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The Impact of the Non-Financial Reporting Directive on Acquisition Performance: A Comparative Study of EU and US Acquiring Firms

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Abstract

This study examines whether acquiring firms subject to the EU's Non-financial Reporting Directive (NFRD) experience significantly different acquisition performance compared to US acquiring firms not subject to the NFRD. A comparative study was conducted as disclosure of non-financial information remains largely voluntary in the US, while regulations in the EU mandating disclosure continue to evolve. To address the impact of the NFRD on acquisition performance, I examined acquisition performance through an Event study to assess short-term market reactions to announced deals (between 2018 and 2023) and a two-way fixed-effects difference-in-differences (DiD) estimation coupled with Propensity Score Matching (PSM) to evaluate actual post-acquisition performance (between 2007 and 2023). The findings reveal that markets react more positively to announced deals for acquiring firms subject to the NFRD. They also reveal that stronger ESG performance has a negative effect on market reactions for acquiring firms not subject to the NFRD, while stronger ESG performance has a positive effect for firms subject to the NFRD. Conversely, acquiring firms subject to the NFRD exhibit weaker post-acquisition performance compared to acquirers not subject to the NFRD. However, strong ESG performance significantly mitigates this negative effect for acquirers subject to the NFRD in the first-year post-acquisition. These results suggest that while the NFRD reduces information asymmetry and enhances investor confidence, compliance costs may divert resources from effective post-acquisition integration. It also highlights that genuine ESG commitment acts as a value driver in M&A.

Keywords: Mergers and Acquisitions (M&A), Acquisition Performance, ESG, Non-Financial Reporting Directive (NFRD)

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Resumo

Este estudo examina se empresas adquirentes sujeitas à Diretiva de Relato Não Financeiro da UE (NFRD) apresentam desempenho de aquisição significativamente diferente em comparação com empresas adquirentes dos EUA não sujeitas à NFRD. Foi conduzido um estudo comparativo, pois a divulgação de informações não financeiras permanece amplamente voluntária nos EUA, enquanto os regulamentos na UE que obrigam essa divulgação continuam a evoluir. Para abordar o impacto da NFRD no desempenho de aquisições, examinei o desempenho de aquisições por meio de um estudo de evento para avaliar reações de mercado de curto prazo a negócios anunciados (entre 2018 e 2023) e uma estimação difference-in-differences com efeitos fixos bidirecionais acoplada ao Propensity Score Matching (PSM) para avaliar o desempenho pós-aquisição (entre 2007 e 2023). Os resultados revelam que os mercados reagem mais positivamente a negócios anunciados de empresas adquirentes sujeitas à NFRD. Também revelam que desempenho ESG forte tem efeito negativo nas reações de mercado para adquirentes não sujeitos à NFRD, enquanto desempenho ESG forte tem efeito positivo para empresas sujeitas à NFRD. Por outro lado, adquirentes sujeitos à NFRD exibem desempenho pós-aquisição mais fraco em comparação com adquirentes não sujeitos à NFRD. Contudo, desempenho ESG forte mitiga significativamente esse efeito negativo para adquirentes sujeitos à NFRD no primeiro ano pós-aquisição. Esses resultados sugerem que embora a NFRD reduza a assimetria de informação e aumente a confiança dos investidores, os custos de conformidade podem desviar recursos da integração pós-aquisição. Também destaca que compromisso ESG genuíno atua como motor de valor em M&A.

Palavras-chave: Fusões e Aquisições (M&A), Desempenho de Aquisições, ESG, Diretiva de Relato Não Financeiro (NFRD)

Título: O Impacto da Diretiva de Relato Não Financeiro no Desempenho de Aquisições: Um Estudo Comparativo de Empresas Adquirentes da UE e dos EUA

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1. Introduction

In light of the climate crisis and its devastating consequences for everyone, regulations are necessary to address the challenges related to climate change (Nordhaus, 2008). As environmental factors motivate firms to engage in Mergers and Acquisitions (M&A) to adapt to external factors like regulatory shifts and changing market conditions, firms are motivated to acquire firms with characteristics that enable adaptation to these changing external factors (Haleblian et al., 2009). Following this, the EU enforced the Non-financial Reporting Directive (NFRD) aimed at increasing transparency on non-financial information related to environmental, social and governance factors (ESG), encouraging investors to integrate ESG into investments (Redondo Alamillos & de Mariz, 2022). However, disclosing non-financial information remains voluntary in the US (Hoang, 2022). This contrasting regulatory environment continues to diverge as the EU has adopted and continues to evolve regulations related to non-financial information through the Sustainable Finance Disclosure Regulation (SFDR) and the Corporate Sustainability Reporting Directive (CSRD) (Hummel & Jobst, 2024). Empirical evidence demonstrates that ESG has an important influence on M&A processes and long-term success for acquiring firms (Huang et al., 2023) and drives value creation in M&A transactions (Feyisetan et al., 2024). Given this evidence, understanding how the diverging regulatory environments affect acquisition outcomes is highly relevant for corporate executives, investors, and policymakers. This motivates me to study how mandated non-financial disclosure impacts M&A outcomes. More specifically, I want to study the following research question: *Do acquiring firms subject to the NFRD experience significantly different acquisition performance compared to US acquiring firms not subject to the NFRD?*

To address this, I will examine acquisition performance by retrieving data on announced and completed deals using Deal Screener provided by LSEG Workspace. I use an Event study to assess short-term market reactions to announced deals (between 2018 and 2023) and a two-way fixed-effects difference-in-differences (DiD) estimation with Propensity Score Matching (PSM) to evaluate the post-acquisition performance for completed deals (between 2007 and 2023).

My findings reveal that markets react more positively to announced deals for acquiring firms subject

to the NFRD in the short term compared to similar US-acquiring firms. When excluding announced deals where acquiring firms operate within High technology and Healthcare industries, strong ESG performance positively affects market reaction for announced deals for firms subject to the NFRD. However, this relationship is negative for US-acquiring firms. Conversely, acquiring firms subject to the NFRD exhibit weaker post-acquisition performance in the long term compared to similar acquirers in the US. However, this result is mitigated at a larger magnitude within the first year after deal completion if the acquiring firm, subject to the NFRD, has strong ESG performance. These results suggest that while the NFRD reduces information asymmetry and enhances investor confidence, compliance costs may divert resources from effective post-acquisition integration. It also highlights that genuine ESG commitment acts as a value driver in M&A.

This dissertation will first, in chapter 2, review the literature relevant to address my research question in order to define relevant and testable hypotheses that address the existing research gap within my research topic. Chapter 3 describes how the raw datasets related to short- and long-term effects were extracted and filtered and presents sample characteristics. Chapter 4 and 5 present the methodologies, characteristics of the final samples, results and robustness of the results related to the analysis of short- and long-term effects of the NFRD on acquisition performance. Chapter 6 discusses the results and how they relate to relevant theories and existing empirical evidence. Finally, Chapter 7 and 8 present the limitations of the study, avenues for future research, and concluding remarks.

2. Literature Review

My dissertation contributes to the two main blocks of the literature: ESG and Mergers and Acquisitions. The literature review establishes the foundation for this study by reviewing literature that presents theoretical and empirical evidence to understand the role of ESG and its implications for corporations, the regulation of non-financial information, and how ESG is relevant in M&A.

2.1 ESG and Its Implications for Corporations

The rising importance of Climate finance underscores the need to integrate environmental considerations into traditional decision-making frameworks for financial managers, as climate finance refers to financial resources pooled from multiple levels to establish a global economy that supports the adoption and mitigation of climate change (Hong et al., 2020). The European Green Deal demonstrates this commitment by seeking to mobilise 1 trillion euros over the next decade to become carbon neutral by aligning investment decisions with sustainability objectives (Sikora, 2021). Stroebel and Wurgler (2021) found in a global survey of 861 finance professionals that the majority believe that financial markets underestimate climate risks, with regulatory risks in the context of climate change being the primary concern for businesses and investors in the coming years. In light of the rising importance of Climate finance, Friede et al. (2015) finds aggregated evidence from roughly 2000 separate studies, that environmental, social and governance factors (ESG) has positive relationship with corporate financial performance, which appears to be consistent over time, in over 90% of the individual studies.

The ESG framework, introduced in 2004, consists of three pillars related to environmental, social, and governance factors and has gained significant global attention following recent "Black Swan" events with deteriorating developments in society, financial markets, and the pressing climate crisis (Li et al., 2021). Measurements across these pillars are compiled into a single numerical score, allowing stakeholders to evaluate firms' risk exposure and contributions towards related ESG factors, which was previously difficult to determine using other metrics (Clément et al., 2022). The environmental factors measure to what extent firms consider sustainability, resource

management and minimising their environmental footprint through their operations. The social factors measure firms' commitment towards factors like workplace and product safety, gender policies and labour standards. Finally, the Governance factor measures to what extent firms consider factors like transparency, corporate integrity and accountability (Billio et al., 2021). This structured approach with measurable metrics distinguishes ESG from similar metrics, such as Corporate Social Responsibility (CSR), which aims to make firms accountable for their broader impact on stakeholders beyond just maximising shareholder value. However, CSR is complex and debated due to its varying definitions and political influences (Sheehy, 2015). While CSR emphasises corporate accountability, it primarily relies on qualitative assessments, which makes it difficult to standardise and quantify a firm's social and environmental impact. In contrast, ESG as a metric provides a structured and measurable framework that functions as a control mechanism for assessing how much firms contribute to the environment and society (Park et al., 2023). This distinction makes ESG a metric unique compared to similar measures.

