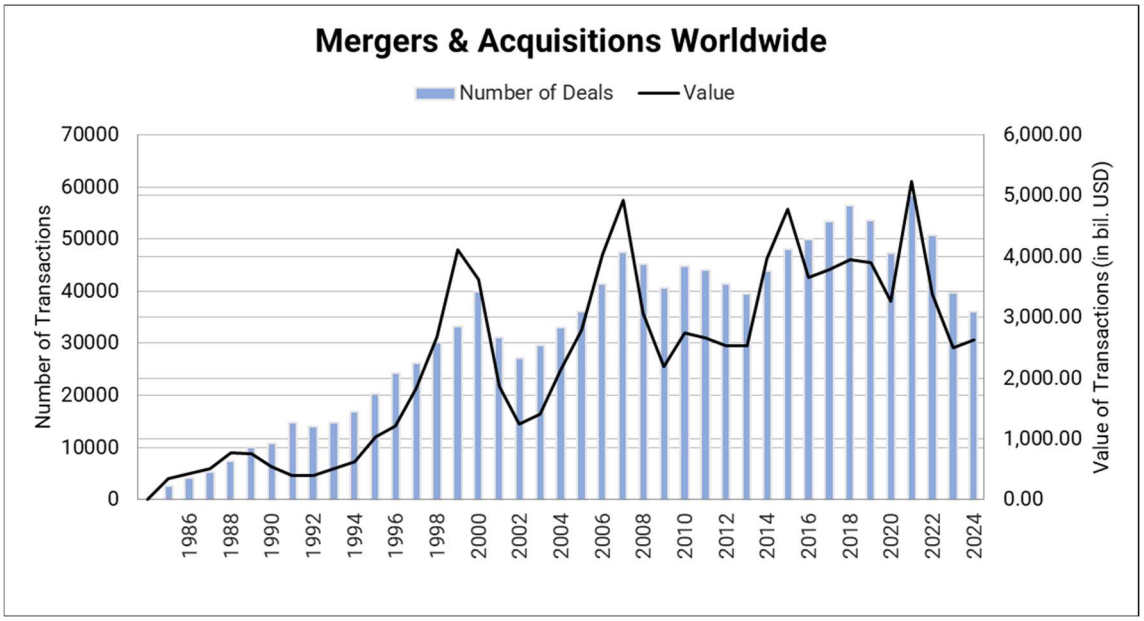

Figure 1. Value and the number of Mergers and Acquisitions Worldwide (The Institute for Mergers, Acquisitions and Alliances, 2025)

Martynova and Renneboog (2008) describe that strong economic growth is favourable to the intensity of M&A activity. Acquirers benefit from economic growth in their home countries as it may increase profits and equity values in the company, ultimately giving

them a larger pool of capital for M&A financing. Similarly, targets can benefit from economic growth as it can make the target more attractive by positively affecting the company's expected long-term performance. They imply that understanding merger waves, when the wave happens, and why is crucial to determining whether an acquisition creates or destroys value (Martynova & Renneboog, 2008).

Although individual merger waves differ in length, volume, and value, the drivers introduced can be identified from all of them. These drivers and strong capital markets are preconditional for merger waves to emerge. Consequently, merger waves are often disrupted by a steep decline in stock markets, followed by economic recession (Martynova & Renneboog, 2008).

Furthermore, Rhodes-Kropf and Viswanathan (2004) describe that companies often face difficulty differentiating the company's specific value components from the occurring economic drivers when evaluating the company. When the stock markets are surging, targets are likely to overestimate the synergies offered, increasing the likelihood of a successful acquisition. In contrast, when the stock markets are declining, targets are prone to underestimate the synergies and, therefore, less likely to come to an agreement.

Additionally, Sherman (2005) describes that acquisition activity increases when companies have access to lower capital costs, allowing them to generate both organic growth by funding internal projects and inorganic growth by seeking cost-effective capital from third-party investors. Consequently, when credit is available, companies are more likely to lean towards third-party financing, allowing acquirers access to capital needed to pursue acquisitions and ultimately increasing the M&A activity.

Rhodes-Kropf, Robinson, and Viswanathan (2005) explore the effects of misvaluation and timing the market in their 2005 study, describing that, on average, deals are valued correctly. However, they find that M&A activity is highly correlated with these short-term

deviations in valuation during times of overheated markets and higher misvaluation. They describe that this overvaluation effect was especially pronounced in deals where the mean of payment was based on shares and less pronounced if the payment was based on cash (Rhodes-Kropf, Robinson, & Viswanathan, 2005). All in all, this ultimately sheds light on the challenges of identifying the intrinsic value of assets, and even rational individuals have a tendency to evaluate equity incorrectly. Rhodes-Kropf et al. (2005) note that merger waves are often driven by the high valuation of equity, as acquirers trade shares for cash flow.

2.3.1 Buy-side motives

When buyers are looking to acquire a company, there are multiple strategic, financial, and operational factors influencing decisions behind each acquisition. Sherman (2005) categorizes these factors into six main groups: operational synergies, growth and expansion, access to new products, competitive strength, financial synergies, and managerial synergies.

According to Sherman (2005), the first group of factors is related to operational synergies, often taking the form of cost reductions or rearranging the use of resources to increase the efficiency of the combined processes. Additionally, if the companies operate in the same market, Hitt, Ireland, and Hoskisson (2017, chapter 6) note that the combination of companies can benefit from the economies of scale, increasing efficiency. Consequently, the second group is related to growth and expansion. Hitt, Ireland, and Hoskisson (2017, chapter 6) describe that acquisitions are an essential, even dominant, part of the strategy for companies seeking growth in the 21st century. That said, acquisitions are often viewed as a preferred solution to accelerating sales growth and increasing profitability instead of investing the time and expertise to grow organically while simultaneously adapting to market changes and keeping the competition at bay. Additionally, acquisitions can be used to overcome entry barriers. Hitt, Ireland, and Hoskisson (2017, chapter 6), describe that cross-border transactions are often viewed as

a less risky and more efficient way for companies to expand geographically rather than starting from scratch in a new location.

The third group relates to accessing new assets and innovation. Sherman (2005) describes that companies with complete product lines are often viewed as more appealing by customers as one-stop shopping significantly increases their convenience. On the other hand, acquisitions allow companies struggling with research and development to acquire innovation efficiently. Hitt, Ireland, and Hoskisson (2017, chapter 5) describe that acquiring innovation allows companies either to gain access to patents and new technologies developed by the target immediately or to acquire the know-how to develop technological advancements. Moreover, acquisitions can serve as a strategic tool for rebranding and transforming the company's public image. According to Sherman (2005), acquiring a strong brand and customer loyalty can be considered as an investment in intangible assets and, ultimately, as a cost-effective way to gain a larger customer base.

The fourth group relates to increasing competitive strength, as cost synergies and revenue synergies obtained from an acquisition can increase the company's market share and assist in obtaining more market power, ultimately leading to cost-effectiveness. Additionally, Hitt, Ireland, and Hoskisson (2017, chapter 5) describe acquisitions as an effective way to focus on a company's business functions either by the divestiture of nonessential functions or by acquiring supporting functions to boost their core operations. However, Sherman (2005) notes that some of the acquisitions revolve around sheer competitive pressure. In other words, if the company doesn't acquire a potential target appearing to be on sale, one of the competitors might go for the deal and gain a competitive advantage.

The fifth group relates to financial synergies. Sherman (2005) describes that acquisitions can effectively be used to gain from diversifying risks, securing cashflows, and optimising capital structure. Cross-border acquisitions allow the company to spread the risk and

benefit from the lower covariance of returns by conducting business in multiple locations. Additionally, acquisitions can be used to increase a company's debt capacity, optimising the balance sheet. Moreover, if the company is highly profitable, it can make sense to acquire loss-making companies as the company may be able to use losses to reduce its tax liabilities and furthermore to gain from the other acquired synergies (Sherman, 2005).

The sixth group relates to managerial synergies. Gaughan (2005, chapter 5) describes that the need for more comprehensive managerial skills often grows in the company, especially in smaller companies. Inadequate management can expose the company to inefficiencies. Therefore, larger companies with proper management structures are often interested in acquiring smaller companies. Appropriate management and governance structures can increase operations efficiency and improve the company's competitive edge (Gaughan, 2005, chapter 5). However, several behavioural factors can affect the management's decision to engage in acquisitions, which are discussed in further detail in the following chapters: 2.6.4. Agency Theory and 2.6.5. Herding and managerial hubris.

2.3.2 Sell-side motives

Similarly to buy-side motives, motives to sell a company range from direct financial motives to broader strategic goals. Sherman (2005) describes that starting or buying a company, increasing its efficiency and profitability, ultimately making it more attractive as an acquisition target, and then selling the company is one the most effective ways to increase wealth. Sherman (2005) also describes that selling a company becomes relevant when the founders are looking to retire and a direct successor doesn't exist. Moreover, many previously introduced factors affecting buyers are also relevant for sellers. Sell-side motives are also affected by the current market conditions, as when interest rates are low, and the industry-related valuation multiples are strong, companies may choose to sell, receiving a significant premium compared to less favourable conditions.

On the other hand, sudden economic, regulatory, or technological shocks can also erode the company's competitive edge, pushing the decision-making towards selling before the company loses relevance. Sherman (2005) notes that financial distress and the lack of capital for growth may also lead to a selling decision. Additionally, Sherman (2005) states that there are also positive aspects to being acquired, as the company can access greater resources and retain a competitive edge.

2.3.3 Agency Theory

In a way, mergers and acquisitions can be viewed as tools for management to grow the company and maximise shareholder value. However, several empirical studies imply that the personal objectives of the management seldom align with shareholders in decision-making situations if the incentives are not met. Agency theory approaches this relationship and different priorities from the viewpoints of the agent and the principal. Jensen and Ruback (1983) describe that management, as the agent, aims to maximise their utility by growing the company beyond the optimal point to maximise the capital and resources under their control and ultimately maximise their compensation. On the other hand, management may also take on less risk to reduce the volatility of earnings to protect their own positions in the company. This pursuit of personal objectives can be viewed as decreasing the utility of shareholders, the principal, as their interest lies within maximising the company's market capitalisation and future cashflows.

Martynova and Renneboog (2008) find that the management's personal interests in decision-making are especially pronounced towards the end of each merger wave, supporting the argument that managerial decisions often revolve around protecting their own interests rather than being strategically optimal in terms of company performance. Furthermore, Jensen and Ruback (1983) emphasise that managers are likely to engage in empire-building during an economic boom and excessive cash flows. Consequently, with excess cash, managers tend to overbid and participate in poor acquisitions rather than returning the funds to shareholders, even if the acquisition destroys shareholder value.

Malmendier et al. (2011) examine this overbidding phenomenon in their 2011 study, revealing that even though the stock returns of the acquiring companies taking part in high-stake bidding competition would not significantly differ from one another, their performances depart significantly after the acquisition. That said, they describe that, especially in close competitions, the losing bidder outperforms the winning bidder by 50 per cent over the three years following the acquisition. These results align with the 'winner's curse' hypothesis, as the competition dynamics drive the acquirer to overpay, ultimately leading to lower-than-expected returns or even value destruction post-acquisition.

2.3.4 Herding and managerial hubris

Booming markets, merger waves, and competition dynamics increase the tendency for managers to take part in acquisitions due to the M&A momentum generated by these subjects. To some extent, those lower-than-expected returns post-acquisition can be explained by herding behaviour. Devenow and Welsch (1996) describe that when the pressure of an ongoing merger wave gets on, historical evidence suggests that managers are subject to mimic the actions of leaders in this competition rather than take actions based on rationale to avoid missing out or appearing inactive.

Moreover, empirical evidence suggests that managers often overestimate their ability to create value through acquisitions. Roll (1986) suggests that although management would acknowledge that certain deals destroy value on average, they are unwilling to consider themselves average and believe that they can create value. This arrogance and overconfidence often lead to suboptimal acquisitions, integration issues, and lower returns. Roll (1986) also points out that managers only have limited acquisition opportunities and are subject to these behavioural pitfalls.

Malmendier and Tate (2008) explored this question in their 2008 study by quantifying CEO overconfidence based on the CEO's personal portfolio decisions and their media

portrayal. They describe that overconfident CEOs hold their stock options until the last year before expiration, emphasising their personal abilities to create value and ignoring portfolio diversification concerns. Consistent with previous literature, they find that overconfident CEOs, falling victim to these behavioural pitfalls, are more likely to engage in diversifying acquisitions, expanding the company's operations beyond its core business, and are more likely to overpay for the acquisition than rational CEOs. Malmendier and Tate (2008) describe that, in the end, CEO overconfidence results in negligence of the shareholders' interests, ultimately leading to value destruction.

2.4 M&A valuation

Determining the value of a company is foundational for acquisitions, as acquisitions can only lead to value creation if the price is right and the valuation is realistic, as overpaying for the acquisition often undermines the value creation potential and may even lead to value-destroying as previously introduced in chapter 2.2.4. Most transactions include an acquisition premium, enticing the shareholders to sell the company. Laamanen (2007) describes that the average premium paid has been 40-50% over the past 20 years. It's commonly stated that in order to create value, the value of received synergies should be greater than the acquisition premium paid on top of the standalone market value of the target company, as described in Figure 2. below.

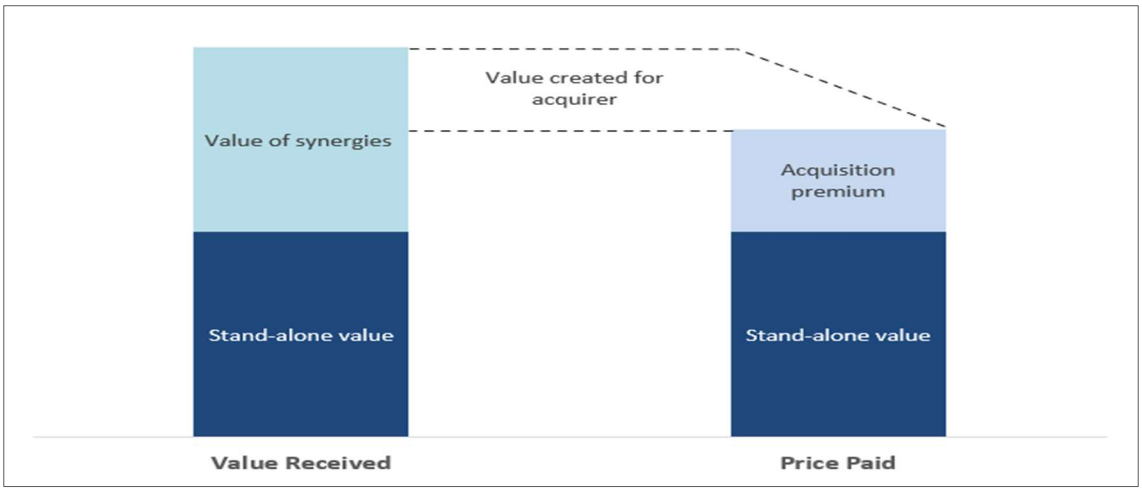

Figure 2. Value creation in successful acquisitions

Often, in academic discussions, six main strategies are established that create value in acquisitions. The first strategy introduced is to improve the target company's performance by cost reductions. Then, companies can accelerate sales growth by participating in acquisitions, ultimately increasing their profitability. On the other hand, acquirers can gain access to new assets and innovations faster or at a lower cost. Additionally, acquirers increase their competitive strength by obtaining more market power and risk diversification. The last strategy relates to finding winners early and helping to develop their businesses. However, this strategy involves extremely high levels of risk.

Koller et al. (2015) state that, in the end, value creation, or destruction, culminates in the relationship between the cost of capital and the returns on capital. Companies can create value when the returns on invested capital (ROIC) exceed the costs; in contrast, costs of capital exceeding the returns lead to value destruction. Acknowledging these relations, as described in Figure 3., and the factors affecting cashflows and the cost of capital are at the core of understanding the valuation calculations, ultimately determining the standalone value.

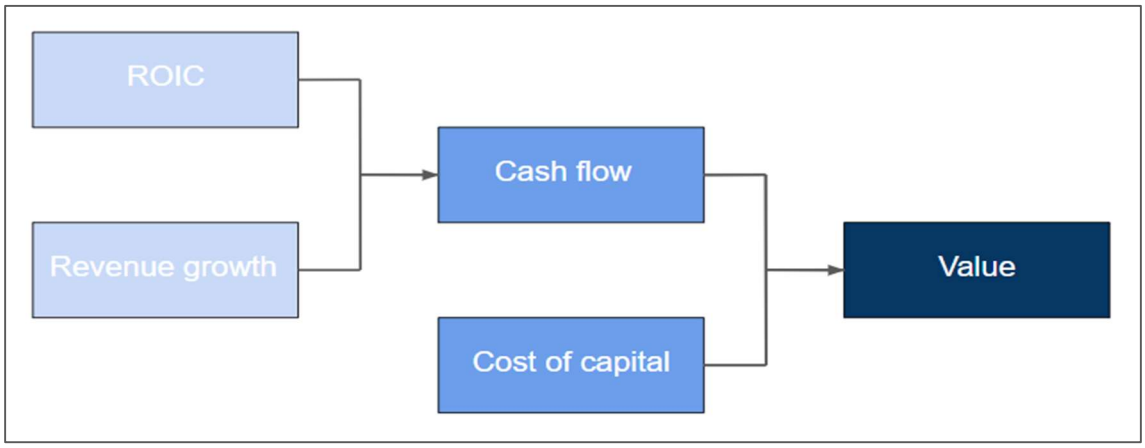

Figure 3. Growth and ROIC drive value (Koller et al., 2015)

Valuation methods are commonly differentiated into two main groups: valuation models and the use of multiples. Discounted cash flow analysis (DCF) is a valuation model in which the value of the company is determined by the present value of the company's estimated future free cash flows. Market-based models, like comparable company analysis and precedent transaction analysis, are based on determining the value of a company by using valuation multiples. Valuation multiples can be derived from comparable companies with similar performance and risk profiles or from previous transactions involving similar companies. These models will be discussed individually in the subsequent sections.

2.4.1 Valuation of a target firm

The effectiveness and practicality of DCF analysis build around its ability to quantify company-specific factors and projections that turn the revenue into free cash flows (FCF). However, due to this ability, DCF analysis is sensitive to these assumptions and minor changes can drastically affect the outcome. Moreover, DCF analysis assumes that a company's capital structure remains constant over the calculation period. Vishwanath (2007) describes that, in simple terms, FCF is the cash flow available to all investors in the company after deducting taxes, capital expenditure (CAPEX), and working capital investments. Damodaran (2002, chapter 31) states that the FCFs for DCF should be assessed from net operating profit after taxes (NOPAT) as this method focuses on the value of the company. To determine the FCFs, the depreciations and amortisations are added to NOPAT as they are non-cash expenses that do not affect cash flows directly, although reducing the accounting profit. Then, CAPEX is deducted from the calculation as they are crucial for the core operations, and the change in net working capital is netted, ultimately to determine the company's free cash flow independent of its capital structure. The weighted average cost of capital often determines a suitable discount rate for the DCF analysis as it captures the average cost of capital weighted by the company's equity-to-debt ratio, therefore representing all capital sources of a company.

The strength of comparable and precedent transaction analyses lies in benchmarking a company against its competitors and in the ability to reflect the overall market. Most of the time, the multiples are based on enterprise value (EV) in relation to sales, EBITDA or EBIT, share prices in relation to earnings per share (P/E), and book value (P/B). Rosenbaum and Pearl (2020) describe that by using valuation multiples, acquirers can disclose whether a target company is overvalued or undervalued compared to its competitors. They highlight that methods based on multiples may fail to present company-specific factors. In practice, however, determining the value of a company is primarily based on its current assets and future cash flows, regardless of its sensitivity and capital structure assumptions. Additionally, the emotional factors behind each transaction should not be left unnoticed, as they can significantly affect the final transaction price.

Klok, Kroon, and Khapova (2022) explore the effect of emotions in M&A by analysing academic publications over the past 30 years. They find that emotional responses can lead to irrational behaviour, affecting every phase of the transaction. For example, acquirers can 'fall in love' with the target company, making them overly optimistic, which increases the likelihood of overestimating the value of synergies and often leads to overpayment. Similarly, the emotional resistance of a target company can emerge as increased transaction costs and suboptimal final transaction price. Klok et al. (2022) describe that although the failure rate of transactions remains high to this day, emphasising the role of due diligence in early phases can mitigate these emotional biases through trust-building and fair valuation, ultimately leading to more successful transactions.

2.5 Characteristics of Successful Transactions

There is no magic formula to make acquisitions successful. However, previous academic literature has identified characteristics that are often pronounced in successful transactions regarding the acquirer's shareholder returns. Morck, Shleifer, and Vishny (1990) find that acquirers that have a strong position in their relative market tend to

perform better acquisitions and have statistically significant positive returns on the announcement, as investors often associate such acquisitions with strong strategic fit and value-enhancing. Likewise, acquiring private companies tends to generate higher excess returns compared to acquiring public companies (Capron & Shen, 2005). They describe that when acquiring private companies, acquirers can benefit from the information asymmetry and the illiquidity of a target company's stock, allowing acquirers to apt the value received from acquisitions. Additionally, Capron and Shen (2005) describe that acquirers are also able to benefit from the absence of competition in acquisitions. Being a sole bidder can drastically affect the final transaction price, as bidding wars between multiple acquirers may lead to overpayment (Morck et al., 1990).

Consequently, determining the sweet spot before the payment for the possible synergies exceeds the point where it turns to overpayment is not that simple. Following the synergy theory, Diaz, Azofra, and Gutiérrez (2009) describe that a higher premium paid is often regarded as a promise for greater potential earnings in the future, leading to excess abnormal returns around the announcement. However, once the premium paid exceeds the value of discounted future cashflows, the acquirer falls victim to overpayment, which then increases the possibility of an acquisition being value-destroying. Diaz, Azofra, and Gutiérrez (2009) introduce this relationship between the premium paid and bidders' abnormal returns in M&A through a quadratic equation, as shown in Figure 4. In short, overpaying for an acquisition will undermine the value creation potential even for acquisitions with strong strategic rationale.

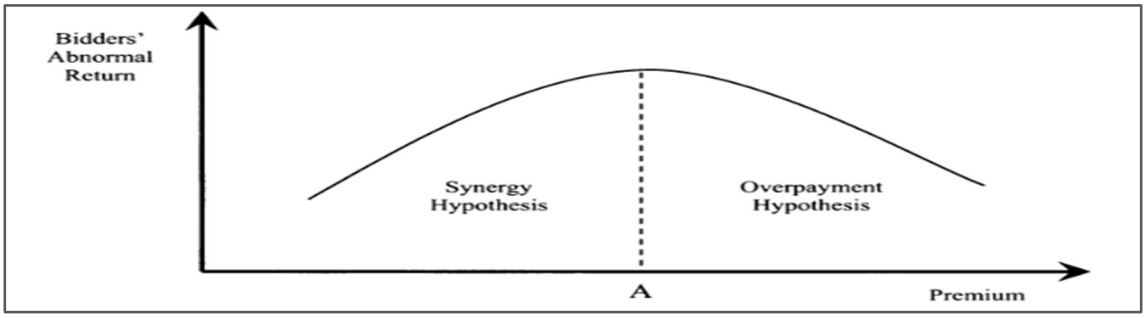

Figure 4. Relationship between premium paid and bidders' abnormal returns in M&A (Diaz et al., 2009)

3 ESG framework

This chapter introduces the core concepts of ESG, elaborating on the role and impact of ESG principles on investment strategies and company performance. Additionally, this chapter addresses the ESG ratings, their definitions, and potential issues. In contrast, some critical viewpoints on ESG investments are also presented in this chapter, ultimately to provide a foundation for understanding the impact of ESG ratings on value creation and how responsibility turns into value.

Section 3.1. starts by introducing the core concepts of ESG and sustainable development. Section 3.2. explores the relationship between ESG and value creation by shedding light on ESG's effects on financial performance, risks, cost of capital, and firm value. Section 3.4. offers insights on ESG ratings and differences between rating agencies. Finally, section 3.5. presents criticism levelled at the concept of ESG and its surfacing problematics.

3.1 ESG and sustainable development

After the UN released the 'Who Cares Wins' report in 2004, the relevance of ESG and sustainability raised their heads as factors impacting the global economy, in 2006, the UN Principles for Responsible Investment (UNPRI) were established, encouraging institutional investors to integrate ESG factors into their decision-making (Hoepner et al., 2021). In retrospect, the establishment of UNPRI can be considered to have spearheaded the impact of ESG in a corporate setting, and the assets under management for UNPRI signatories have steadily grown from 2006 to 2021, as seen in Figure 5. (UNPRI, n.d.), with projections of gaining USD 40 trillion in global AUM that consider ESG factors by 2030 (Bloomberg, 2024).

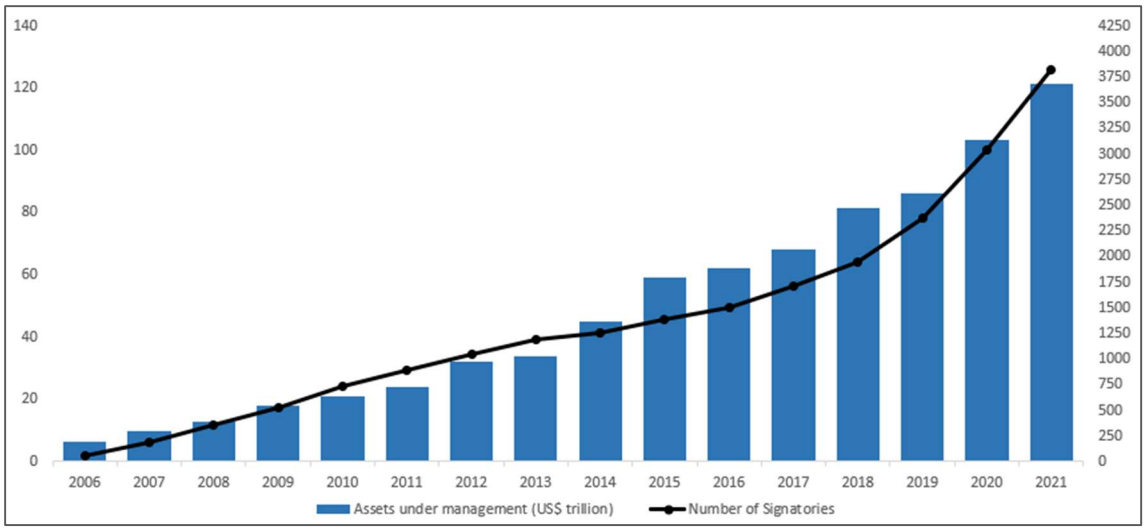

Figure 5. Growth of assets under management for PRI signatories (UNPRI, n.d.)

In its essence, sustainable development means continuous and controlled societal transformation aiming to secure good living conditions for current and future generations. In order to run this transformation, the role of financial systems cannot be understated as they drive long-term economic growth. Therefore, sustainable finance provides the capital necessary to promote the policy objectives under the European Green Deal as well as the EU's international commitments on climate and sustainability objectives, like the United Nations' Sustainable Development Goals (SDG), by integrating ESG factors into investment strategies. The EU Green Deal aims to achieve climate neutrality by 2050 in Europe while simultaneously ensuring economic resilience and social fairness (European Commission, n.d.). In 2015, the UN introduced the seventeen Sustainable Development Goals, accompanied by 169 targets, to provide a policy framework which balances social well-being, environmental protection and economic prosperity (UN, 2023).

Consequently, as sustainability matters, CSR and ESG gained momentum among international policymakers and institutional bodies, and integrating ESG factors also started to intrigue individual investors (Eurosif & ACCA, 2013). Berry and Junkus (2013) describe that traditional SRI screening methods, i.e. excluding companies in harmful industries, have been surpassed by inclusionary ESG strategies, where investors value companies taking the initiative towards responsibility, with a particular focus on environmental

concerns, as such strategies tend to provide a more comprehensive framework for investment decisions. They find that investors are willing to reward companies that engage in ethical and sustainable business activities (Berry & Junkus, 2013). That said, acquirers with strong sustainability initiatives may experience better stock price performance post-merger as transactions are perceived as adhering to investors' preferences. The ESG phenomenon has also taken effect over the Atlantic as while in 2011 only 2 per cent of S&P500 largest companies published sustainability reports, this increased investor demand for ESG information, and for companies that follow such principles, led to a point where over 90 per cent of S&P500 largest companies made ESG reports already in 2020 (Zheng et al., 2023). The concept of ESG can be considered as a strategic framework that guides one's investment decisions, offering a valuable point of view for an individual to reflect on a company's risk management, financial performance, and, ultimately, valuation.