Considering the traits of the ESG metric, ESG could be considered a practical expression of Stakeholder Theory (ST), which motivates firms to acknowledge the importance of expectations and demands from internal and external stakeholders. This will allow firms to secure long-term success and sustainability by maximising value beyond shareholder interests (Mahajan et al., 2023). In line with this theoretical perspective, stakeholders have increasingly stressed the importance of strong ESG performance. To meet these expectations, firms are more committed to implementing initiatives to enhance transparency and performance related to ESG (Khan, 2019). According to Fatemi et al. (2018), firms with strong ESG performance have a positive effect on firm value, whereas weak ESG performance negatively affects firm value. Building on this, Kim and Li (2021) find empirical evidence that the aggregated ESG score contributes positively to the profitability of corporations, with a more substantial effect on large firms.

When firms prioritise disclosing ESG-related non-financial information, they reduce information asymmetry by signalling unobservable firm qualities to investors and stakeholders. These signals enable the firm to communicate its true characteristics (Huang, 2022), which enables stakeholders to make more informed decisions (Connelly et al., 2024). For example, Lee et al. (2022) underscore the practical relevance of signalling ESG factors to reduce information asymmetry and how it creates

value. They find that brands within the automotive industry emphasise signalling achievements in emissions performance and employee satisfaction through channels like social media and transparent ESG reports, positively affect how consumers perceive and value their brand. However, according to Connelly et al. (2024), a signal is only considered effective if it is costly for low-quality signalers to imitate but less costly for high-quality signalers to send. If it is not costly for firms with weak ESG performance to disclose non-financial information that imitates those with strong ESG performance, it might open the door for "Greenwashing". In the context of ESG, Yu et al. (2020) refer to this as situations where companies present themselves as highly transparent by disclosing extensive ESG data through non-financial information that appears misleading, as they ultimately demonstrate weak performance on ESG measures. As disclosed ESG data by corporations is traditionally unaudited and absent of a global governing body, Yu et al. (2020) believe this creates opportunities for firms to engage in greenwashing. This is problematic as it makes it more difficult for investors to incorporate ESG factors into their investment decisions. However, recent empirical evidence suggests that increased regulatory oversight positively mitigates greenwashing. Luu et al. (2025) reveal empirical evidence that the mandatory greenhouse gas emission reporting program (GHGRP) implemented in the US significantly reduced greenwashing behaviour amongst firms affected by the policy. As such, regulating the disclosure of non-financial information seems to enable stakeholders to assess the actual ESG performance of firms, as it would make it more costly for firms with weak ESG performance to signal strong ESG performance.

2.2 M&A Motives and Their Relevance to the Regulation of Non-Financial Information Disclosure

Although there exist many different theoretical frameworks (such as Agency Theory and Market Power Hypothesis) that aim to explain why firms engage in M&A transactions (Piesse et al., 2006), all the different theoretical frameworks can be categorised into four broad categories according to Haleblian et al. (2009): Value creation, value destruction, environmental factors, and firm characteristics. Firms pursue acquisitions for value creation (increasing market power, improving efficiency, or redeploying resources by integrating targeted assets effectively to strengthen competitiveness) or due to value destruction motives like executive hubris (i.e., managements overconfidence in their ability to build an empire that generate great returns) and compensation incentives, which often

lead to overpayment and reduced shareholder value. However, Environmental factors argue that firms engage in acquisitions due to shifting external factors like regulatory shifts, changing market conditions, and political and social pressures. Acquiring firms aim to acquire target firms to enable them to adapt to changing external factors, to secure strategic resources, or to navigate policy changes. Related to this, firm characteristics such as strategic positioning and resource endowments can explain the likelihood of firms engaging in acquisitions and impact whether the acquisitions will enable acquiring firms to adapt to these external factors.

In light of environmental factors being considered one of the key categories that motivate M&A activity, climate change and its associated regulatory responses represent a prominent example of such external factors that acquiring firms must increasingly consider. As Climate Change poses significant risks and challenges for everyone, there is a collective understanding that globally coordinated regulations are necessary to mitigate and adapt to the consequences of climate change (Nordhaus, 2008).

Within economic regulation, economists have developed several theoretical frameworks that provide a foundation for understanding why regulations exist, such as the public interest theory and the capture theory (Shleifer, 2005). First off, the public interest theory, in short, is about implementing regulations to enhance social welfare when markets fail (Hantke-Domas, 2003). However, the Capture theory of regulations argues that regulations are frequently influenced and manipulated to benefit the interests of the regulated entities or the policymakers in control (Etzioni, 2009). These theoretical perspectives provide a framework that enables a better understanding of the actual effects of the NFRD on acquisition performance for acquiring firms.

Following the principle of coordinated action (Nordhaus, 2008), the European Union (EU) is at the forefront of driving the development and implementation of regulations that require firms within the EU to disclose non-financial information (Redondo Alamillos & de Mariz, 2022). This is motivated by aiming to strengthen the reliability and quality of disclosed information on Environmental, Social and Governance factors (ESG) in order to encourage investors to integrate ESG factors into their decision-making and to ensure corporate compliance with ESG commitments (Redondo Alamillos & de Mariz, 2022). In 2014, the EU adopted the NFRD, which required public interest entities (insurance companies and banks) and large publicly listed entities with employees exceeding 500 to

disclose non-financial information relevant for stakeholders and investors to assess their performance and risks related to environmental, social, and governance factors. The directive was implemented across EU member states by December 2016, with the first disclosures released in 2018 (European Parliamentary Research Service, 2021). However, the United States has no similar regulations, as disclosure of non-financial information remains voluntary. Even though there is an increase in pressure from stakeholders demanding disclosure of non-financial information relevant to ESG factors, voluntary disclosure of non-financial information is instead seen as a real option, where disclosure depends on the perceived benefits and costs for each firm (Hoang, 2022).

In the context of NFRD, there is little empirical research on its effect on firms disclosing non-financial information after implementing the regulation. However, Aluchna et al. (2023) find that ESG scores amongst firms subject to NFRD improved after implementing NFRD, particularly regarding environmental and social factors. Similarly, Fiechter et al. (2022) find empirical evidence that firms with fewer CSR initiatives before the NFRD increased after its enforcement. In addition, they find that these improvements reflect impactful CSR initiatives beyond firms attempting to "greenwash" and that this improvement results from the mandated disclosure of CSR. Breijer et al. (2024) further contribute to the nuances of these findings as they reveal that firms only reporting non-financial information after the enforcement of the NFRD produce generic disclosures that increase information asymmetry, limiting stakeholders' ability to assess the actual characteristics of the firms. They further argue that it might indicate that reporting costs outweigh perceived benefits. These findings support Kathan et al. (2025), who suggest that regulatory pressure to disclose non-financial information can incentivise firms to selectively disclose positive environmental outcomes while withholding their negative impacts on other environmental, social and governance factors, which allows firms to inflate their ESG scores strategically. However, Breijer et al. (2024) find that firms that voluntarily disclosed non-financial information before NFRD became applicable do not experience these negative effects. As there is evidence that mandated non-financial disclosure can enhance transparency and accountability on ESG factors, there is also evidence that suggests limitations towards mandated non-financial disclosure. This highlights the relevance of investigating how strict regulations on non-financial information affect the performance of acquiring firms in transactions, given the relevance of ESG in M&A.

2.3 ESG in M&A

In order to address how the enforcement of the NFRD in the EU has affected acquisition performance for acquiring firms in M&A transactions, it would be important to address the role of ESG in the context of M&A.

First, ESG affects how long it takes to finalise and close an M&A deal. Cardillo and Harasheh (2023) find robust empirical evidence that divergence in ESG performance between acquiring and target firms leads to a longer duration before deal completion. More specifically, they find that divergences in social and governance factors contribute to prolonged deal completion, which highlights the role of corporate culture misalignment. Building on this, further research suggests that ESG performance is crucial in determining long-term success post-acquisition. By analysing 5255 American M&A transactions, Huang et al. (2023) find further evidence that ESG performance has an important influence on long-term success for acquiring firms in M&A transactions. As acquiring firms with strong ESG performance offer value to stakeholders beyond shareholders and adapt more effectively to M&A processes, they can gain stronger support for their deals, which yields stronger potential for the acquirers to generate synergies and strengthen long-term financial performance (Huang et al., 2023). This aligns with the previously mentioned Stakeholder theory, in which Huang et al. (2023) state that, in the context of M&A, it allows acquirers to enhance their reputation and competitiveness. They find empirical evidence that the social factors matter the most for improving the financial performance of acquiring firms in M&A transactions, as this mitigates cultural frictions that can occur in M&As, which aligns with Cardillo and Harasheh's (2023) findings. Extending the discussion on the role of ESG in M&A, Feyisetan et al. (2024) provide robust evidence that demonstrates that improvements in ESG scores increase the likelihood of firms being involved in M&A. Like the results presented by Huang et al. (2023), Feyisetan et al. (2024) suggest that performance on ESG factors significantly influences financial performance. However, the study also suggests that the acquisition of targets with strong ESG performance has the potential to improve the market value of the acquirer's post-merger. These findings provide practical implications for corporate executives as they suggest that ESG should be integrated into corporate strategies, as it acts as a value driver in M&As (Feyisetan et al., 2024).

2.4 Research gap and Hypothesis Development

While research compares mandatory and voluntary non-financial disclosure environments and their effects on the reporting quality of ESG and corporate behaviour, a significant gap exists in the literature that aims to assess how non-financial reporting mandates like the NFRD affect M&A transactions. Despite clear evidence demonstrating the strong link between ESG performance and M&A outcomes, no research has examined whether mandated non-financial reporting regulations like the NFRD affect M&A outcomes. This gap is particularly relevant given the evolution of enforcing several non-financial reporting regulations in the EU through the NFRD, Sustainable Finance Disclosure Regulation (SFDR), and the Corporate Sustainability Reporting Directive (CSRD) (Hummel & Jobst, 2024). Especially when this is contrasted with the regulatory environment in the US, where non-financial disclosures remain largely voluntary and market-driven. As the regulatory environments continue to diverge between these major markets, understanding whether the NFRD has a significant impact on M&A outcomes becomes essential for investors, corporate executives and policymakers.

To address this existing research gap, the following hypothesis has been developed based on the collective findings in the literature review:

- *H1: Acquiring firms subject to the NFRD experience significantly different short-term market reactions to announced deals compared to US acquiring firms not subject to the NFRD.*
- *H2: For acquiring firms with disclosed ESG scores, the relationship between ESG performance and short-term market reactions to announced deals is significantly different for firms subject to the NFRD compared to US acquiring firms not subject to the NFRD.*
- *H3: Acquiring firms subject to the NFRD experience statistically significantly different post-acquisition performance compared to US acquiring firms not subject to the NFRD.*
- *H4: For acquiring firms with disclosed ESG scores, the relationship between ESG performance and post-acquisition performance is significantly different for firms subject to the NFRD compared to US acquiring firms not subject to the NFRD.*

By examining these hypotheses, this analysis aims to clarify whether investors value announced deals under different regulatory environments differently and whether post-acquisition performance differs between the two regulatory environments (H1 and H3). The research also assesses whether ESG scores carry different informational weight and credibility in mandated versus voluntary reporting environments, potentially revealing whether regulated disclosures enhance transparency or inadvertently facilitate greenwashing (H2 and H4). Through this comparative analysis, this study aims to test whether the NFRD affect acquiring firms' acquisition performance through immediate market reactions to announced deals and actual post-acquisition performance.

3. Screening M&A deals

When assessing whether acquiring firms subject to the NFRD experience significantly different acquisition performance, this study will utilise two of the most common ways of evaluating variation in acquisition performance in order to get a holistic view of both market perceptions and realised outcomes: (1) short-term event studies to understand how the markets perceive the value of the acquisition, and (2) long-term accounting data to capture the actual performance of the acquisition over time (King et al., 2021; Zollo & Meier, 2008). This approach is chosen as initial market reactions might not always align with realised financial performance in the long term. Together, these assessments will enable the study to clarify whether acquiring firms subject to the NFRD experience systematically different acquisition performance compared to US acquiring firms. As such, using the Deal Screener provided by LSEG Workspace, two datasets were constructed to analyse the short-term and long-term effects of the NFRD on acquisition performance. The rationale for the chosen time frames is later detailed in chapter 4 and 5:

1. Short-term effects: Retrieving deals based on "Date Announced" - when the parties involved in a specific transaction publicly announce their plan to pursue the transaction for the first time - from 01.01.2018 until 31.12.2023.

2. Long-term effects: Retrieving deals based on "Date effective" – the day the transaction is finalised and officially takes effect – from 01.01.2007 until 31.12.2023.

Since the NFRD only applies to large publicly listed entities with more than 500 employees (European Parliamentary Research Service, 2021), only deals where the acquiring company is within an EU member state and is defined as a large publicly listed entity with more than 500 employees are retrieved. A corporation is defined as large under Directive 2013/34/EU if a corporation meets at least two of the following criteria: (1) Total assets equal to or greater than 20 million euros (EUR), (2) Net revenue equal to or greater than 40 million EUR, and (3) Having more than 250 employees on average in a given fiscal year (Publications Office of the European Union, 2013). The sample of acquiring firms within an EU member state was therefore filtered after

these criteria. Similarly to Nampoothiri et al. (2024) and Cuomo et al. (2024), who studied the impact of the NFRD, acquiring firms from the financial sector were excluded due to a significant difference in the reporting on financial figures and metrics. Another reason to exclude these is that these acquiring firms are subject to the SFDR regulation on disclosing more stringent ESG-relevant data from the 10th of March 2021 (Publications Office of the European Union, 2022). As such, public interest companies subject to the NFRD were excluded from the sample. This allows the research to isolate and better assess the specific impact of the NFRD without the confounding effects of overlapping regulatory frameworks. Further, following the UK leaving the EU on 31.01.2020 (Council of the European Union, 2019), deals with the first public announcement and completion date of transactions for UK acquiring firms as of this date are excluded from the EU sample. The same filters were applied when retrieving deals from the US to ensure comparability. Furthermore, as this research aims to study acquisition performance, only deals where the acquiring company has a majority stake in the company after the transaction (> 50%) were included in the sample. The raw sample size for both data sets that retrieve deals for the date announced and the completion date of the transaction is reported in Table 1.

Table 1: Number of transactions and unique Acquiring Firms collectively and by Region for each sample - Raw sample

	EU	**US**	**Total**
Short-term effects - Date Announced			
Deals	2308	3409	5717
Acquiring Firms	590	830	1420
Long-term effects - Date Effective			
Deals	9766	15380	25146
Acquiring Firms	1267	1851	3116

Note: The short-term effects sample covers observations between 2018 and 2023 while the long-term effects sample covers observations between 2007 and 2023.

Further, Figures 1 and 2 highlight the frequency of deals announced and completed for the total sample period by the acquiring firm's nation of incorporation.

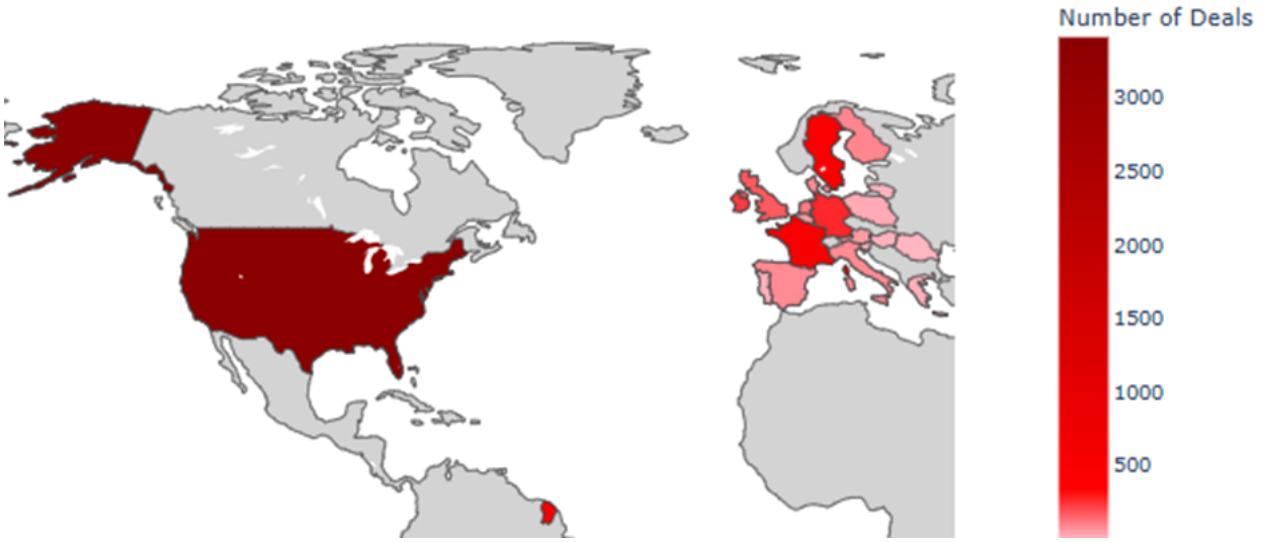

Figure 1: Number of acquisitions announced between 2018 and 2023 based on nation of incorporation for the acquiring firms.