To summarise, sustainability practices extend to most companies directly or indirectly, from requirements like CSRD and EU taxonomy or the interests of individual stakeholders, respectively. However, although greater regulatory scrutiny and harmonisation can increase the credibility of ESG data, company transparency, and investors' confidence, it may also restrict companies' effective capital allocation and innovation by imposing greater compliance requirements. Buchanan et al. (2018) observed that the impact of CSR on firm valuation varies across economic cycles. Specifically, their study found that firms with high CSR engagement exhibited higher valuations before the 2008 financial crisis but experienced more significant declines during the crisis compared to non-CSR firms. This suggests that while CSR initiatives may enhance firm value in stable economic periods, they could potentially lead to overinvestment concerns during economic downturns, adversely affecting valuation. Therefore, strategically timing acquisitions to improve CSR levels is crucial, as the benefits may differ depending on the prevailing economic conditions (Buchanan et al., 2018). Furthermore, despite the ever-increasing interest in the relationship between ESG and financial performance, the impact of ESG factors within the context of M&A remains relatively unexplored.

3.2 ESG and value creation

As global policies have developed, the awareness of environmental matters has increased, escalating the work towards quantifying and standardising corporate sustainability. De and Clayman (2015) describe that companies with high ESG ratings tend to have lower volatility and resilient financial performance, especially in downturns, leading to more consistent risk-adjusted returns. Additionally, they find that incorporating ESG criteria into investment strategies also offers higher risk-adjusted returns Finding a statistically significant strong negative correlation between ESG ratings and volatility and showcasing that ESG factors had a positive effect as an independent contributor, De and Clayman (2015) conclude that incorporating ESG factors into investments reduces investors' concerns about possible conflicts of interest, ultimately leading to value creation. Moreover, higher levels of ESG are commonly associated with enhanced risk management, higher employee engagement, more investment opportunities, increased customer retention and loyalty, and a stronger employer brand, to mention a few, all of which can build up to better positioning in the market, create a competitive edge, and boost innovation. This section elaborates on the role of environmental, social, and governance pillars individually to pinpoint their respective impacts on a company's performance and value.

Instrumental stakeholder theory (Jones, 1995) provides a theoretical foundation by positing that firms which proactively address the interests of a broad range of stakeholders, including employees, customers, communities, and investors, can reduce agency conflicts, secure stakeholder legitimacy, and enhance long-term value. Gillan et al. (2021) describe that incorporating ESG factors may create value by creating shareholder value or maximising shareholders' utility. First, ESG and CSR activities may increase customer retention and enhance the company's reputation as a strong employer that values sustainability, which ultimately works towards value creation by increasing cash flows (Gillan et al., 2021). On the other hand, ESG and CSR activities may also contribute to value creation by decreasing the discount rate used to determine the cost of capital, in both equity and debt, by broadening the investor base given that investors are extensively

looking for and preferring, investments in responsible companies, which ultimately connects to maximising shareholder utility. Shareholder utility extends beyond traditional maximisation of shareholder value, emphasising shareholder's interests in profits and ethical and social considerations. Therefore, according to Gillan et al. (2021), shareholders can gain greater utility by owning responsible companies, even when cash flows would equal irresponsible companies.

The findings of Hart and Zingale (2017) support this perspective, indicating that an emphasis on maximising shareholder utility fosters a more holistic approach to business ethics and corporate responsibility. Hart and Zingales (2017) ultimately challenge Friedman's 1970 doctrine, stating that profit-making activities and damage-making externalities cannot be distinguished from each other, the effect of which is especially pronounced in industries like manufacturing and energy, where profits are directly linked to environmental and social activities. Moreover, Hart and Zingales (2017) state that, contrary to Friedman (1970), the regulatory frameworks issued by governments often lag industry practices, thus not being able to internalise all negative externalities through regulation flawlessly. To summarise, maximising shareholder's utility leads to growth that creates long-term shareholder value by acting on opportunities and managing risks related to environmental and social impacts.

Signalling theory offers a valuable theoretical lens to understand better how ESG considerations translate into market perceptions and firm valuation, explaining how ESG factors can influence firm value, particularly in capital markets and M&A contexts. According to Spence (1973), signals are often referred to as activities or attributes of individuals in a market that alter the beliefs of or convey information to other individuals in the market by design or accident. Within this framework, ESG ratings serve as market signals that communicate a firm's quality, approach to risk management, and the degree to which management is committed to creating long-term value. Strong ESG performance may reflect effective leadership and operational resilience by helping to reduce information asymmetry between companies and external stakeholders. In mergers and

acquisitions, where uncertainty and information gaps are common, ESG credentials can act as credible indicators of a firm's sustainability and strategic foresight.

Drawing on this theoretical framework, Gao and Zhang (2015) analysed a sample of 2,022 multinational firms between 1993 and 2010 to examine the relationship between ESG performance and corporate outcomes. Their regression analysis showed that firms with stronger ESG performance tended to achieve higher returns, greater firm value, and a closer alignment between current and future returns. The study found that socially responsible companies displayed less variation between reported and permanent returns, pointing to greater stability over time (Gao & Zhang, 2015), which ultimately enhances shareholder value and reduces earnings volatility but also improves long-term financial predictability. By addressing sustainability-related risks, firms with strong ESG performance may attract a larger pool of investors, lower their cost of capital, and create lasting value for shareholders.

Li, K. et al. (2021) support this narrative, providing strong evidence that higher ESG ratings can attain higher valuations and higher premiums. They analyse Chinese M&A transactions from 2007 to 2008, employing multiple regression and logistic regression methods to find whether CSR influences M&A valuation and deal success rate (Li, K. et al., 2021). However, they note that a major challenge in using regressions to analyse the relationship between CSR and M&A is the endogeneity of results, as companies with high CSR levels may already enjoy higher valuations, making it unclear whether CSR causes these higher valuations. In order to control this, Li, K. et al. (2021) utilise the two-stage least squares method to ensure causality. Ultimately, Li, K. et al. (2021) describe that increased transparency, lower agency costs, decreased regulatory risks, and enhanced reputation primarily drive the higher valuations and premiums. They describe that companies prioritising strong relationships with suppliers, customers, shareholders, and the natural environment received higher valuations in the Chinese M&A market. Furthermore, Li, K. et al. (2021) note that acquirers are inclined to pay in cash for target companies with relatively high CSR performance, whereas transactions for relatively low

CSR companies are paid in shares. That said, CSR strengths are extensively viewed as an intangible risk-mitigating asset, attracting higher bids, decreasing regulatory risks, and leading to smoother post-merger integration. The sum of which often increases the likelihood of a successful transaction.

According to an Organisation for Economic Cooperation and Development (OECD) report (2021), ESG factors can have both positive and negative implications for firm valuation. On the upside, capital allocation toward ESG-driven research and development, such as low-carbon products and services, can enhance cash flow generation and reduce the cost of capital. ESG integration may also improve operational efficiency, mitigate regulatory risk, and generate public policy benefits. Furthermore, firms with strong ESG frameworks tend to exhibit lower exposure to fossil fuel price volatility, which can contribute to a more stable risk profile and competitive advantage. However, ESG considerations also present financial risks. The OECD report (2021) highlights that climate-related adaptations can increase operating expenses, as rising carbon pricing mechanisms can weaken demand and lead to asset impairments. Additionally, reputational risks tied to ESG controversies can decrease revenue streams and restrict access to capital markets, potentially elevating financing costs.

3.2.1 Environmental pillar

Each pillar of ESG has a distinct yet interconnected impact on M&A transactions and valuation. Traditionally, environmental compliance and initiatives are often seen as necessary expenditures rather than direct value drivers. As such, the financial relevance of environmental performance has typically been framed in terms of risk mitigation rather than profitability enhancement. The environmental pillar of ESG in terms of M&A focuses on climate-related risks, energy efficiency, and carbon emissions reduction, changing the dialogue around environmental factors from being regarded as a cost to being viewed as a source of value. Sharfman and Fernando (2008) imply that improved environmental risk management enhances the market's perception of a firm's risk profile, leading to a lower cost of capital. Their study of 267 U.S. firms provides empirical support

for this claim, demonstrating that firms with more substantial environmental risk management experience reductions in their weighted average cost of capital (WACC). They challenge the conventional notion that environmental initiatives are merely a cost burden, instead proposing that they create financial value by reducing equity risk premiums, increasing operational efficiency, which is reached by supply chain efficiencies, lower emissions costs and better regulatory standing, and allowing firms to shift from equity to debt financing, thereby increasing tax benefits from debt interest deductions. From the perspective of shareholder value maximisation, lower WACC increases a firm's valuation by reducing the discount rate applied to future cash flows, making investments more attractive and enhancing profitability. Sharfman and Fernando (2008) highlight that strategic environmental risk management is a tool for regulatory compliance or CSR and a means of optimising financial structure and maximising long-term shareholder value.

However, the impact of ESG on valuation is not immediate; it requires a long-term strategic commitment. Li T. et al. (2021) highlight that companies with transparent environmental disclosures enhance their corporate reputation, reduce information asymmetry, and attract a broader investor base. Their 2021 study systematically reviews 593 ESG research articles published in leading academic journals from 1985 to 2020, analysing the relationships between ESG pillars and their role in corporate sustainability. Li, T. et al. (2021) find that these factors contribute to greater financial stability and long-term sustainability, ultimately leading to higher deal premiums and increased valuation multiples for ESG-positive firms. These findings support the change of dialogue where ESG research has evolved significantly, with increasing emphasis on financial performance and corporate social responsibility.

3.2.2 Social pillar

In contrast, the social pillar, particularly the concept of social capital, has been shown to exert a more tangible influence on financial metrics. Li, T. et al. (2021) describe that social capital, the strength of relationships between a firm's management, owners, and

stakeholders, significantly influences the cost of capital, particularly in equity financing. Firms with strong social ties benefit from reduced information asymmetry, as transparency and trust lower perceived risks for investors. Additionally, Li, T. et al. (2021) underscore that trust and contract enforcement mechanisms play a crucial role in financial transactions. Firms with high social capital face substantial reputational costs if they violate stakeholder trust, incentivising compliance with ethical and governance standards. High social capital fosters greater investor confidence, reducing financing constraints and equity risk premiums. Investors perceive ESG-focused firms as less risky and more sustainable, thus rewarding them with favourable financing conditions. Breaking trust, on the other hand, can lead to long-term financial penalties.

Sassen et al. (2016) investigate the impact of corporate social performance (CSP) on firm risk, using environmental, social, and governance (ESG) factors as proxies. Their study focuses on total, systematic, and idiosyncratic risk in the European market, utilising a panel dataset of 8,752 firm-year observations from 2002 to 2014. The authors employ fixed effects regressions to ensure robustness, controlling for firm-specific and time-related heterogeneity. Sassen et al. (2016) suggest that social performance has the most substantial risk-reducing effect, significantly lowering all three types of risk, whereas environmental and governance factors have mixed effects. First, strong employee relations, including fair wages, career development, and workplace safety, reduce labour disputes and turnover and ensure operational stability and predictable cash flows (Sassen et al., 2016). This directly decreases idiosyncratic risk as firms become less prone to unexpected internal disruptions. Second, they describe that customer trust and brand loyalty, built through ethical business practices and responsible product policies, lower the likelihood of boycotts, reputational crises, or lawsuits, reducing earnings volatility and systematic risk exposure. Furthermore, Sassen et al. (2016) describe that CSR programs and community engagement enhance a firm's social license to operate, mitigating risks related to regulatory scrutiny, policy changes, and social activism. Overall, the findings of Sassen et al. (2016) suggest that a higher CSP and a higher performance regarding the social pillar, in particular, can increase firm value through lower firm risk.

Similarly, the findings of Henisz et al. (2014) indicate that companies with higher social capital relative to their competitors tend to achieve higher valuations. Their research focused on 26 gold mines owned by 19 publicly traded companies between 1993 and 2008. By analysing over 50,000 stakeholder events reported in the media, they developed an index to measure the degree of stakeholder conflict or cooperation associated with these mines. The findings revealed a significant positive correlation between proactive stakeholder engagement and higher firm valuations. Specifically, companies that actively managed stakeholder relationships experienced fewer operational disruptions, such as planning obstacles and delays, leading to more efficient production processes. This reduction in operational hindrances translated into enhanced financial performance and increased market valuations. The study underscores the financial benefits of corporate social responsibility (CSR) initiatives, highlighting that investments in building social capital can yield substantial economic returns (Henisz et al., 2016).

3.2.3 Governance pillar

Among the three pillars, corporate governance has received the most empirical support as a determinant of firm value. Governance quality is widely utilised as a proxy for firm integrity and managerial competence in investment strategies, such as value investing and ESG-screened portfolios. According to van Duuren et al. (2016), governance is the most emphasised ESG dimension among institutional investors, primarily due to its direct link to management quality and strategic decision-making, as successful ESG integration requires effective planning ultimately to create value in the longer term. A well-governed firm is more likely to ensure transparency, mitigate agency conflicts, and align managerial actions with shareholder interests. While the short-term financial benefits of ESG integration remain inconclusive, van Duuren et al. (2016) find a positive relation between effective governance structures and enhanced firm performance in the longer term, suggesting that governance is both a screening tool for investors and a strategic asset in today's financial markets (van Duuren et al. (2016).

Zheng et al. (2023) investigate whether corporate Environmental, Social, and Governance (ESG) performance influences value creation in mergers and acquisitions (M&A) within the Chinese context. Analysing a sample of 1,489 completed domestic M&A transactions involving 847 Chinese firms between 2011 and 2019, Zheng et al, (023) find that firms with higher ESG ratings are more likely to experience better post-M&A performance and a higher likelihood of deal completion. The findings of Zheng et al. (2023) support the instrumental stakeholder theory, which posits that robust ESG practices, especially in governance, increase stakeholder trust and reduce resistance during major corporate events. These results are consistent with Li, T. et al. (2021), who observe that stakeholders perceive companies with higher ESG ratings more favourably, which reduces deal-related resistance and uncertainty, ultimately enhancing value.

According to Friede et al. (2015), more than 2,000 empirical studies have been published since the beginning of the 1970s, examining the relationship between environmental, social, and governance (ESG) factors and corporate financial performance (CFP). By aggregating these studies through a comprehensive second-order meta-analysis, the authors found that approximately 90% of the studies reported a nonnegative ESG–CFP relationship. More importantly, the majority of these studies indicated a positive correlation. When disaggregating the results by individual ESG components, governance exhibited the highest proportion of positive findings at 62.3% and the highest share of negative findings at 9.2%. The environmental dimension showed 58.7% positive and 4.3% negative results, while the social dimension produced 55.1% positive and 5.1% adverse outcomes (Friede et al., 2015).

3.3 ESG and cost of capital

ESG factors can influence a firm's cost of capital through several interrelated channels. Improved ESG performance or disclosure can alter investors' perception of risk and future cash flows, affecting the return they demand and, ultimately, valuation. Strong ESG performance can build trust with customers, employees, and investors. A company known for responsible practices and good governance may be perceived as less likely to

encounter large scandals, fines, or catastrophic events, thereby viewed as a safer investment. High ESG can serve as a form of reputational insurance or moral capital that investors value, especially in turbulent times. For instance, Lins et al. (2016) describe that, during the 2008–09 financial crisis, companies with high social capital, proxied by pre-crisis CSR intensity, had stock returns 4–7% higher than low-CSR firms, indicating they weathered the crisis with less loss of investor confidence. They attributed this resilience to the trust built via CSR investments, as stakeholders were more willing to give these firms the benefit of the doubt amidst the market panic (Lins et al., 2016). Generally, a trusted firm often faces a lower perceived risk of agency problems or unethical behaviour, which can translate into a lower cost of capital. Conversely, Friede et al. (2015) findings indicate that ESG controversies or adverse incidents erode trust and can increase the cost of equity, encapsulating that serious environmental controversies can lead to a higher required return on the stock.

3.3.1 Cost of capital and financial performance

Sharfman and Fernando (2008) offer an external rationale for the positive association between environmental and economic performance, emphasising the role of financial market perceptions. They argue that enhanced environmental risk management serves as a signal of reduced firm-specific risk, thereby lowering the cost of capital. Specifically, the cost of equity declines due to reduced systematic risk, reflected in a lower beta and increased investor confidence. In contrast, the relationship with the cost of debt is more nuanced. While environmentally responsible firms can access greater levels of debt financing, this may initially elevate the cost of debt due to higher leverage. However, Sharfman and Fernando (2008) find that this is counterbalanced by increased tax shields, leading to an overall reduction in the firm's weighted average cost of capital. A lower WACC means that future cash flows are discounted at a lower rate, yielding a higher company valuation. Consequently, ESG can create shareholder value indirectly by reducing WACC, even if it has no immediate effect on current earnings.

Another way ESG can affect WACC is through capital structure decisions. Priem and Gabellone (2024) describe that firms with strong governance and ESG may have more financing flexibility. For example, they might maintain slightly higher leverage because debt investors are comfortable with their risk, lowering WACC since debt is cheaper than equity (Priem & Gabellone, 2024). Conversely, a firm with ESG concerns might find debt expensive or limited, forcing greater reliance on equity and pushing up WACC. Additionally, Priem and Gabellone (2024) find that companies with good governance scores can borrow more without intimidating creditors, which, in effect, can lower the composite cost of capital. However, if taken to excess, it could raise financial risk.

3.3.2 Cost of capital and ESG disclosure

Corporate ESG disclosure is a critical piece of the puzzle, as it mediates how ESG performance is translated into investor perceptions and ratings. Two firms might have similar sustainability performance, but the one that communicates it better through sustainability and ESG reports could reap more benefits in terms of lower cost of capital. High-quality disclosure can earn firms a better ESG rating from agencies (since many ESG ratings rely on disclosed data), and it signals management's commitment to transparency and improvement. That said, better ESG disclosure provides investors with additional, credible information about the firm's non-financial risks and management quality. According to Li, K. et al. (2021), increased transparency lowers investors' uncertainty about future cash flows, which can reduce the risk premium they require. In short, a greater level of disclosure is often associated with lower information risk and cost of capital. Similarly, using regression analysis, Ahmad et al. (2021) examine the relationship between ESG performance and financial performance among UK companies listed on the FTSE 350 index. Their findings suggest that higher overall ESG performance positively influences financial performance, primarily by reducing information asymmetries between firms and stakeholders. However, the results were mixed when analysing individual ESG components separately, and no clear impact on financial performance was observed.

The effectiveness of ESG disclosure depends on how much information is shared and how it is presented. Superficial or promotional disclosures may fail to convince informed investors and harm a company's credibility. What truly matters is comprehensive and meaningful ESG reporting, allowing investors to evaluate relevant ESG risks and performance properly. Plumlee et al. (2015) developed an index of environmental disclosure quality in their 2015 study analysing U.S.-based companies in oil and gas, chemical, food/beverage, pharmaceutical, and electric utility industries. They find that higher-quality disclosures were linked to lower cost of capital. They also find that the venue of disclosure had an impact, as the ESG information disclosed in annual reports had different effects than that in stand-alone sustainability reports (Plumlee et al., 2015). Suggesting that integrated reporting, which many European firms have adopted, might be particularly effective in demonstrating to investors that ESG is taken seriously and linked to financial performance. Consequently, the trend toward combining financial and ESG reporting with integrated reporting and mandated non-financial reporting, like CSRD, reflects a policy belief that better disclosure will lower capital costs by levelling the information playing field. Early evidence around the EU directive shows increased ESG disclosure transparency and some improvement in firms' ESG ratings; over time, this could translate to more favourable financing if investors price in the improved information environment.

In summary, corporate ESG disclosure acts as a conduit through which ESG performance influences capital costs. High transparency and quality reporting tend to amplify the positive effects of good ESG on lowering capital costs by reducing information asymmetry and convincing investors of the firm's sincerity and oversight. Conversely, weak disclosure can obscure a firm's actual ESG performance. Suppose a company is doing good things but not reporting them. In that case, it will not reap the capital market benefits, and, on the other hand, if a firm has middling ESG but discloses poorly, investors might assume the worst, ultimately leading to a risk premium. Thus, European companies have increasingly embraced rigorous ESG reporting, not just for compliance or to influence

stakeholders, but as a strategic financial move to potentially lower their cost of equity and debt.

3.4 ESG rating agencies and criticism

There are several ESG rating providers for companies operating across different markets. However, a few have emerged as the most widely used and informative within the investment industry and academic research. Among these, MSCI ESG Research, Sustainalytics, and Refinitiv are considered particularly influential due to the breadth of their coverage and the sophistication of their methodologies. However, the methodologies employed by ESG rating providers differ significantly, leading to considerable variation in how corporate ESG performance is assessed. MSCI provides detailed ESG assessments incorporating management and exposure scores, offering insights into how well companies manage ESG risks and their importance to their business models (MSCI, 2024). Sustainalytics, owned by Morningstar, is widely used for its ESG risk ratings, which evaluate companies based on their exposure to material ESG issues and how effectively they manage those exposures (von Münchhausen et al., 2024). Refinitiv, formerly Asset4, integrates ESG data with financial metrics and is recognised for its extensive indicator-based approach (LSEG, 2023).

Berg et al. (2022) analysed the ESG ratings based on data from six prominent agencies, including the three previously mentioned agencies: Kinder, Lydenberg, and Domini (KLD), Moody's ESG, and S&P Global. They describe that the methodologies and data philosophies diverge. Although ESG ratings do positively correlate between agencies, there are substantial differences. For any level of the Sustainalytics benchmark rating, there exists a wide range of values by other agencies (Berg et al., 2022). Berg et al. (2022) identify three primary sources of divergence in ESG ratings: measurement, scope, and weight, which account for 56%, 38%, and 6% of the total variation, respectively. Measurement divergence arises when rating agencies evaluate the same ESG attribute but use different indicators or data sources. Scope divergence reflects variation in the specific ESG topics that rating agencies choose to include in their assessments. Weight divergence refers to

differences in how agencies prioritise ESG categories when calculating overall ratings (Berg et al., 2022). These findings suggest that the divergence in ESG ratings is substantial and primarily driven by differences in how agencies measure the same ESG attributes and in what they choose to measure in the first place, ultimately questioning the validity and credibility of ESG ratings.

ESG rating providers primarily rely on companies' self-reported data, typically drawn from annual reports and sustainability disclosures, to construct the various components that form the basis of the ESG score. These components are first categorised into separate measures, which are then aggregated to form the three pillars of ESG. These three pillar scores derive The final ESG score (Dorfleitner et al., 2015). However, a high total ESG score does not necessarily indicate comprehensive corporate responsibility. A company can achieve a high total score by excelling in just one of the three areas while underperforming in the others. Therefore, deeper analysis is essential to determine if a company is genuinely responsible across all ESG dimensions.

Many rating agencies also apply negative and positive screening as part of their evaluation process. Negative screening excludes companies operating in socially or ethically problematic sectors that fail to meet the agency's predefined standards, such as tobacco or arms manufacturing. However, the exclusion criteria vary significantly across agencies, reflecting a level of subjectivity in how ESG principles are operationalised. In contrast, positive screening highlights companies that actively engage in responsible practices, such as promoting human rights, environmental stewardship, or corporate citizenship. These divergent approaches to screening further contribute to variation across ESG ratings and emphasise the normative judgments embedded within ESG evaluation frameworks.

Furthermore, Christensen et al. (2022) describe that greater ESG disclosure levels led to greater ESG score differences between ESG rating agencies. Their 2022 study analyses the three largest agencies providing ESG ratings to investors, MSCI, Refinitiv and

Sustainalytics, also acting as the leading information intermediaries for ESG information in financial markets. Christensen et al. (2022) strongly support their original research question and describe that ESG disclosure amplifies the disagreement about ESG ratings, as agencies use different metrics and weights to evaluate ESG performance when more information is available. Ultimately, this suggests that increased ESG disclosure alone does not necessarily resolve the discrepancies among ESG ratings, thereby casting doubt on the efficacy of ESG ratings as reliable measures of corporate sustainability. While ESG considerations are increasingly shown to correlate positively with firm performance, the lack of consistent and comparable ESG data and standards may create excess noise around data points and lead to inconsistent research results.

4 Data and methodological framework

This chapter describes the data and methodology used to test the hypotheses. First, the primary data sources are introduced, followed by collection methods, and, ultimately, the process is showcased to achieve the final sample. Second, the variables used for ESG scores are explained. Last, the chapter describes the methodologies used for analysing the data, including the event study and regression models, to generate comprehensive results.

4.1 Data description

London Stock Exchange Group (LSEG) Data & Analytics is used to collect the primary data of M&A transactions from the European markets. The study focuses on acquisitions in three core markets: the United Kingdom, Germany and the Nordic markets, as these markets are often regarded as the leaders in sustainability (McKinsey, 2022) and their exchanges are the largest and the most active in sustainable deals (ECB, 2024), thus limiting the transactions in the sample accordingly. Additionally, the sample is enhanced by the following criteria:

- The acquirer and the target are publicly listed
- Daily adjusted stock prices are available
- The deal values are disclosed
- The deal value exceeds 1 MEUR
- Acquisition of controlling interest or a complete merger
- The acquirer controlled less than 50% of the shares of the target prior to the announcement and owned more than 50% of the target after the transaction,
- ESG scores are available for both parties in the LSEG Datastream.

The full unfiltered sample consists of 24192 (14196 + 7021 + 3695) transactions from 2010 to 2023 with 22802 (13259 + 6245 + 3298) unique acquirers. Before considering the ESG criteria, the sample consists of 559 individual transactions. However, as the study examines the direct impact of ESG scores on transactions and the long-term performance of M&A, the scores are required from both the acquirer and the target. The

final data sample consists of 45 transactions, each between an individual acquirer and a target. While this relatively small sample size imposes limitations on the generalizability and statistical power of the findings, it reflects the application of stringent selection criteria designed to enhance data quality and relevance. The focus on the Nordics, Germany, and the United Kingdom is deliberate, as these markets are recognised as ESG leaders within Europe and offer higher data availability and reporting standards. Expanding the sample to include Europe would likely introduce greater heterogeneity in ESG disclosure practices and regulatory environments, potentially confounding the results. Nonetheless, the small sample size, particularly when subdivided into ESG categories, may affect the robustness of the conclusions.

4.2 ESG score

The ESG scores used in this study are explicitly from the LSEG database, ensuring that the results are comparable and coherent, as there are differences between ESG rating agencies, which may create excess noise around data points and lead to inconsistent results. The chosen metric to analyse ESG performance is Thomson Reuters ESG Combined Score TRESGCS, which provides a rounded and comprehensive scoring of a company's ESG performance with an ESG controversies overlay captured from global media sources (LSEG, 2023).

The ESG performance is analysed from 630 company-level ESG measures, a subset of 186 of the most comparable and material per industry, power the overall company assessment (LSEG, 2023). These data are collected and calculated from the company's publicly disclosure and then grouped into 10 categories that also reformulate the three pillar scores as described in Table 1., ultimately giving the final ESG score, which is a reflection of the company's ESG performance, commitment and effectiveness based on publicly-reported information (LSEG, 2023).

Table 1. ESG score methodology (LSEG, 2023)

Pillar	Category	Indicators in Rating	Weights
Environmental	Emissions	28	15%
	Resource use	20	15%
	Innovation	20	13%
Social	Workforce	10	13%
	Community	14	9%
	Human rights	8	5%
	Product responsibility	30	4%
Governance	Management	35	17%
	Shareholders	12	5%
	CSR strategy	9	3%
Total		186	100%

The TRESGCS score adjusts a company's ESG performance rating to account for negative media coverage. When a firm faces ESG-related controversies, the TRESGCS combines the standard ESG score with an ESG controversies score, producing a weighted average for each fiscal period. The controversies score is derived from 23 specific topics linked to the main ESG categories, with the most recent issues reflected in the latest reporting period (LSEG, 2023). APPENDIX 1. describes these topics in detail. LSEG (2023) describes that the TRESGCS ranges from 0 to 100, where scores are considered poor, satisfactory, good, and excellent according to first, second, third and fourth quartiles, respectively, ultimately showcasing the ESG laggards and ESG leaders. Consequently, acquirers and targets introduced in this study with scores over 50 are categorised as ESG positive, and scores below 50 as ESG negative. When companies are not involved in ESG controversies, the ESGC score equals the ESG score (LSEG, 2023).

Christensen et al. (2022) describe that greater ESG disclosure levels led to greater ESG score differences between ESG rating agencies. Their 2022 study analyses the three largest agencies providing ESG ratings to investors, MSCI, Refinitiv and Sustainalytics, also acting as the leading information intermediaries for ESG information in financial markets. Christensen et al. (2022) find strong support to their original research question and describe that ESG disclosure appears to amplify the disagreement about ESG ratings, as agencies likely use different metrics and weighs to evaluate ESG performance when

more information is available, ultimately showcasing that greater ESG disclosure does not appear to help resolve ESG rating disagreement.