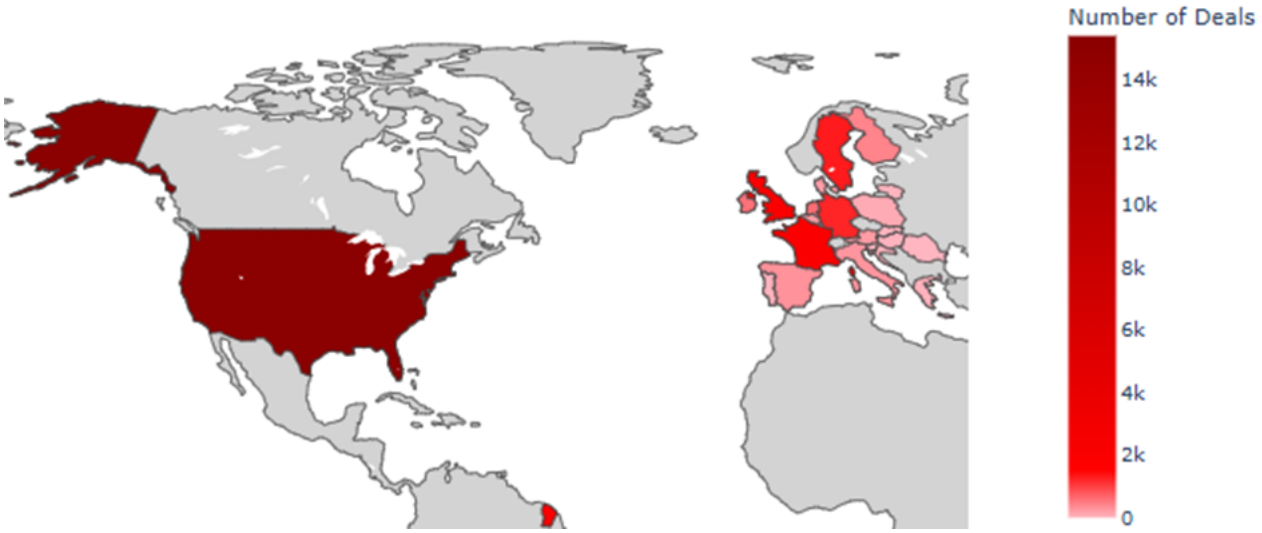

Figure 2: Number of acquisitions completed between 2018 and 2023 based on nation of incorporation for the acquiring firms.

To gain further insights into the distribution of the transactions in both datasets, Figure 3 displays the number of transactions by the acquiring firm's industry and region.

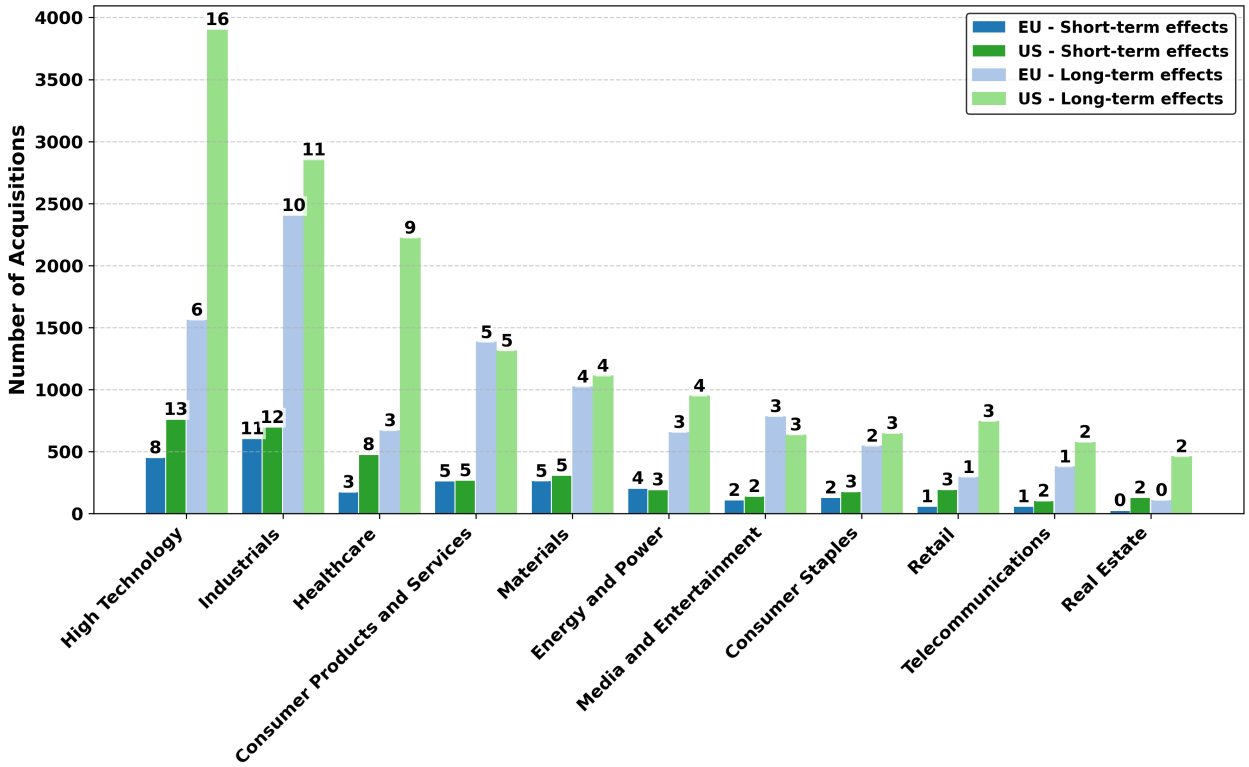

Figure 3: Number of acquisitions announced (short-term effects sample) and completed (long-term effects sample) by the acquiring firms' industry and region (EU or US). The numbers above each bar represent the percentage calculated as: number of transactions for each region in a specific industry, divided by the total transactions for the respective sample type (presented in the legend).

Finally, Table 2 presents the deal-level characteristics for both datasets and how they vary between transactions announced and completed between EU and US acquiring firms.

Table 2: Frequency of Deal-level control variables collectively and by region

	Short-term effects - Date Announced			Long-term effects - Date Effective		
	EU	US	Total	EU	US	Total
Target Status						
Joint Venture	1.43%	0.85%	1.08%	2.00%	1.11%	1.46%
Private	62.54%	65.21%	64.14%	60.13%	64.84%	63.01%
Public	4.16%	7.04%	5.88%	5.17%	6.76%	6.14%
Subsidiary	31.85%	26.89%	28.90%	32.71%	27.28%	29.39%
Deal Attitude						
Friendly	99.61%	99.65%	99.63%	98.55%	99.34%	99.03%
Non-Friendly	0.39%	0.35%	0.37%	1.45%	0.66%	0.97%
Cross-border VS. Domestic						
Cross-border	74.26%	28.60%	47.04%	69.38%	27.85%	43.98%
Domestic	25.74%	71.40%	52.96%	30.62%	72.15%	56.02%
Acquisition Type						
Horizontal	39.34%	38.55%	38.87%	42.82%	41.56%	42.04%
Vertical	19.50%	22.76%	21.44%	18.34%	23.44%	21.46%
Conglomerate	41.16%	38.69%	39.69%	38.86%	35.00%	36.50%
Financing						
Cash Only	25.22%	33.44%	30.12%	27.44%	31.98%	30.22%
Stock Only	0.78%	1.79%	1.38%	1.17%	1.46%	1.35%
Cash and Stock	1.30%	4.34%	3.11%	2.55%	4.84%	3.96%
Other	72.70%	60.43%	65.39%	68.84%	61.71%	64.48%

Note: The frequency of each deal-control variable is based on the Short-term effects sample covering announced transactions between 2018 and 2023 and on the Long-term sample covering completed transactions between 2007 and 2023.

Data on deal-level characteristics in Table 2 were retrieved as empirical evidence demonstrates their influence on the acquisition performance of acquiring firms:

- Target status: Dummy variables that categorise the target's ownership structure will be controlled for, as empirical evidence demonstrates that they significantly influence acquisition performance (Capron & Shen, 2007; Draper & Paudyal, 2006; Kumar, 2005).
- Deal attitude: A dummy variable categorising whether an acquisition was friendly or hostile. This is controlled for since hostile versus friendly acquisitions affect value creation post-acquisition and act as a strategic choice to maximise value creation (Sudarsanam & Mahate, 2006; Schwert, 2000).
- Cross-border versus domestic acquisitions: Whether a firm acquires a target domestically or

cross-border is proven to affect operating performance post-acquisition and announcement returns for acquiring firms (Moeller & Schlingemann, 2005). Therefore, a dummy variable indicating whether the acquisition was domestic or cross-border is included.

- Vertical, horizontal, or conglomerate acquisition: By obtaining the macro industries and mid industry provided by Refinitiv for both the target and the acquirer, horizontal, vertical, and conglomerate mergers were coded as dummy variables based on conditional statements. Strategic acquisition types are proven to affect acquisition performance, but it is often contingent on their motivation and execution (Agrawal et al., 1992; Capron, 1999; Kedia et al., 2011), and it is therefore controlled for.

4. Short-term effects

4.1 Methodology

In order to test whether H1 and H2 hold, this study utilises a classic event study approach for publicly announced acquisitions between 01.01.2018 and 31.12.2023, as the regulation was in force during this period. An event study aims to assess how firm value is affected by analysing stock returns around the announcement of a specific event, such as the announcement of M&A transactions. This approach assumes efficient markets, as event-related consequences should be reflected in stock prices immediately (MacKinlay, 1997). The abnormal return is defined as the excess return over the expected return that would occur in the absence of the event (MacKinlay, 1997). The stock prices then capture market sentiment towards whether the market perceives the transaction to be successful or not. However, as information about the transaction can be leaked prior to the announcement and there is uncertainty about whether the transaction will be successful, it is important to choose an appropriate event window to measure abnormal returns of the firms involved in the transaction (Halpern, 1983). In fact, defining a suitable length of the event window is one of the most crucial steps in defining the research design of an event study. The event window should be short enough to minimise other confounding variables that can neglect the statistical significance of the event (McWilliams & Siegel, 1997). Considering these facts, in line with event studies assessing the short-term performance of acquiring firms, this study will utilise a short event window using (-1,1) but also considering longer event windows of (-3,3) and (-5,5) to address the uncertainties mentioned above when computing abnormal returns (Kwoka & Gu, 2015; Yoo et al., 2013). To compute the abnormal return (AR) during the defined event window, the expected return is first estimated using daily stock prices. This analysis utilises the market model introduced by MacKinlay (1997), which is most widely used in the literature (Asimakopoulos & Athanasoglou, 2013), to estimate the expected return:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \tag{4.1}$$

R_{mt} represents the daily returns of a given market index. This study will use the STOXX Europe 600 index for the sample of EU-acquiring firms and the S&P 500 index for the sample of US-acquiring firms.

The parameters of the market model are then estimated using Ordinary Least Squares (OLS) regression to compute the expected return of a given acquiring firm. In line with Caiazza et al. (2021), the parameters in equation 4.1 will be estimated by equation 4.2 by applying an estimation window of 252 trading days that concludes 20 days prior to "Date Announced":

$$E(\hat{R}_{it}) = \hat{\alpha}_i + \hat{\beta}_i R_{mt} \tag{4.2}$$

The expected return is also computed by adopting a GARCH model. Since GARCH models consider more attributes of the distribution of stock returns by allowing dynamic volatility change (conditional variance) that considers tail events and that large fluctuations in stock returns tend to cluster together, this model can better estimate the expected returns than OLS estimation, which assumes constant variance (Asimakopoulos & Athanasoglou, 2013; McKenzie et al., 2004; Yoo et al., 2013). In line with the event studies conducted by Yoo et al., 2013 and McKenzie et al., 2004, this study will also apply a standard GARCH(1,1) model, as Hansen and Lunde (2005) suggest that there are no other similar and more sophisticated models that outperform this model when incorporating conditional variance into time-series estimation. The GARCH(1,1) will be incorporated in the error term of the market model, and the model is defined as follows:

$$R_{it} = \alpha + \beta R_{mt} + \epsilon_{it} \quad \text{where} \quad \epsilon_{it} = \sigma_t z_{it}, \quad z_{it} \sim \text{i.i.d. } N(0,1) \tag{4.3}$$

$$\sigma_{it}^2 = \omega + \alpha_1 \epsilon_{i,t-1}^2 + \beta_1 \sigma_{i,t-1}^2 \tag{4.4}$$

The abnormal return (AR) is then computed by subtracting the expected return from the daily observed returns throughout the defined event window:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \tag{4.5}$$

The cumulative abnormal return (CAR) and the average cumulative return (ACAR) over the defined event window are then computed as follows:

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it} \tag{4.6}$$

$$ACAR(t_1, t_2) = \frac{1}{N} \sum_{i=1}^{N} CAR_i(t_1, t_2) \tag{4.7}$$

ACAR is calculated to determine whether acquiring firms in the sample experience statistically significant CARs on average. Similar to Yoo et al., 2013, to determine whether the ACAR is statistically significantly larger than zero, the following t-stat will be computed:

$$t - statistic = \frac{ACAR(t_1, t_2)}{\sqrt{Var[ACAR(t_1, t_2)]}} \tag{4.8}$$

After obtaining the CARs for each acquiring firm, a pooled cross-sectional regression will be applied to test whether H1 and H2, as described in section 2.4, hold. Data on deal-level characteristics outlined in Chapter 3 are included in the cross-sectional regression as control variables to test these hypotheses. However, in line with common practice in M&A literature that studies acquisition performance, data on firm-level characteristics are also included as control variables to isolate the effect of the NFRD better. Similar to Moeller et al. (2004), this study will also control for firm size, profitability, leverage, liquidity, and future growth opportunities through the following control variables:

- Total Assets: proxy for the acquiring firm's size.
- EBITDA: proxy for profitability

- Debt-to-equity ratio: proxy for leverage
- Quick ratio: proxy for liquidity
- Market-to-book ratio: proxy for future growth opportunities

The following models will be estimated to test H1 and H2 outlined in section 2.4:

$$CAR_{it}(-N,N) = \alpha + \beta_1 \text{NFRD\_SUBJECT}_{it} + \sum_{j=1}^{J} \beta_{2j} X_{\text{deal},i,t,j} + \sum_{k=1}^{K} \beta_{3k} X_{\text{firm},i,t,k} + \gamma_t + \delta_i + \varepsilon_{it} \tag{4.9}$$

$$\begin{aligned} CAR_{it}(-N,N) = \alpha &+ \beta_1 NFRD\_SUBJECT_{it} + \beta_2 ESG\_SCORE_{it} \\ &+ \beta_3 (NFRD\_SUBJECT_{it} \times ESG\_SCORE_{it}) \\ &+ \sum_{j=1}^{J} \beta_{4j} X_{deal,i,t,j} + \sum_{k=1}^{K} \beta_{5k} X_{firm,i,t,k} \\ &+ \gamma_t + \delta_i + \varepsilon_{it} \end{aligned} \tag{4.10}$$

Where:

- The dependent variable will be the $CAR_{it}(-N,N)$ for $(-1,1)$, $(-3,3)$, and $(-5,5)$ event windows. This will be computed using both the standard Market model and a Market model that incorporates a GARCH$(1,1)$ process in the error term.
- The independent variable of interest for H1 is named $NFRD\_SUBJECT_{it}$, which is coded as a dummy variable that equals 1 if the acquiring firm is subject to the regulation and 0 if it is incorporated in the US.
- The independent variable of interest for H2 is the interaction term $NFRD\_SUBJECT_{it} \times ESG\_SCORE_{it}$, which captures whether the relationship between CAR and ESG Score differs whether the acquiring firm is subject to the NFRD or not. ESG_SCORE_{it} then captures the same relationship for US-acquiring firms not subject to the NFRD.

- $\sum_{j=1}^{J} X_{deal,i,t,j}$ and $\sum_{k=1}^{K} X_{firm,i,t,k}$ are vectors containing the outlined control variables.
- Similar to Levine et al. (2020), which examines how labour regulations affect the acquiring firms' CARs, year and industry fixed effects are included (denoted by γ_t and δ_i).

According to Coglianese (2012), this is a sound approach when trying to isolate the effect of a regulation on an outcome variable through a pooled cross-sectional analysis by controlling for other confounding variables that are expected to explain the variation in the outcome variable. Additionaly, similar to Jaffe et al. (2015), standard errors will be clustered at the firm level to take account of serial acquisitions from the same acquiring firm, which mitigates the possibility of overestimating or underestimating the significance of the independent variable of interest.

4.2 Data

The sample consists of deals that were announced between 01.01.2018 and 31.12.2023 as the NFRD was replaced by the CSRD, with the first set of firms reporting under the new rules in 2025 for the fiscal year of 2024 (Directorate-General for Financial Stability, Financial Services and Capital Markets Union, 2024). After retrieving data on daily stock returns to compute CAR for each acquiring firm that publicly announced the transaction, and data on all control variables, observations with missing data were excluded. The final sample size used in the pooled cross-sectional regression to test H1 and H2 is reported in Table 3.

Table 3: Number of transactions and unique Acquiring Firms collectively and by Region for each sample - Final sample

	EU	US	Total
Main sample - Excluding ESG Score			
Deals	2266	3253	5519
Acquiring Firms	573	784	1357
Subsample - Including ESG Score			
Deals	1941	3211	5152
Acquiring Firms	461	768	1229

Note: Both samples cover announced transactions between 2018 and 2023. The subsample is restricted to deals where ESG scores are available for the acquiring firms.