However, as of 2024, The European Union's Commission requires all large companies and listed small and medium-sized enterprises under the non-financial reporting directive, NFRD, to disclose information on their identified risks and opportunities arising from social and environmental issues, as well as the impact of their activities on people and the environment, according to EU's Corporate Social reporting Directive CSRD (EU, 2023). The CSRD aims to improve the sustainability reporting framework by improving the quality of available sustainability information to meet the needs of various stakeholders and help Europe become a more sustainable economy, ultimately making Europe the first climate-neutral continent by 2050 (PWC, 2023). Moreover, this development in corporate sustainability reporting could lead to a better understanding of factors determining good ESG performance by standardising the requirements. This statement is also supported by Christensen et al. (2022) as, according to their 2022 study, ESG information is received and evaluated in a less structured way, implying that analysts may search and collect different pieces of information at different points in time and in a different sequence, ultimately leading to different expectations about company's ESG performance (Christensen et al., 2022). Overall, exploring this development further opens an interesting opportunity for future research around the relationship between ESG and financial performance, as companies subject to the CSRD will have to report according to European Sustainability Reporting Standards (ESRS), enforcing the reporting standards. First, CSRD reports are to be published in 2025.

4.3 Methodology

Measuring the value effects of M&A transactions is often regarded as complex to understand, and the coalescing and colliding interests of myriad owners and stakeholders are often challenging to balance. Renneboog and Vansteenkiste (2019) describe how stock returns or accounting indicators can effectively measure this value effect. However, both ways of measurement are prone to challenges differentiating the effect of M&A

transactions from other effects, especially in more extended periods. According to Koller et al. (2015), for today's value-minded executives, creating shareholder value cannot be limited to simply maximising today's share price for today's shareholders. Instead, the evidence points to a better objective: maximising a company's collective value to current and future shareholders.

The methodology of this study is selected to focus on the immediate stock price effect around the M&A announcement and on the post-deal financial performance. Renneboog and Vansteenkiste (2019) observe that event study methodologies remain central to such evaluations, offering tools to detect abnormal returns associated with M&A announcements and outcomes. First, an event study is conducted, following the Wang et al. (2021) study, to find the average returns for acquirers within the event window. Second, multiple linear regression is formed to analyse the CARs of the event study in the longer term by incorporating post-M&A stock performance and accounting-based indicators.

Following the studies of Wang et al. (2021) and Zheng et al. (2023), Post-M&A stock performance is proxied by one year (252 trading days) buy-and-hold abnormal returns (BHARs), which measures the excess return that an investor would earn by purchasing the acquiring firm's stock at the time of the acquisition announcement and holding it over a specified period, relative to a benchmark. This analysis uses the value-weighted market index as the reference, representing the returns an investor would receive from a passive market investment over the same period. The acquiring firms' post-acquisition profitability is measured by using two accounting-based indicators: return on assets (ROA) and return on equity (ROE). ROA is defined as operating income before depreciation divided by the book value of total assets. ROE is calculated by dividing operating income before depreciation by the book value of equity. These measures provide a comprehensive assessment of the acquiring firms' ability to generate earnings from their assets and equity capital in the year after the acquisition. Carroll (2021) emphasises that sustainability goes beyond short-term financial goals, aligning with stakeholder

capitalism and purpose-driven business trends. This includes focusing on long-term impacts, which appeals to stakeholders who value companies' environmental and societal contributions over time.

Short-term M&A performance typically reflects the immediate stock market reaction following the announcement of a transaction. This performance is most often assessed using cumulative abnormal returns (CARs). The goal is to assess how the market's response differs from expected returns on the announcement date (Brown & Warner, 1985). However, evaluating short-term performance is complicated by the market's tendency to overestimate anticipated synergies (Moeller et al., 2005). In contrast, long-term M&A performance focuses on the sustained financial and operational outcomes achieved after deal completion. Researchers commonly assess this using accounting-based indicators such as return on assets (ROA) or return on equity (ROE) or market-based measures like buy-and-hold abnormal returns (BHAR). Long-term performance is influenced by factors such as the effectiveness of post-merger integration, cultural compatibility between the merging firms, and the strength of corporate governance. A persistent challenge in measuring long-term outcomes is isolating the specific impact of the merger from other variables affecting firm performance over time.

4.3.1 Event study

To evaluate the short-term market reaction to M&A announcements, this study adopts an event study methodology in line with established practices in financial economics, particularly those outlined by Renneboog and Vansteenkiste (2019) and Brown and Warner (1985). Event studies are widely used in the M&A literature to isolate and quantify abnormal returns surrounding corporate events. This methodology is particularly suitable for analysing whether the ESG characteristics of acquirers or targets influence investor reactions at the time of deal announcement.

The estimation of abnormal returns relies on the market model. This time-series regression approach captures the normal performance of a stock in relation to market

movements, as introduced by Brown and Walner (1985). The abnormal return for firm i at time t is computed as the difference between the actual return and the expected return based on the estimated market relationship:

$$AR_{i,t} = R_{i,t} - \widehat{\alpha_i} + \widehat{\beta_i} R_{m,t} \quad (1)$$

Where:

$\boldsymbol{R_{i,t}}$ is the return on stock *i* at time *t*;

$\boldsymbol{R_{m,t}}$ is the return on the market index (proxied by the EUROSTOXX600);

$\hat{\boldsymbol{\alpha}}_{\boldsymbol{i}}$ and $\hat{\boldsymbol{\beta}}_{\boldsymbol{i}}$ are the OLS estimates obtained during the estimation window.

The estimation window consists of 180 trading days and ends 5 days before the M&A announcement date, ensuring no contamination from the event. From this model, cumulative abnormal returns (CARs) are calculated over multiple event windows to assess market reactions: specifically, CAR(-1,1), CAR(-2,2), and CAR(-5,5). These cumulative measures are obtained as:

$$CAR_{t_1,t_2} = \sum_{t=t_1}^{t_2} AR_{i,t} \quad (2)$$

Where:

$\boldsymbol{t_1}$ and $\boldsymbol{t_2}$ define the lower and upper bounds of the event window, respectively.

These windows are selected to capture the immediate, short-term, and slightly extended responses to deal announcements.

Statistical inference is conducted using the methodology proposed by Brown and Warner (1985), which considers cross-sectional dependence among security-specific returns, thereby enhancing the validity of the t-tests for abnormal performance. This study follows the approach of Wang et al. (2021) by measuring event-induced returns through

this model, enabling a robust comparison of ESG-related deal characteristics and their influence on market valuation.

4.3.2 Multiple linear regression

This study adopts a multiple linear regression model inspired by Zheng et al. (2023) to evaluate the relationship between ESG characteristics and M&A performance. The model is specified as follows:

$$Acquirer\ performance_{i,t} = \beta_0 + \beta_k \sum ESG_{i,t-1} + \beta_k \sum Acquirer\ controls_{i,t-1} + \beta_k Deal\ control_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

Where:

i denotes the acquirer;

t represents time;

Acquirer performance is measured by CARs, BHARs, ROA, or ROE;

ESG is an acquirer and target TRESGCS or ESG upgrade measure;

Acquirer controls consist of firm-specific characteristics such as size, leverage, and market-to-book value;

Deal control describes the deal value;

ε_{it} is the error term capturing unobserved heterogeneity.

This framework allows the marginal effects of ESG factors to be isolated while accounting for firm-level and deal-level variation. It also facilitates the comparison of market-based and accounting-based outcomes across different ESG profiles and strategic contexts.

4.3.3 Variables

This study evaluates acquirer performance using both market-based and accounting-based dependent variables. The market-based measures include cumulative abnormal returns (CARs) over three event windows: CAR(-1,1), CAR(-2,2), and CAR(-5,5), calculated using the market model and daily stock returns, capturing short-term investor reactions.

Post-M&A stock performance is proxied by one year (252 trading days) of buy-and-hold abnormal returns (BHARs). The BHAR measures the excess return over the market that an investor would realize by purchasing the acquiring company's shares in the month of the acquisition announcement and holding them for a specified period. We use value-weighted market indices as the reference market portfolio. The BHAR is calculated as follows:

$$BHAR_i = \prod_{t=0}^{s+T}\left(1 + R_{i,t}\right) - \prod_{t=0}^{s+T}\left(1 + R_{m,t}\right)(1) \qquad (4)$$

Where:

i denotes the acquirer;

t represents the deal announcement;

T is the holding period;

$\boldsymbol{R_{i,t}}$ is the simple return of the acquiring firm;

$\boldsymbol{R_{m,t}}$ is the return of the market index.

Accounting-based performance is assessed through ROA and ROE, measured one year after the acquisition. ROA is defined as operating income before depreciation divided by the book value of total assets, while ROE is calculated by dividing operating income before depreciation by the book value of equity.

The primary independent variables capture ESG characteristics. These include the acquirer and target Thomson Reuters Combined ESG Scores (A.TRESGCS and T.TRESGCS), measured at the end of the fiscal year prior to the transaction. To account for changes in ESG performance, the study includes ESGUPG, a continuous variable calculated as the change in the acquirer's ESG score from two years to one year before the transaction, to capture the ESG momentum in the period leading up to the M&A announcement.

Following Wang et al. (2021) and Zheng et al. (2023) studies, this study incorporates several control variables to address heterogeneity in firm fundamentals and deal-specific characteristics, as follows: Acquirer size (A.SIZE), measured as a logarithm of total assets, acquirer leverage (A.LEV), defined as total debt over total assets, market-to-book ratio (A.MTBV), measured as a logarithm of market value of equity divided by the book value of equity, and deal size (D.SIZE), defined as logarithm of transaction value excluding net debt. These variables account for heterogeneity in firm fundamentals and transaction scale. Log transformations were applied selectively based on the distributions of each variable and their theoretical roles. Highly skewed or wide-ranging metrics like acquirer market-to-book value of equity, acquirer size, and deal size were log-transformed to improve normality and interpretability, while leverage remained at levels due to its bounded nature and economic clarity.

4.3.4 Robustness tests

To further assess the robustness of ESG's relationship with M&A outcomes, instrumental variable (IV) regressions were first applied to address potential endogeneity, where unobserved factors might simultaneously influence both ESG scores and post-acquisition outcomes. Industry and country median ESG scores served as instruments. The first-stage regressions confirmed the strength of these instruments, particularly industry median ESG. The second-stage regressions estimated the causal effects of acquirer ESG performance on CARs, BHAR, ROE, and ROA, controlling for firm size, leverage, and valuation. The propensity score matching (PSM) method was also applied to complement the IV approach and address the risk of selection bias inherent in observational M&A studies.

Firms selecting ESG strategies may differ systematically from others in size, leverage, or valuation, factors that could independently influence post-acquisition performance. Failing to control for these differences risks confounding the estimated effects of ESG. Firms were divided into high- and low-ESG groups based on the median of A.TRESGCS, resulting in 22 high-ESG and 23 low-ESG acquirers, as shown in Appendix 2. Matching was conducted using nearest-neighbour Euclidean distance on firm size, leverage, and market-to-book ratio to ensure a covariate balance between groups.

5 Results

This chapter presents the empirical results, beginning with the descriptive statistics of the key variables used in the study. The second subsection focuses on the event study and tests the first hypothesis. The third subsection presents the regression results to deepen the analysis. The second hypothesis is tested by comparing outcomes across ESG alignment scenarios utilising interaction terms and subsample analyses. The results are also analysed separately for ESG-positive and ESG-negative acquirers to explore potential performance asymmetries further. Finally, IV regressions are conducted to address potential endogeneity, followed by PSM as a robustness test to control selection bias and ensure that observed ESG effects on M&A outcomes reflect causal relationships rather than underlying firm differences.

5.1 Descriptive statistics

Table 2 displays the descriptive statistics for the full sample of 45 M&A transactions with financial and ESG-related data collected for both the acquiring and target firms. The three CAR windows exhibit positive mean values of 10.7%, 12.2%, and 14.2%, respectively, with increasing standard deviations. This indicates that although the average abnormal return rises with a wider event window, the variability also increases, reflecting greater noise and possibly other effective variables captured in longer windows. Notably, the mean ESG score suggests a moderate level of sustainability engagement across the sample, while the standard deviation indicates significant variation between firms. This heterogeneity is important as it may influence the relationship between ESG performance and value creation in M&A transactions. This highlights the diversity in firms' sustainability practices, justifying the need for robust controls in the regression analyses.

Table 2. Descriptive statistics

Variable	Mean	Median	Standard Deviation	Sample Variance	Kurtosis	Skewness	Minimum	Maximum
CAR (-1,1)	0.107	0.019	0.205	0.042	0.609	1.142	-0.182	0.663
CAR (-2,2)	0.122	0.026	0.216	0.047	0.364	1.062	-0.195	0.682
CAR (-5,5)	0.142	0.030	0.243	0.059	0.360	1.153	-0.164	0.771
BHAR	-0.043	-0.093	0.421	0.178	2.150	-0.495	-1.283	0.8541
ROA	0.218	0.0337	0.162	0.050	1.732	1.452	-0.056	0.920
ROE	0.077	0.0113	0.0753	0.006	1.057	1.095	-0.056	0.274
A.TRESGCS	58.480	59.680	19.574	383.126	0.118	-0.737	5.980	87.320
T.TRESGCS	41.207	38.360	20.232	409.332	-0.553	0.361	4.910	86.550
D.SIZE	3.247	3.232	0.698	0.487	-0.251	0.283	1.869	4.809
A.LEV	0.324	0.266	0.229	0.053	1.166	1.107	0.020	1.026
A.MTBV	0.197	0.139	0.523	0.273	4.472	-0.303	-1.711	1.780
A.SIZE	3.772	3.551	0.775	0.600	-0.836	0.133	2.349	5.503

CARs across all windows demonstrate positive skewness (ranging from 1.06 to 1.15) and moderate kurtosis, indicating distributions that are skewed to the right and have fatter tails than the normal distribution, suggesting that some deals generated significantly higher market responses. All three CARs have moderate standard deviations, with CAR(-5,5) showing the greatest dispersion (0.243), supporting variability in investor perception.

ROA and ROE have means of 0.218 and 0.077, respectively, and both distributions are skewed to the right. ROA has a fatter tail, showcasing that few acquirers have achieved exceptionally strong asset utilisation. The narrower range and standard deviation of ROA present more clustered results. ROA and ROE indicate modest, yet uneven, financial gains post-acquisition, highlighting heterogeneity in ESG integration.

However, the BHARs reveal a mean return of -4.4%, suggesting that, on average, acquirers underperformed relative to the benchmark over the holding period. The distribution exhibits moderate negative skewness (-0.495), indicating a longer left tail and a kurtosis of 2.15, reflecting a distribution slightly more peaked than the normal distribution. The median BHAR (-9.3%) is lower than the mean, reinforcing the presence of negatively skewed outcomes. The negative mean and median, coupled with relatively high

dispersion (standard deviation of 42.2%), suggest that while a minority of deals may have generated positive long-term returns, the majority resulted in underperformance.