Table 4 provides summary statistics of firm-level control variables used in the cross-sectional

regression for the main sample and the subsample that includes ESG score as a control variable:

Table 4: Summary Statistics of firm-level control variables for each sample

	Total debt to Common Equity	Quick ratio	Market value to book	ESG Score	Total assets (EUR billion)	EBITDA (EUR billion)
Main sample - Excluding ESG Score						
N	5519	5519	5519	-	5519	5519
mean	95.7	1.2	4.5	-	21.7	3.2
std	997.2	0.9	47.7	-	50.1	9.0
25%	33.7	0.8	1.8	-	1.7	0.2
50%	63.7	1.0	3.1	-	5.5	0.6
75%	111.3	1.3	5.4	-	16.7	2.2
Subsample - Including ESG Score						
N	5152	5152	5152	5152	5152	5152
mean	97.6	1.2	4.6	57.7	23.1	3.4
std	1030.7	0.9	49.4	20.3	51.5	9.3
25%	34.7	0.8	1.8	41.8	2.1	0.2
50%	64.1	1.0	3.2	59.6	6.3	0.7
75%	112.1	1.3	5.7	74.7	17.8	2.5

Note: Both samples cover announced transactions between 2018 and 2023. The subsample is restricted to deals where ESG scores are available for the acquiring firms. Total assets and EBITDA are scaled to billion euros for better interpretation.

Firm-level control variables were retrieved at an annual frequency, using data from the last quarter-end prior to each deal's announcement date to address endogeneity concerns. This choice is also motivated by the fact that some deals were completed around the deal's announcement. ESG scores were also retrieved at an annual frequency but from the last year-end date prior to each deal's announcement date to reduce the amount of missing data. However, some firm-level control variables had to be scaled differently later on as large magnitudes caused computational issues when fitting the OLS regression models. Total assets and EBITDA had to be scaled to billion EUR, the debt-to-equity ratio was transformed from percentage to decimal format, and the ESG score was transformed from its original scale (0-100) to a zero-to-one scale.

Finally, Figure 4 displays the distribution of ESG scores for the acquiring firms by region for the entire sample:

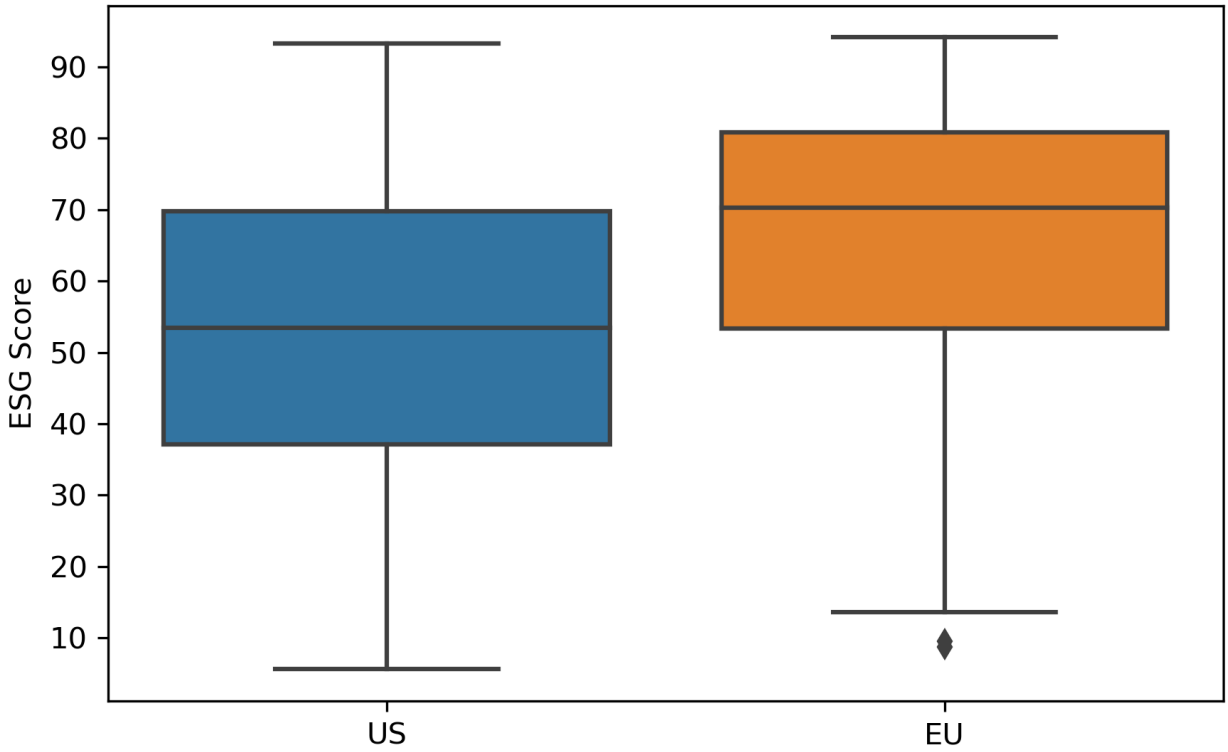

Figure 4: The distribution of ESG scores for EU and US acquiring firms between 2018 and 2023.

4.3 Results

When analysing the results estimated from equation 4.9 in Table 5 to test H1, EU-acquiring firms subject to the NFRD experience higher CARs than US-acquiring firms not subject to the NFRD on average, with $NFRD\_SUBJECT$ ranging from 0.54 to 0.81 percentage points (pp) for the three different event windows and model specifications. Considering the CAR(-1,1) estimate for model 3 of 0.80 pp (0.80%) and assuming a pre-event market capitalisation of 10 000 million euros for an acquiring firm subject to the NFRD, it would, on average, increase its market capitalisation by 0.80% * 10 000 million euros = 80 million euros compared to a US acquiring firm. This impact is economically meaningful and statistically significant at the 1% level (***) across all three event windows and model specifications. However, it strengthens in magnitude when controlling for year and industry-fixed effects, deal-level characteristics, and firm-level characteristics. As a result, there exists strong evidence that advocates for H1, which confirms that Acquiring firms subject to the NFRD experience significantly different (greater) short-term market reactions to announced deals compared to US acquiring firms not subject to the NFRD (see similar results using GARCH(1,1) in

Table 21 and complete estimates for the results in Table 5 in Table 23 in the Appendix).

Table 5: Results for H1 - Main sample excluding ESG scores, covering announced deals between 2018 and 2023

	Model 1	Model 2	Model 3
CAR(-1,1)			
NFRD_SUBJECT	0.5994***	0.7795***	0.8031***
	(0.1432)	(0.1506)	(0.1489)
R^2	0.004	0.020	0.025
CAR(-3,3)			
NFRD_SUBJECT	0.5951***	0.7889***	0.8107***
	(0.1668)	(0.1866)	(0.1865)
R^2	0.003	0.018	0.023
CAR(-5,5)			
NFRD_SUBJECT	0.5400***	0.7315***	0.7687***
	(0.1935)	(0.2230)	(0.2231)
R^2	0.002	0.015	0.021
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	No	Yes	Yes
Industry Fixed Effects	No	Yes	Yes
N	5519	5519	5519
Unique Acquiring Firms	1357	1357	1357

Note: Results are obtained by estimating equation 4.9 through a pooled cross-sectional regression and are presented in the "Model 3" column. The dependent variable (CAR for the three different event windows) is based on the individual CARs that result from estimating expected returns with the standard market model (4.2). The columns "Model 1" and "Model 2" introduce deal and firm-level control variables incrementally. Year and industry fixed effects are included in the estimation, with their corresponding results presented in the "Model 2" and "Model 3" columns. Standard errors are clustered at firm-level for all model specifications, and ***, **, and * demonstrate whether results are statistically significant at the 1%, 5% or 10% level.

When analysing the results estimated from equation 4.10 in Table 6 to test H2, it becomes evident that disclosed ESG scores do not provide any additional effect on acquiring firms' CARs under the regulated NFRD environment compared to similar US acquiring firms, across all three event windows and model specifications. However, the estimated effect of $ESGscore$ on CAR informs how variation in ESG score for US acquiring firms affects CAR. The estimated effect of $ESGscore$ on CAR for US acquiring firms ranges from -1.68 to -1.20 pp per 0.01 unit increase in ESG score (as mentioned in Section 4.2, ESG score is scaled from 0-100 to 0-1). Considering the CAR(-5,5) estimate for model 3 of -1.5 pp, and the median ESG score of 54 (see Figure 4) for US acquiring firms (equal to 0.54 when ESG score is scaled from 0-100 to 0-1), this would

reduce the CAR(-5,5) by -1.50 pp * 0.54 ESG Score (scaled) = -0.81 percentage points. This economically meaningful impact remains statistically significant for all three event windows and model specifications at the 1%,5%, and 10% levels. However, if the acquiring firm is subject to the NFRD, a 0.01 unit increase in ESG Score would affect CARs additionally as the estimated effect of $NFRD\_SUBJECT * ESGscore$ ranges from -0.63 to 1.03 pp. Considering CAR(-5,5) for model 3, with an estimated coefficient of 1.03 for $NFRD\_SUBJECT * ESGscore$ and the median ESG score of 70 (see Figure 4) for EU acquiring firms (equal to 0.70 when ESG score is scaled from 0-100 to 0-1), this would affect CAR(-5,5) additionally by 1.03 pp * 0.74 ESG Score (scaled) = 0.76 pp. However, as $NFRD\_SUBJECT * ESGscore$ remains statistically insignificant ($p > 0.10$) for all three event windows and model specifications, ESG scores reported for acquiring firms subject to the NFRD do not have any additional effect on CAR. H2 fails, and there is reason to believe that for acquiring firms reporting ESG scores, the relationship between ESG performance and short-term market reactions to announced deals is not significantly different for firms subject to the NFRD compared to US acquiring firms (see similar results using GARCH(1,1) in Table 22 and complete estimates for the results in Table 5 in Table 24 in the Appendix).