Acquirers' average TRESGCS of 58.48 is substantially higher when compared to the target average of 41.21, showcasing that achieving a high ESG rating may not be a priority for smaller companies. The variable ESGUPG is a continuous indicator that describes the changes in the ESG of acquirers in the year prior to the M&A announcement. On average, approximately 69% of acquirers had such an ESG rating improvement, suggesting that most were already on an upward sustainability trajectory before pursuing M&A activity. From a signalling perspective, pursuing an acquisition shortly after an ESG improvement may amplify the company's visibility and underscore its commitment to long-term value creation. The following regressions will analyse whether the acquirer's recent ESG momentum can create value near the M&A announcement.

Additional control variables describe firm and deal characteristics. D.SIZE averages 3.25, while A.SIZE is slightly higher at 3.77. Both are symmetrically distributed with mild skewness and kurtosis, suggesting a mix of mid-sized and large deals. A.LEV averages 0.324 but ranges widely from 0.02 to 1.03, implying considerable variation in capital structure, which may ultimately affect post-acquisition risk and financial performance. A.MTBV show high dispersion (SD = 0.523) and positive kurtosis (4.47), consistent with a mixed sample of value and growth companies.

Table 3. displays the Pearson correlation coefficients among the key independent variables used in the regression models. As expected, a moderate positive correlation is observed between acquirer size and deal size (r = 0.674), suggesting that larger acquirers tend to engage in higher-value transactions. Acquirer size also shows a moderate positive correlation with leverage (r = 0.348) while being negatively correlated with both ESG scores (r = −0.389 with A.TRESGCS and r = -0.122 with T.TRESGCS), indicating that larger firms in the sample may not necessarily exhibit stronger ESG performance. Furthermore, the acquirer's ESG score is positively correlated with both the target's ESG score ESGUPG

(r = 0.321), implying that firms with higher ESG ratings are also more likely to improve ESG standings over time or to acquire similarly ESG-aligned firms. However, no high correlations (above 0.7) are observed among the explanatory variables, mitigating concerns about multicollinearity in the regression models. The correlation between leverage and market-to-book value is weak and negative (r = −0.189), while ESGUPG shows minimal association with firm size or leverage. Overall, the correlation structure supports the inclusion of all variables in the multivariate analysis without requiring further transformation or exclusion due to redundancy.

Table 3. Variation correlation matrix

	D.SIZE	A. LEV	A.MTBV	A.SIZE	A.TRESGCS	T.TRESGCS	ESGUPG
D.SIZE	1						
A.LEV	0.053	1					
A.MTBV	0.147	-0.189	1				
A.SIZE	0.674	0.348	-0.324	1			
A.TRESGCS	-0.299	-0.054	0.218	-0.389	1		
T.TRESGCS	-0.182	0.005	-0.097	-0.122	0.321	1	
ESGUPG	-0.001	-0.023	-0.227	0.001	0.321	0.188	1

5.2 Results of the event study

Table 4. displays the results of the event study. The ESG profiles of the acquiring and target companies segment the results. The superscripts *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively. The t-statistics are in parentheses.

Table 4. Results of the Event Study

Variable	CAR (-1,1)	CAR (-2,2)	CAR (-5,5)	Count
Full sample	0.107	0.122	0.142	90
	(-0.364)	(2.712)	(1.097)	
High ESG acquirer	-0.002	0.004	0.006	32
	(-5.886)	(3.022)	(-0.192)	
Low ESG acquirer	-0.048	-0.042	-0.039	13
	(0.017)	(0.384)	(-0.519)	
High ESG target	0.111	0.136	0.159	15
	(2.512)	(2.767)	(0.171)	
Low ESG target	0.285**	0.307*	0.355*	30
	(3.933)	(3.300)	(2.682)	

The full sample of 90 transactions shows positive average CARs across all three event windows: 0.107 for CAR(-1,1), 0.122 for CAR(-2,2), and 0.142 for CAR(-5,5). However, none of these values are statistically significant, as the corresponding p-values for all three windows exceed the conventional significance threshold. While CAR(-2,2) exhibits a relatively strong t-statistic (2.712), its p-value indicates that the market reaction is not robustly distinguishable from zero. Thus, M&A announcements in this sample tend to generate moderately positive but statistically inconclusive short-term market reactions.

A more evident pattern emerges when the sample is segmented by acquirer ESG performance. High-ESG acquirers show near-zero and statistically insignificant CARs across all windows, suggesting that investors do not systematically reward sustainability leaders for undertaking acquisitions. Interestingly, low-ESG acquirers do not receive significant market responses, with slightly negative or flat CARs. This implies that the ESG profile of the acquirer alone does not drive investor sentiment at the time of the M&A announcement and that investors may already expect disciplined, sustainability-driven behaviour from these companies, and M&A activity alone does not shift market expectations.

More substantial effects are observed when analysing target ESG characteristics. Acquirers targeting high-ESG firms generate positive but statistically insignificant CARs. In contrast, deals involving low-ESG targets produce the highest abnormal returns, reaching 0.285, 0.307, and 0.355 across the three windows. Furthermore, the CARs for low-ESG targets are statistically significant at the 10% level, and CAR(-1.1) even at the 5% level. This suggests that the market may favour the acquisition of ESG laggards, viewing them as undervalued opportunities or targets for ESG improvements and restructuring.

While returns for high-ESG targets are not negative, they are inferior to those involving low-ESG targets, suggesting that ESG strength at the target level does not command a market premium. The results also provide context for the second hypothesis, as no significant market premium emerges for ESG-aligned acquirer-target pairs, indicating that

ESG alignment, while theoretically valuable, does not translate into immediate investor enthusiasm without clear synergy expectations.

5.3 Results of the scenario analysis

Table 5. displays the sample segmented into four ESG alignment groups based on whether the acquirer and target have high or low ESG scores. This allows for the evaluation of the interaction effects of ESG alignment between the acquirer and target on announcement returns. The results reveal that combinations involving low ESG targets consistently achieve higher CARs, potentially reflecting greater perceived value creation opportunities or correcting for prior ESG-related underperformance. These patterns highlight the market's differentiated responses to sustainability signals embedded within M&A transactions.

Table 5. Results of the scenario analysis

Variable	CAR (-1,1)	CAR (-2,2)	CAR (-5,5)	Count
Full sample	0.107	0.122	0.142	90
	(-0.364)	(2.712)	(1.097)	
High ESG acquirer – High ESG target	0.088	0.103	0.103	26
	(-5.493)	(2.322)	(1.127)	
High ESG acquirer – Low ESG target	0.125	0.132	0.229	38
	(1.302)	(3.342)	(0.257)	
Low ESG acquirer – High ESG target	0.011	0.011	0.344	4
	(1.440)	(1.541)	(0.470)	
Low ESG acquirer – Low ESD target	0.140	0.162	0.177	22
	(2.493)	(2.298)	(0.227)	

The first group consist of high ESG acquirers and high ESG targets, producing moderately positive mean CARs. However, none are statistically significant, indicating that ESG alignment alone does not guarantee a favourable market reaction. That said, the relatively low CARs and negative t-statistic suggest that ESG alignment may not be viewed as a source of value by investors immediately around the announcement.

The second group consist of high ESG acquirers and Low ESG targets. Although these results are not statistically significant either, this pairing generated higher CARs across all three event windows, 0.125, 0.132, and 0.229. This suggests that investors may perceive greater upside potential or room for ESG-driven improvement when a sustainability leader acquires an ESG laggard. This trend proposes negative performance impacts for high-ESG acquirers pursuing high-ESG targets. In contrast, pairing high-ESG acquirers with low-ESG targets seems more acceptable or favourable to investors.

The third group consists of low ESG acquirers and high ESG targets, presenting the most volatile results with notably high CAR(-5,5) at 0.344, which is limited by a small sample size and statistically insignificant results. The positive trend suggests that low-ESG acquirers might benefit from acquiring high-ESG targets, possibly by signalling strategic shifts, yet this remains only speculative given the limited data points.

Finally, the fourth group consists of low ESG acquirers and low ESG targets, presenting the most consistently positive CARs across all three event windows. Although the results remain statistically insignificant, the results of this pairing suggest that even when both firms are viewed as ESG laggards, the market may anticipate value through restructuring, cost savings, or underpriced assets. On the other hand, these deals reflect opportunistic behaviour, where market participants price in speculative or short-term gains.

5.4 Results of multivariate regressions

This chapter presents the results of multivariate ordinary least squares (OLS) regression models developed to investigate the relationship between ESG-related characteristics and short-term market-based, proxied by CARs and BHARs, and accounting-based post-acquisition performance, proxied by ROA and ROE. Table 6. displays the first regression model where the primary independent variable includes both acquirer and target TRESGCSs. The results indicate that acquirer ESG scores (A.TRESGCS) have consistently negative but statistically insignificant coefficients across all three CAR models, suggesting that higher acquirer ESG ratings do not translate into a stock market premium at the time

of the announcement. In contrast, target ESG scores (T.TRESGCS) show positive coefficients in the market-based regressions, with marginal statistical significance observed in the CAR(-5,5) model. Results may indicate that investors view the acquisition of ESG-strong targets more favourably over longer windows. In the accounting-based regressions (ROA and ROE), neither A.TRESGCS nor T.TRESGCS is significantly associated with post-acquisition profitability. These findings suggest that although ESG may influence investor sentiment at the announcement, this does not necessarily carry over into improved financial performance.

Table 6. Results of multivariate regressions (Continuous ESG Variables)

Sample			***Full sample***			
Variable	**CAR (-1,1)**	**CAR (-2,2)**	**CAR (-5,5)**	**BHAR**	**ROA**	**ROE**
A. TRESGCS	-0.001	-0.001	-0.001	-0.005	-0.003	-0.001
	(-1.017)	(-0.790)	(-0.739)	(-1.294)	(-1.127)	(-1.415)
T. TRESGCS	0.001	0.001	0.002**	0.001	-0.002	-0.000
	(1.195)	(1.421)	(1.983)	(0.212)	(-0.618)	(-0.260)
D.SIZE	-0.047	-0.044	-0.042	-0.258*	-0.026	-0.043
	(-1.512)	(-1.258)	(-1.179)	(-1.806)	(-0.239)	(-1.415)
A. LEV	0.062	0.043	0.026	-0.290	0.250	0.035
	(1.001)	(0.612)	(0.365)	(-1.019)	(1.133)	(0.571)
A. MTBV	-0.045	-0.061*	-0.040	0.181	0.163	0.077**
	(-1.370)	(-1.639)	(-1.062)	(1.197)	(1.389)	(2.354)
A. SIZE	0.014	0.009	0.003*	0.063	0.083	0.048*
	(0.484)	(0.273)	(0.095)	(0.473)	(0.793)	(1.652)
R-squared	0.243	0.252	0.230	0.171	0.154	0.186
Adj R-squared	0.123	0.134	0.109	0.041	0.021	0.058
F-statistic	2.027	2.131	1.894	1.313	1.157	1.451
SD dependent variable	0.096	0.109	0.108	0.451	0.324	0.091

Table 7. displays a model where the ESG variables are transformed into binary indicators, presenting whether the acquirer (A.DUMMY) or the target (T.DUMMY) had an ESG score above the sample median, where each variable takes the value of 1 if the company's ESG score is above the sample median, and zero otherwise. Across all five models, neither A.DUMMY nor T.DUMMY are statistically significant. A.DUMMY remained small and negative in all CAR regressions. These findings indicate that acquirers or targets with above-median ESG scores do not consistently outperform their peers regarding short-term

market reaction or post-acquisition financial performance. ESG leadership, as defined by binary classification, does not appear to consistently generate superior short-term stock returns or enhanced operational performance post-transactions, as the effects are likely moderated by other deal-specific factors, thus not functioning as a reliable signal of value creation in M&A singlehandedly.

Table 7. Results of multivariate regressions (Binary ESG Variables)

Sample	***Full sample***					
Variable	**CAR (-1,1)**	**CAR (-2,2)**	**CAR (-5,5)**	**BHAR**	**ROA**	**ROE**
A.DUMMY	-0.013	-0.013	-0.034	0.022	-0.108	-0.055
	(-0.251)	(-0.227)	(-0.594)	(0.097)	(-0.615)	(-1.135)
T.DUMMY	0.011	0.012	0.030	0.075	-0.112	-0.032
	(0.375)	(0.353)	(0.880)	(0.566)	(-1.102)	(-1.149)
D.SIZE	-0.045	-0.044	-0.043	-0.212	-0.052	-0.055*
	(-1.354)	(-1.155)	(-1.107)	(-1.392)	(-0.443)	(-1.714)
A. LEV	0.053	0.038	0.038	-0.399	0.168	0.017
	(0.823)	(0.522)	(0.515)	(-1.359)	(0.745)	(0.273)
A. MTBV	-0.052	-0.069	-0.047	0.139	0.188	0.086***
	(-1.502)	(-1.750)	(-1.184)	(0.887)	(1.550)	(2.593)
A. SIZE	0.015	0.009	-0.002	0.068	0.147	0.069**
	(0.493)	(0.246)	(-0.055)	(0.141)	(1.356)	(2.315)
R-squared	0.209	0.213	0.172	0.142	0.143	0.195
Adj R-squared	0.084	0.088	0.042	0.006	0.008	0.067
F-statistic	1.671	1.711	1.32	1.051	1.056	1.531
SD dependent variable	0.092	0.104	0.106	0.420	0.322	0.088

Table 8. displays a model that only includes high-ESG acquirers. Across all five outcome measures, the results are statistically insignificant, reinforcing the earlier result that high ESG scores do not translate into announcement premiums. The explanatory power of the models was modest, with adjusted R^2 values ranging from 0.094 to 0.139. T.TRESGCS in the CAR(-5,5) model was significant at a 10% level, suggesting a possible positive effect of target ESG scores, but this finding was not robust across other models. Accounting-based regressions for high-ESG acquirers are not significantly different from the sample mean. Although ROE regression results showed a marginal effect for firm valuation

(A.MTBV), with adjusted R^2 values near zero in the accounting models, these results confirm the limited impact of ESG leadership on post-deal financial synergies.