Table 6: Results for H2 - Subsample including ESG scores, covering announced deals between 2018 and 2023

	Model 1	Model 2	Model 3
CAR(-1,1)			
ESGscore	-1.6822***	-1.2660**	-1.2199**
	(0.5003)	(0.5236)	(0.5484)
NFRD_SUBJECT	1.0288*	1.1765**	1.2078**
	(0.5856)	(0.5840)	(0.5817)
NFRD_SUBJECT*ESGscore	-0.5710	-0.6190	-0.6263
	(0.8232)	(0.8320)	(0.8359)
R^2	0.008	0.023	0.029
CAR(-3,3)			
ESGscore	-1.6643***	-1.2040*	-1.3113*
	(0.6325)	(0.6809)	(0.7198)
NFRD_SUBJECT	0.5265	0.5977	0.5879
	(0.6728)	(0.6959)	(0.6962)
NFRD_SUBJECT*ESGscore	0.2693	0.3766	0.4598
	(0.9771)	(0.9976)	(1.0049)
R^2	0.004	0.015	0.020
CAR(-5,5)			
ESGscore	-1.9668***	-1.3900*	-1.4984*
	(0.7443)	(0.8112)	(0.8508)
NFRD_SUBJECT	0.1007	0.2162	0.2213
	(0.7732)	(0.8146)	(0.8156)
NFRD_SUBJECT*ESGscore	0.9136	0.9564	1.0313
	(1.1325)	(1.1731)	(1.1789)
R^2	0.003	0.012	0.017
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	No	Yes	Yes
Industry Fixed Effects	No	Yes	Yes
N	5,152	5,152	5,152
Unique Acquiring Firms	1229	1229	1229

Note: Results are obtained by estimating equation 4.10 through a pooled cross-sectional regression and are presented in the "Model 3" column. The dependent variable (CAR for the three different event windows) is based on the individual CARs that result from estimating expected returns with the standard market model (4.2). ESG Score is scaled from 0-100 to 0-1. The columns "Model 1" and "Model 2" introduce deal and firm-level control variables incrementally. Year and industry fixed effects are included in the estimation, with their corresponding results presented in the "Model 2" and "Model 3" columns. Standard errors are clustered at firm-level for all model specifications, and ***, **, and * demonstrate whether results are statistically significant at the 1%, 5% or 10% level.

It is important to note that the $NFRD\_SUBJECT$ coefficient has a different interpretation when testing H2. It represents the effect of NFRD specifically when the ESG score equals zero rather than the average effect across all firms, regardless of the ESG score observed in H1. Therefore, the change

in significance pattern for this coefficient across the three event windows and model specifications does not contradict the earlier confirmation of H1. In addition, the statistical significance of ACARs computed by 4.8 for all event windows is presented in Tables 19 and 20 in the Appendix.

4.4 Robustness

Figure 3 in Chapter 3 demonstrates that the sample studying short-term effects of the NFRD through H1 and H2 share similar characteristics regarding the number of deals announced from acquiring firms between each industry and region. However, within the High Technology and Healthcare industries, announced deals from EU acquirers amount to 8% compared to US acquiring firms with 13% within High Technology and similarly 3% and 8% for the Healthcare industry. To ensure that the results presented in Section 4.3 for H1 and H2 were not driven by this industry imbalance, H1 and H2 are re-examined using a filtered version of the original sample that excludes the High Technology and Healthcare industries.

The results presented in Table 7 demonstrate that the results for H1 remain robust, as $NFRD\_SUBJECT$ does not become statistically insignificant for any of the three event windows or model specifications.

Table 7: Results for H1 Robustness (Industry-filtered) - Main sample excluding ESG scores, covering announced deals between 2018 and 2023

	Model 1	Model 2	Model 3
CAR(-1,1)			
NFRD_SUBJECT	0.5213***	0.7297***	0.7296***
	(0.1571)	(0.1652)	(0.1664)
R^2	0.003	0.020	0.025
CAR(-3,3)			
NFRD_SUBJECT	0.4742**	0.6699***	0.6511***
	(0.1964)	(0.2186)	(0.2219)
R^2	0.002	0.014	0.017
CAR(-5,5)			
NFRD_SUBJECT	0.4013*	0.5694**	0.5446**
	(0.2260)	(0.2571)	(0.2603)
R^2	0.001	0.013	0.017
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	No	Yes	Yes
Industry Fixed Effects	No	Yes	Yes
N	3724	3724	3724
Unique Acquiring Firms	1014	1014	1014

Note: The methodology follows the exact same approach as outlined in the note in table 5. However, announced deals where the acquiring firm operates within the High Technology and Healthcare industries are excluded.

However, Table 8 contradicts the findings presented in Section 4.3 when H2 is re-examined when announced deals where acquiring firms operating within the High Technology and Healthcare industries were excluded. By again considering CAR(-5,5) for model 3 and an ESG score of 70 for an EU-acquiring firm subject to NFRD would have increased the CAR(-5,5) by -2.26*0.7 + 2.74*0.7 = 0.0.34 pp, compared to -2.26*0.7 = -1.58 pp. This economically meaningful impact remains statistically significant at the 5% level (**) across (-3,3) and (-5,5) event windows across all three model specifications. As such, excluding CARs for acquiring firms operating within high technology and healthcare industries, there is evidence that supports H2, suggesting that the relationship between ESG performance and short-term market reactions to announced deals is significantly different for firms subject to the NFRD compared to US acquiring firms not subject to the NFRD.

Table 8: Results for H2 Robustness (Industry-filtered) - Main sample including ESG scores, covering announced deals between 2018 and 2023

	Model 1	Model 2	Model 3
CAR(-1,1)			
ESGscore	-2.3503***	-1.8289***	-1.6950**
	(0.6428)	(0.6758)	(0.7030)
NFRD_SUBJECT	0.1005	0.2686	0.3228
	(0.5330)	(0.5273)	(0.5404)
NFRD_SUBJECT*ESGscore	0.9107	0.8524	0.7304
	(0.8240)	(0.8332)	(0.8478)
R^2	0.009	0.027	0.032
CAR(-3,3)			
ESGscore	-2.8258***	-2.3171**	-2.3535**
	(0.8430)	(0.9129)	(0.9588)
NFRD_SUBJECT	-0.7058	-0.6977	-0.6994
	(0.6698)	(0.6966)	(0.7111)
NFRD_SUBJECT*ESGscore	2.2606**	2.4013**	2.3881**
	(1.0655)	(1.0940)	(1.1105)
R^2	0.007	0.019	0.022
CAR(-5,5)			
ESGscore	-2.8921***	-2.1884**	-2.2611**
	(0.9843)	(1.0827)	(1.1211)
NFRD_SUBJECT	-1.1305	-1.0736	-1.0718
	(0.7745)	(0.8242)	(0.8399)
NFRD_SUBJECT*ESGscore	2.8070**	2.7561**	2.7393**
	(1.2443)	(1.3025)	(1.3179)
R^2	0.005	0.016	0.021
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	No	Yes	Yes
Industry Fixed Effects	No	Yes	Yes
N	3465	3465	3465
Unique Acquiring Firms	921	921	921

Note: The methodology follows the exact same approach as outlined in the note in table 6. However, announced deals where the acquiring firm operates within the High Technology and Healthcare industries are excluded.

In addition, a standard placebo test was conducted by randomly shuffling whether an acquiring firm is subject to the NFDR, creating $NFRD\_SUBJECT\_Placebo$. When it is trivial whether an acquiring firm is subject to the regulation regardless of its country of incorporation, the statistical significance of $NFRD\_SUBJECT\_Placebo$ and $NFRD\_SUBJECT\_Placebo * ESGscore$ should be insignificant if the results presented in Tables 5 and 8 are robust.

As $NFRD\_SUBJECT\_Placebo$ and $NFRD\_SUBJECT\_Placebo * ESGscore$ remain statistically insignificant across all three event windows and model specifications in Tables 9 and 10, the results for H1 and H2 tested with the industry-filtered sample remain robust.