Table 8. Results of a subsample multivariate regressions for high-ESG acquirer

Sample	***High-ESG acquirer***					
Variable	**CAR (-1,1)**	**CAR (-2,2)**	**CAR (-5,5)**	**BHAR**	**ROA**	**ROE**
T. TRESGCS	0.0008	0.001	0.002*	-0.001	-0.002	0.000
	(0.901)	(1.196)	(1.908)	(-0.188)	(0.660)	(-0.280)
D.SIZE	-0.059	-0.070	-0.070	-0.177	0.011	-0.046
	(-1.370)	(-1.400)	(-1.430)	(-0.944)	(0.075)	(-1.170)
A. LEV	0.053	0.045	0.055	-0.484	0.193	0.031
	(0.663)	(0.505)	(0.622)	(-1.433)	(0.690)	(0.421)
A. MTBV	-0.039	-0.050	-0.020	0.102	0.134	0.075*
	(-0.895)	(-1.040)	(-0.450)	(0.548)	(0.883)	(1.893)
A. SIZE	0.040	0.041	0.030	-0.005	0.098	0.066
	(0.883)	(-0.030)	(0.583)	(-0.029)	(0.604)	(1.565)
R-squared	0.240	0.278	0.278	0.168	0.129	0.159
Adj R-squared	0.094	0.139	0.139	-0.030	-0.038	-0.003
F-statistic	1.641	1.997	1.998	0.844	0.772	0.982
SD dependent variable	0.113	0.128	0.126	0.451	0.368	0.096

Table 9 displays a model that includes only low-ESG acquirers. Across all five outcome measures, the results are statistically insignificant. However, low-ESG acquirers display somewhat stronger accounting performance post-acquisition, as their average ROA and ROE are higher than those of high-ESG acquirers. The CARs for low-ESG acquirers show weak explanatory power, with adjusted R^2 values ranging from -0.375 to -0.010, and none of the independent variables are statistically significant, suggesting the market does not reward these transactions, possibly due to reputational concerns, perceived sustainability risks, or a lack of investor confidence in the strategic rationale behind such deals. In contrast, the ROA model yielded an adjusted R^2 of 0.201, the highest among all models tested for low-ESG acquirers, with statistically significant results in A.SIZE, D.SIZE, and A.MTBV. These results suggest that low-ESG acquirers may be more effective at realising short-term operational efficiencies and highlight that financial factors, rather than

ESG profiles, may be the primary drivers of these companies' post-acquisition performance.

Table 9. Results of a subsample multivariate regressions for low-ESG acquirer

Sample	***Low-ESG acquirer***					
Variable	**CAR (-1,1)**	**CAR (-2,2)**	**CAR (-5,5)**	**BHAR**	**ROA**	**ROE**
T. TRESGCS	0.000	-0.001	-0.001	-0.015*	-0.006	-0.003
	(0.082)	(-0.619)	(-0.427)	(-2.093)	(-0.914)	(-0.961)
D.SIZE	-0.036	0.007	0.024	-0.496*	-0.371**	-0.124
	(-1.055)	(0.239)	(0.511)	(-2.059)	(-2.305)	(-1.614)
A. LEV	0.039	0.121	0.103	3.906***	-0.687	-0.173
	(0.212)	(0.750)	(0.404)	(3.821)	(-0.791)	(-0.418)
A. MTBV	0.018	0.010	-0.052	0.633	0.752**	0.320*
	(0.167)	(0.159)	(-0.594)	(1.612)	(2.495)	(2.223)
A. SIZE	-0.001	-0.029	-0.029	0.104	0.302**	0.101*
	(-0.017)	(-0.974)	(-0.858)	(0.684)	(2.622)	(1.848)
R-squared	0.411	0.335	0.198	0.872	0.534	0.436
Adj R-squared	-0.010	-0.140	-0.375	0.744	0.201	0.032
F-statistic	0.977	0.705	0.345	6.830	1.605	1.080
SD dependent variable	0.108	0.088	0.119	0.186	0.183	0.077

Table 10 displays regression estimates for one-year post-M&A accounting performance (ROA and ROE), segmented by the acquirers' initial ESG rating, to assess whether ESG upgrades (ESGUPG) have differential effects based on prior ESG standing. For acquirers with high initial ESG ratings, neither ROA nor ROE models yielded statistically significant coefficients for ESGUPG, and the explanatory power of the models was weak with adjusted R^2 of 0.00 and 0.01, respectively. The coefficient for ESGUPG was negative in both cases, suggesting no evidence of improvement in accounting performance following ESG rating upgrades among this group. On the other hand, the low initial ESG group showed a substantially stronger model fit, especially for ROA with an adjusted R^2 of 0.28 and positive ESGUPG coefficients for both ROA and ROE, although still not statistically significant. Furthermore, the control variables, D.SIZE, A.SIZE and A.MTBV, for the ROA model were significant at a 5% level in the low ESG group. These results show that positive ESG momentum is associated with improved ROA and ROE, primarily in firms starting from a

low initial ESG base. Further upgrades for high initial ESG firms do not yield significant financial gains, suggesting diminishing returns to sustainability improvements at higher performance levels. This dynamic emphasises that ESG value creation may be contingent on current performance and the trajectory of sustainability improvements.

Table 10. Results of a subsample multivariate regressions for ESG momentum

Sample	**High initial ESG**			**Low initial ESG**		
Variable	**BHAR**	**ROA**	**ROE**	**BHAR**	**ROA**	**ROE**
ESGUPG	0.182	-0.176	-0.023	0.119	0.138	0.063
	-1.204	(-1.22)	(-0.61)	-0.433	-1.3	-1.23
D.SIZE	0.092	0.065	-0.038	-0.598	-0.394**	-0.134*
	-0.572	-0.42	(-0.94)	(-1.493)	(-2.56)	(-1.80)
A. LEV	0.667	0.202	0.032	-0.716	-1.337*	-0.493
	-2.327	-0.74	-0.44	(-0.427)	(-2.07)	(-1.57)
A. MTBV	-0.382	0.128	0.074	0.241	0.630**	0.262*
	(-2.484)	-0.87	-1.89	-0.335	-2.27	-1.94
A. SIZE	-0.104	0.079	0.063	0.218	0.310**	0.105*
	(-0.624)	-0.49	-1.5	-0.767	-2.83	-1.97
R-squared	0.371	0.162	0.168	0.346	0.58	0.474
Adj R-squared	0.249	0.001	0.008	-0.12	0.281	0.098
F-statistic	3.061	1.01	1.05	0.742	1.94	1.26
SD dependent variable	0.386	0.369	0.097	0.388	0.15	0.073

5.5 Results of the robustness tests

Both IV regressions and PSM were applied to strengthen the robustness of the study and address two distinct biases. The IV regressions corrected for potential endogeneity, where unobserved factors could influence both ESG scores and performance outcomes. PSM was used to mitigate selection bias by creating comparable groups of high- and low-ESG acquirers based on observable firm characteristics. Together, these methods ensured that the observed relationships between ESG performance and M&A outcomes were not driven by underlying firm differences or reverse causality.

5.5.1 Results of instrumental variable regressions

Table 11. displays the first-stage regression results. The results indicate that the industry median ESG is a strong and statistically significant predictor of firm-level ESG scores, validating its use as an instrument. The country's median ESG also shows a positive association, statistically significant at the 10% level. D.SIZE has a negative and marginally significant effect among the control variables, suggesting that larger firms tend to have lower ESG scores after accounting for other factors. A.LEV is positively related to ESG scores but is not statistically significant. Finally, A.MTBV is positively and significantly associated with ESG scores. Overall, the first-stage results confirm that the chosen instruments explain substantial variation in acquirer ESG scores, supporting the validity of the IV approach.

Table 11. First-Stage Instrumental Variable Regression Results

Variable	Coefficient	Std. Error	t-Statistic	p-Value
Industry Median ESG	0.6012	0.1576	3.816	0.001
Country Median ESG	0.3727	0.2218	1.68	0.101
D.SIZE	-6.295	3.1604	-1.992	0.053
A.LEV	15.1452	9.3838	1.614	0.115
A.MTBV	10.4738	4.1574	2.519	0.016

Table 12. displays the second-stage regression results. The results show that the instrumented A.TRESGCS is negatively associated with most post-acquisition outcomes. The effect is marginally significant for CAR (-1,1) and statistically significant for BHAR, suggesting that higher ESG scores are linked to lower short-term market reactions and long-term stock performance. However, no significant relationship is found between ESG scores and CAR (-2,2), CAR (-5,5), ROA, or ROE. D.SIZE consistently shows a negative and statistically significant effect on CARs and BHAR, indicating that larger acquirers tend to experience weaker market responses and stock performance, possibly due to market scepticism regarding the efficiency of large-scale deals or integration risks. A.LEV and A.MTBV exhibit variable effects across the models but are not consistently significant. Overall, the results suggest that, after correcting for endogeneity, higher ESG

performance does not lead to improved post-acquisition outcomes and may be associated with lower market and stock performance than lower ESG counterparts.

Table 12. Second-Stage Instrumental Variable Regression Results

Variable	CAR (-1,1)	CAR (-2,2)	CAR (-5,5)	BHAR	ROA	ROE
Instrumented A.TRESGCS	-0.002*	-0.002	-0.002	-0.012**	-0.002	-0.001
	(-1.700)	(-1.429)	(-1.247)	(-2.122)	(-0.471)	(-0.442)
D.SIZE	-0.052**	-0.055**	-0.058**	-0.274***	0.062	0.003
	(-2.295)	(-2.131)	(-2.182)	(-2.707)	(0.736)	(0.109)
A.LEV	0.097	0.079	0.059	-0.119	0.222	0.025
	(1.512)	(1.079)	(0.785)	(-0.414)	(0.930)	(0.359)
A.MTBV	-0.046	-0.060*	-0.037	0.196	0.103	0.041
	(-1.673)	(-1.885)	(-1.141)	(1.566)	(0.998)	(1.378)
R-squared	0.252	0.246	0.182	0.213	0.084	0.057

5.5.2 Results of propensity score matching

Appendix 2. displays the matching results performed using nearest-neighbour Euclidean distance, controlling for D.SIZE, A.LEV, and A.MTBV. Post-matching covariate balance was confirmed, with standardised mean differences for all matching variables reduced to below 0.1, indicating excellent balance between the groups. Although low-ESG firms exhibited slightly higher ROE and ROA, and BHAR values were marginally more favourable, the results are not statistically significant. The matching analysis suggests that ESG performance was not a primary driver of short-term or medium-term value creation.

6 Discussion

The event study (Table 4.) reveals the complex role of ESG in M&A valuation, demonstrating that market participants respond asymmetrically to ESG characteristics at the time of deal announcement. Notably, acquirers of low ESG targets earn the highest and statistically significant abnormal returns, whereas acquisitions of high ESG targets produce positive but less robust effects. The event study results align with Renneboog (2019), who cautions that initial market optimism often fails to materialise in long-term performance and confirms that market participants might overvalue "virtuous" transactions. The data suggest that while markets initially reward the potential for ESG improvement, they remain sceptical of deals based purely on ESG alignment without clear financial or operational synergies. Consequently, high ESG acquirers consistently deliver insignificant or negative CARs, suggesting that investors remain cautious about ESG-driven motives, potentially perceiving them as value-destructive. Scenario analyses in Table 5 reinforce this asymmetry. Deals between high ESG acquirers and low ESG targets exhibit strong performance, potentially reflecting strategic turnarounds or underappreciated synergies. Suggesting that improvement narratives, rather than static ESG alignment, are more appealing to investors, agreeing with the findings of Zheng et al. (2023), who highlight that ESG value is contingent on integration feasibility rather than ESG scores alone.

ROA and ROE regression analyses (Table 10.) indicate that low-ESG acquirers exhibit stronger post-deal accounting performance, with models explaining a meaningful proportion of variance. In contrast, high-ESG acquirers show weaker predictability and no significant ESG-related coefficients. These findings challenge the simplistic view that ESG translates directly into operational efficiency or profitability. Zheng (2023) argues that ESG overinvestment may dilute managerial focus, particularly in complex integrations, consistent with the results for high ESG acquirers, where ESG upgrading (ESGUPG) is not associated with superior outcomes. Wang (2021) offers a complementary view, suggesting that CSR-related overinvestment may result in underperformance when strategic alignment is weak or when ESG motives supersede financial discipline. Such

overinvestment might explain the muted performance of high ESG acquirers, especially when they pursue similarly aligned targets without precise value-creation mechanisms.

Furthermore, the BHAR analysis underscores this pattern. The results indicate a negative mean BHAR of -4.4%, which suggests that, on average, acquirers in the sample underperform relative to market benchmarks over the longer term. Notably, the variability in BHAR outcomes reflects the heterogeneity of deal characteristics and strategic execution quality rather than any consistent advantage conferred by ESG alignment. These findings align with the findings of Zheng (2023), Wang (2021), and Renneboog and Vansteenkiste (2019), who argue that ESG-driven acquisitions may inadvertently compromise financial discipline or dilute managerial focus when not carefully aligned with core value drivers. The absence of a positive BHAR trend, even among transactions involving high-ESG firms, suggests that market optimism around ESG factors may not translate into sustained superior performance. Instead, the results underscore the importance of strategic rationale, post-merger integration effectiveness, and precise value-creation mechanisms as determinants of long-term success.

Analyses using binary ESG indicators (A.DUMMY and T.DUMMY) indicate no statistically significant effects on CARs or accounting returns. This lack of explanatory power implies that mere classification as "high-ESG" cannot predict M&A outcomes. As Wang (2021) emphasises, ESG must be considered within the context of deal logic and post-merger integration, not as a standalone signal. Similarly, Renneboog (2019) stress that ESG-related synergies often fail to materialise unless accompanied by strong strategic, cultural, and operational alignment.

The robustness tests provide consistent evidence regarding the relationship between acquirer ESG performance and post-acquisition outcomes. The PSM analysis shows no statistically significant differences in CARs, BHAR, ROE, or ROA between matched high- and low-ESG acquirers, suggesting that firm characteristics rather than ESG performance explain variations in M&A outcomes. These findings also align with Renneboog and

Vansteenkiste (2019), who emphasise the role of firm and deal fundamentals in M&A success. The IV regressions revealed a negative relationship between ESG scores, short-term market reactions, and long-term stock performance, with no significant effects on accounting performance. These results are consistent with Zheng et al. (2023), who report that ESG engagement does not always lead to value creation in M&A, and with Wang, Lu, & Liu (2021), who highlight the potential for ESG or CSR overinvestment to erode value.

These findings suggest that acquiring high-ESG targets results in lower market or financial returns; the results show positive abnormal returns for acquisitions involving high-ESG targets and no evidence of weaker financial performance. Instead, low-ESG target acquisitions yield statistically stronger market reactions, suggesting that the market may anticipate value through restructuring, cost savings, or underpriced assets. On the other hand, these deals reflect opportunistic behaviour, where market participants price in speculative or short-term gains. Furthermore, this study fails to find evidence of compounding adverse effects for transactions between high-ESG acquirers and high-ESG targets. Instead, results indicate that low-ESG acquirers may benefit more from such transactions due to more significant ESG catch-up potential or stronger financial orientation. To summarise, this study does not find consistent support for either hypothesis, challenging the assumption that ESG directly translates into operational efficiency or profitability

Overall, the findings suggest that ESG acts more as a contextual enhancer than a deterministic value driver in M&A. Investors reward strategic fit and financial fundamentals over symbolic ESG alignment. This resonates with Renneboog's (2019) conclusion that deal-level and firm-level fundamentals remain the dominant predictors of M&A success. While ESG may enhance reputational capital or stakeholder alignment, its direct translation into value is conditional and highly dependent on execution. Therefore, firms engaging in ESG-driven acquisitions must present a clear and credible economic rationale.

Without a convincing path to synergies and value creation, such deals risk being met with investor scepticism and may ultimately underperform.

6.1 Implications of EU's regulatory shift

Recent policy developments within the European Union reflect a strategic recalibration that balances sustainability goals with the imperatives of industrial competitiveness. On 26 February 2025, the European Commission introduced the Omnibus Simplification Package, a collection of proposals to ease regulatory and reporting obligations for European businesses, particularly small and medium-sized enterprises. This initiative not only reduces administrative burdens but also marks a symbolic shift from the prevalent rhetoric of a "green transition" toward an industry-focused discourse centred on advancing a "clean industry" (European Commission, 2025).

The key adjustments include raising the employee threshold for mandatory compliance with the CSRD from 250 to 1,000 employees, a move that would exempt approximately 85 per cent of companies currently subject to reporting requirements, postponing the reporting deadlines for second and third waves of companies, extending the compliance timeline to 2028, and allowing companies with annual revenues of 450 million to report voluntarily.

This development is particularly relevant regarding future research on ESG's role as a value driver in M&A. Although the aim is to ease the administrative burden on smaller companies and alleviate their compliance costs, reducing reporting requirements directly affects the availability, consistency, and comparability of ESG disclosures. Challenging the previously progressive regulatory framework to increase transparency and standardisation over time, this change of discourse may impair stakeholders' ability to evaluate ESG-related value drivers accurately, which ultimately may increase information asymmetry and affect pricing and rationale in M&A.

6.2 Implications of ESG in decision-making

While this study finds that ESG alignment does not consistently lead to improved post-acquisition financial performance across all cases, the findings, derived from the event study and multivariate regressions, identify specific conditions under which ESG alignment can contribute to value creation in M&A. The results indicate that ESG alignment tends to be most effective when the acquiring firm has a credible strategy for enhancing the target's ESG profile after the transaction. Scenario analyses and event study outcomes suggest that markets respond favourably to acquisitions of lower-ESG-rated targets, particularly when the acquirer demonstrates the operational capacity or reputational capital needed to achieve meaningful improvements. Investors appear to view such transactions as opportunities to generate value through ESG enhancements, particularly when these efforts align with cost efficiencies or restructuring initiatives.

Moreover, the analysis confirms that deals underpinned by strong financial fundamentals, such as balanced leverage, favourable market-to-book ratios, and realistic synergy expectations, are more likely to yield positive market and accounting outcomes. ESG considerations, while valuable, tend to reinforce rather than replace sound financial and strategic rationales. In line with the findings of Zheng et al. (2023) and Wang et al. (2021), regression models indicate that traditional financial drivers remain significant predictors of post-acquisition performance, even when ESG variables are accounted for, underscoring that ESG alignment cannot compensate for weak financial fit or poorly conceived synergies.

The study also reveals that markets are more responsive to ESG narratives that emphasise the potential for improvement rather than static alignment. Investors assign higher cumulative abnormal returns (CARs) to deals involving low-ESG targets when the acquiring firm demonstrates a credible capacity to enhance ESG performance. This suggests that momentum in ESG improvement, as captured by the study's ESGUPG variable, holds greater signalling value than absolute ESG scores.

Finally, the findings underscore the growing relevance of credible ESG integration considering Europe's evolving regulatory landscape. As ESG disclosures become increasingly standardised and mandatory, firms will face heightened expectations for transparency and must demonstrate how ESG considerations inform decision-making and contribute to tangible value creation. M&A strategies that proactively integrate ESG objectives to meet regulatory requirements and achieve measurable improvements will likely be better positioned to secure investor confidence, lower their cost of capital, and minimise compliance risks.

7 Conclusion

This thesis aims to contribute to the academic literature by examining the role of ESG factors in mergers and acquisitions within the European context. It explores the relationship between ESG practices and acquirer returns at the time of the transaction, as well as post-acquisition financial performance, to analyse the stated hypotheses. The study adopts an event study methodology combined with multivariate regression analysis, applied to a cross-sectional sample of European M&A transactions. By integrating market-based and accounting-based performance indicators, this approach offers a comprehensive assessment of the relevance of ESG factors in today's M&A landscape.

The results reveal a complex relationship between ESG factors and M&A outcomes. While ESG scores of the acquiring firm were generally not associated with significant announcement returns or improved accounting performance, target ESG scores were positively linked to market reactions in extended event windows. Notably, acquisitions involving high-ESG targets yielded marginally higher abnormal returns, while low-ESG targets produced the strongest and most statistically significant market responses. This suggests that the market may respond positively to acquisitions of underperforming firms with potential for ESG, financial improvement, or synergies rather than rewarding ESG alignment.

The event study confirms these results. High-ESG targets consistently generate higher abnormal returns, while low-ESG targets achieve the strongest and most statistically significant CARs. Meanwhile, high-ESG acquirers exhibit weak or adverse market reactions, perhaps reflecting overvaluation concerns or a misalignment between ESG and core business strategy. The scenario analysis further clarifies this pattern. Deals, where high-ESG acquirers target low-ESG firms or low-ESG acquirers pursue low-ESG targets, yield positive and often significant abnormal returns.

Long-term performance assessments reinforce this pattern, including BHAR, ROA, and ROE regressions. Low-ESG acquirers outperform their high-ESG counterparts with more

robust and statistically significant models. The explanatory power of ESG-related variables remains limited, particularly for high-ESG acquirers. Notably, neither ESG momentum (ESGUPG) nor binary ESG indicators predict sustained success, challenging the assumptions that ESG alignment inherently enhances operational efficiency or financial returns in M&A. Robustness tests, PSM and IV regressions further corroborate these conclusions. The results suggest that firm-specific fundamentals and deal characteristics primarily drive market and accounting outcomes. If not strategically integrated, ESG overinvestment can dilute managerial focus and erode financial discipline.

The findings of this thesis should be interpreted considering several limitations. The sample's restriction to publicly disclosed transactions with available ESG ratings may introduce selection bias despite efforts to control for observable differences through propensity score matching (PSM). The use of one-year post-acquisition accounting data may understate longer-term ESG impacts. Aggregated ESG scores, while comparable, may mask sector-specific materiality and evolving sustainability strategies. IV regressions addressed potential endogeneity but were limited by data constraints. Across models, limited explanatory power, especially for high-ESG acquirers, suggests that ESG alignment alone does not predict M&A success, with firm fundamentals and deal-specific factors exerting greater influence.

In conclusion, ESG considerations in M&A function as contextual modifiers rather than deterministic value drivers. Although ESG may signal governance quality and long-term strategic orientation, it cannot substitute for robust financial and operational fundamentals. In practice, this study underscores the importance of clear value-creation rationales when companies pursue ESG-driven acquisitions. Without demonstrable synergies and execution capability, ESG motives alone are unlikely to satisfy investors or sustain long-term performance.

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Appendices

Appendix 1. Controversy measures (LSEG, 2023)

Category	Label	Description
Community	Anticompetition controversy	Number of controversies published in the media linked to anti-competitive behaviour (e.g., anti-trust and monopoly), price-fixing or kickbacks.
Community	Business ethics controversies	Number of controversies published in the media linked to business ethics in general, political contributions or bribery and corruption.
Community	Intellectual property controversies	Number of controversies published in the media linked to patents and intellectual property infringements.
Community	Critical countries controversies	Number of controversies published in the media linked to activities in critical, undemocratic countries that do not respect fundamental human rights principles.
Community	Public health controversies	Number of controversies published in the media linked to public health or industrial accidents harming the health and safety of third parties (non-employees and non-customers).
Community	Tax fraud controversies	Number of controversies published in the media linked to tax fraud, parallel imports or money laundering.
Human rights	Child labour controversies	Number of controversies published in the media linked to use of child labour issues.
Human rights	Human rights controversies	Number of controversies published in the media linked to human rights issues.
Management	Management compensation controversies count	Number of controversies published in the media linked to high executive or board compensation.
Product responsibility	Consumer controversies	Number of controversies published in the media linked to consumer complaints or dissatisfaction directly linked to the company's products or services.
Product responsibility	Customer health and safety controversies	Number of controversies published in the media linked to customer health and safety.
Product responsibility	Privacy controversies	Number of controversies published in the media linked to employee or customer privacy and integrity.
Product responsibility	Product access controversies	Number of controversies published in the media linked to product access.
Product responsibility	Responsible marketing controversies	Number of controversies published in the media linked to the company's marketing practices, such as over-marketing of unhealthy food to vulnerable consumers.
Product responsibility	Responsible R&D controversies	Number of controversies published in the media linked to responsible R&D.
Resource use	Environmental controversies	Number of controversies related to the environmental impact of the company's operations on natural resources or local communities.
Shareholders	Accounting controversies count	Number of controversies published in the media linked to aggressive or non-transparent accounting issues.
Shareholders	Insider dealings controversies	Number of controversies published in the media linked to insider dealings and other share price manipulations.
Shareholders	Shareholder rights controversies	Number of controversies published in the media linked to shareholder rights infringements.
Workforce	Diversity and opportunity controversies	Number of controversies published in the media linked to workforce diversity and opportunity (e.g., wages, promotion, discrimination and harassment).
Workforce	Employee health and safety controversies	Number of controversies published in the media linked to workforce health and safety.
Workforce	Wages or working conditions controversies	Number of controversies published in the media linked to the company's relations with employees or relating to wages or wage disputes.
Workforce	Strikes	Has there has been a strike or an industrial dispute that led to lost working days?

Appendix 2. Propensity Score Matching Results

Sample		High-ESG Aquirer						Low-ESG Acquirer					
High-ESG Acquirer	Matched Low-ESG Acquirer	CAR (-1,1)	CAR (-2,2)	CAR (-5,5)	BHAR	ROE	ROA	CAR (-1,1)	CAR (-2,2)	CAR (-5,5)	BHAR	ROE	ROA
Nokia Oyj	Paypoint PLC	-0.0151	-0.0115	-0.0116	-0.116	0.0002	0.0008	-0.0335	-0.0238	-0.0443	-0.098	0.0339	0.0917
RELX PLC	Northgate PLC	-0.1385	-0.1413	-0.1219	0.205	0.1386	0.2734	-0.0211	-0.0232	-0.0508	-0.214	0.173	0.9202
AMEC PLC	Dialog Semiconductor PLC	-0.0729	-0.0619	-0.0322	-0.262	0.1196	0.4367	0.0222	0.0061	-0.0313	0.768	0.0946	0.2417
Anglo American PLC	Dialog Semiconductor PLC	0.0365	0.0583	0.0218	0.184	-0.0431	-0.0437	0.0222	0.0061	-0.0313	0.768	0.0946	0.2417
Linde AG	Siemens AG	0.0944	0.0532	0.023	0.05	0.0173	0.032	-0.0675	-0.0174	-0.061	-0.158	0.242	0.4866
British American Tobacco PLC	Mondi plc	-0.0053	0.0052	0.02	-0.1	0.077	0.2653	-0.1526	-0.1445	-0.1525	-0.179	0.0554	0.1439
Schaeffler AG	Mondi plc	-0.0375	0.0319	0.0291	-0.407	0.0272	0.0409	-0.1526	-0.1445	-0.1525	-0.179	0.0554	0.1439
Siemens Healthineers AG	Siemens AG	-0.1645	-0.1803	-0.0629	-1.228	0.0493	0.2077	-0.0675	-0.0174	-0.061	-0.158	0.242	0.4866
Travis Perkins PLC	Dialog Semiconductor PLC	-0.0333	-0.0126	0.0292	0.164	0.0767	0.1629	0.0222	0.0061	-0.0313	0.768	0.0946	0.2417
TUI AG	Dialog Semiconductor PLC	-0.0336	-0.0286	0.0093	0.163	-0.2804	-1.3647	0.0222	0.0061	-0.0313	0.768	0.0946	0.2417
Novozymes A/S	Mondi plc	0.0377	0.0553	0.0038	0.053	0.0632	0.1579	-0.1526	-0.1445	-0.1525	-0.179	0.0554	0.1439
Infineon Technologies AG	Dialog Semiconductor PLC	-0.1528	-0.1868	-0.108	0.009	0.0962	0.1734	0.0222	0.0061	-0.0313	0.768	0.0946	0.2417
Fortum Oyj	Dialog Semiconductor PLC	0.1582	0.1564	0.1345	-0.134	0.0457	0.1162	0.0222	0.0061	-0.0313	0.768	0.0946	0.2417
Bayer AG	Siemens AG	-0.1817	-0.1953	-0.1637	0.018	0.0568	0.0775	-0.0675	-0.0174	-0.061	-0.158	0.242	0.4866
Essity AB	Northgate PLC	-0.0828	-0.1006	-0.063	-0.097	0.0717	0.1683	-0.0211	-0.0232	-0.0508	-0.214	0.173	0.9202
Shaftesbury Capital	J Sainsbury PLC	0.4245	0.5371	0.5819	-0.373	0.0187	0.066	0.0523	0.0175	-0.0366	0.02	0.0272	0.0668
Carillion PLC	Dialog Semiconductor PLC	0.0077	-0.007	-0.0291	-0.093	-0.0555	-0.0562	0.0222	0.0061	-0.0313	0.768	0.0946	0.2417
Rentokil Initial PLC	Northgate PLC	-0.0011	-0.0102	-0.0127	0.052	0.2743	0.5221	-0.0211	-0.0232	-0.0508	-0.214	0.173	0.9202
Aker Solutions ASA	Siemens AG	-0.1419	-0.139	-0.1147	0.781	0.0092	0.0188	-0.0675	-0.0174	-0.061	-0.158	0.242	0.4866
Swedish Orphan Biovitrum AB	Mondi plc	-0.0057	0.0029	-0.0086	0.502	0.0471	0.082	-0.1526	-0.1445	-0.1525	-0.179	0.0554	0.1439
SAF-HOLLAND SE	Siemens AG	-0.0252	-0.0352	-0.0158	0.656	0.2289	0.538	-0.0675	-0.0174	-0.061	-0.158	0.242	0.4866
Aroundtown SA	Northgate PLC	-0.0374	-0.0227	-0.0448	-0.279	0.0288	0.0473	-0.0211	-0.0232	-0.0508	-0.214	0.173	0.9202