Table 9: Results for H1 Robustness (Placebo test) - Main sample excluding ESG scores, covering announced deals between 2018 and 2023

	Model 1	Model 2	Model 3
CAR(-1,1)			
NFRD_SUBJECT_Placebo	0.0658	0.0660	0.0716
	(0.1297)	(0.1288)	(0.1287)
R^2	0.000	0.015	0.020
CAR(-3,3)			
NFRD_SUBJECT_Placebo	0.0005	-0.0001	0.0049
	(0.1586)	(0.1576)	(0.1573)
R^2	0.000	0.011	0.015
CAR(-5,5)			
NFRD_SUBJECT_Placebo	-0.0475	-0.0532	-0.0484
	(0.1880)	(0.1864)	(0.1863)
R^2	0.000	0.008	0.013
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Fixed Effects	No	Yes	Yes
N	5519	5519	5519
Unique Acquiring Firms	1357	1357	1357

Note: The methodology follows the exact same approach as outlined in the note in table 5. However, whether an acquiring firm was subject to the NFDR was randomly shuffled, creating $NFRD\_SUBJECT\_Placebo$.

Table 10: Results for H2 Robustness (Industry-filtered and Placebo test) - Main sample excluding ESG scores, covering announced deals between 2018 and 2023

	Model 1	Model 2	Model 3
CAR(-1,1)			
ESGscore	-1.1494**	-0.7220	-0.6434
	(0.5380)	(0.5615)	(0.5761)
NFRD_Subject_placebo	0.5307	0.5117	0.5131
	(0.6029)	(0.6069)	(0.6131)
NFRD_Subject_placebo*ESGscore	-0.9115	-0.8579	-0.8554
	(0.8989)	(0.8960)	(0.9043)
R^2	0.005	0.022	0.027
CAR(-3,3)			
ESGscore	-1.1421	-0.6778	-0.7171
	(0.7390)	(0.7896)	(0.8276)
NFRD_Subject_placebo	0.7057	0.6663	0.6647
	(0.7127)	(0.7165)	(0.7197)
NFRD_Subject_placebo*ESGscore	-0.9315	-0.8313	-0.8300
	(1.0811)	(1.0816)	(1.0855)
R^2	0.003	0.015	0.018
CAR(-5,5)			
ESGscore	-1.1564	-0.5761	-0.6463
	(0.8780)	(0.9367)	(0.9804)
NFRD_Subject_placebo	0.4627	0.4173	0.4156
	(0.8333)	(0.8402)	(0.8412)
NFRD_Subject_placebo*ESGscore	-0.7946	-0.6852	-0.6929
	(1.2715)	(1.2743)	(1.2747)
R^2	0.002	0.014	0.019
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	No	Yes	Yes
Industry Fixed Effects	No	Yes	Yes
N	3465	3465	3465
Unique Acquiring Firms	921	921	921

Note: The methodology follows the exact same approach as outlined in the note in table 5. However, whether an acquiring firm was subject to the NFDR was randomly shuffled, creating $NFRD\_SUBJECT\_Placebo$ (interacted with ESG Score to test H2 robustness).

5. Long-term Effects

5.1 Methodology

Similar to Cicchiello et al. (2023), who studied how the implementation of the NFRD has affected the quantity and quality of disclosure on ESG factors by employing a two-way fixed effects DiD model combined with PSM to ensure that the EU firms and US firms are comparable, I choose to adopt the same research design. Arif et al. (2022), who study the impact of the NFRD on the quantity of disclosure on ESG factors, employ the same research design but choose to utilise propensity score weighting (PSW) to overcome the need of having a substantially large number of observation in the control group and to deal with substantial differences in characteristics between the treated and control sample. However, as both the EU and US acquiring firms in the sample are filtered on the earlier-mentioned firm-level characteristics, and the number of observations in the US sample is larger than the EU sample (see Table 1), PSM suffices in this study. Additionally, the reason for extending the traditional DiD model to a two-way fixed effects DiD model is that including firm- and time-fixed effects allows for the control of confounding factors specific to the acquiring firms and time periods. This enables the research design to better isolate the average treatment effect (Cicchiello et al., 2023).

Estimating the average treatment effect is especially suitable in empirical finance when isolating the effect of a specific treatment on an outcome variable of interest, such as how a regulation affects firms. The causal effect is then estimated by comparing the outcome of interest before and after the treatment between a set of firms affected by the treatment and a set of untreated firms (Baker et al., 2022; Bertrand et al., 2004). This requires firms in both treated and untreated groups to be observed before and after the treatment to determine possible causality (Abadie, 2005). As such, this research design requires panel data on the outcome variable of interest that is expected to be affected by the regulation in addition to relevant control variables for both pre- and post-treatment periods in both the treated and the control group (Coglianese, 2012).

As most of the targets in the sample are not publicly traded (see Table 2), this study will, similarly to

Zollo and Singh (2004), measure actual long-term acquisition performance through return on assets (ROA) as the outcome variable of interest. This is a common approach when assessing long-term acquisition performance for acquiring firms (Barkema & Schijven, 2008; Daniliuc et al., 2014; Le et al., 2014). Similar to previous research assessing the long-term performance of acquiring firms, this study will assess the acquisition performance of acquiring firms one year before deal completion up until three years after deal completion (Fukuda, 2020; Huang et al., 2017; Rau & Vermaelen, 1998).

Regarding the definition of the pre- and post-treatment periods, the post-treatment period is defined from 01.01.2018 until 31.12.2023. This is because the CSDR replaced NFRD post-2023, and since firms disclosed non-financial information under the directive for the first time in 2018 (see Section 2.1). Similar to Cicchiello et al. (2023), 2017 is excluded to ensure that the enforcement of the NFRD (treatment) is clearly defined, even though the directive's transposition deadline was set at the end of 2016. The pre-treatment period, therefore, ends at the end of 2016. The pre- and post-treatment period length is chosen to ensure that the sample consists of a sufficiently large number of acquiring firms that completed at least one acquisition in both periods, which is necessary to determine possible causality. As the acquiring firms for each unique deal are tracked up until three years after deal completion, the three different samples that track each acquiring firm for different periods are filtered to ensure that none of the observations in the pre-treatment period are tracked after 2016. As a result, the pre-treatment window starts on 01.01.2007 to detect enough acquiring firms that completed deals in both periods. Combined, these decisions define a clean post-treatment window for truly untreated acquiring firms with balanced observations pre- and post-treatment.

However, a critical assumption required to determine the relationship between the average treatment effect and ROA is that treated and control groups would have followed parallel trends in ROA without the treatment (Callaway & Sant'Anna, 2021). Propensity score matching (PSM) is commonly utilised to increase the plausibility of this assumption. By matching the treated and control group on observed characteristics that are expected to affect the probability of receiving the treatment by using logistic regression, the inference of causality of the treatment effect on the outcome variable will strengthen the robustness of potential findings (Stuart et al., 2014). The confounding variables selected to match the sample should only be measured before the treatment, and the treatment should

not affect the selected confounding variables. The selected confounders should also be expected to influence the outcome variable of interest and the probability of being treated. Alternatively, it is valid to only include confounding variables expected to significantly influence the outcome variable when the sample is small (Benedetto et al., 2018). Given these constraints, to ensure that the PSM-matched sample in this analysis is valid, the EU and US samples will be matched on relevant confounders prior to the enforcement of the NFRD to minimise the preexisting differences that could potentially bias the estimated treatment effect of the NFRD. As such, the confounding variables selected for the PSM are all the deal-level and firm-level control variables defined in Chapter 3 and Section 4.1. The standardised difference between the unmatched and matched samples will be computed and visualised to determine the quality of the matching process (Austin, 2009). The standardised mean difference (SDM) is computed as follows for continuous and binary confounders:

$$SMD_{continuous} = \frac{\bar{X}_{treatment} - \bar{X}_{control}}{\sqrt{\frac{s^2_{treatment} + s^2_{control}}{2}}} \tag{5.1}$$

$$\text{SMD}_{\text{binary}} = \frac{(\hat{Y}_{\text{treatment}} - \hat{Y}_{\text{control}})}{\sqrt{\frac{\hat{Y}_{\text{treatment}}(1-\hat{Y}_{\text{treatment}}) + \hat{Y}_{\text{control}}(1-\hat{Y}_{\text{control}})}{2}}} \tag{5.2}$$

Equation 5.1 will be used to compute the standardised difference for the continuous variables, and Equation 5.2 will be used for each binary variable.

After matching the treatment and control group, the following equations will be estimated to test H3 and H4:

$$ROA_{it} = \beta_0 + \beta_1(TREATED_i \times POST\_NFRD_t) + \sum_{k=1}^{K} \gamma_k X_{firm,i,t,k} + \sum_{j=1}^{J} \delta_j X_{deal,i,t,j} + \mu_i + \lambda_t + \varepsilon_{it} \tag{5.3}$$

$$
\begin{aligned}
ROA_{it} = {} & \beta_0 + \beta_1(TREATED_i \times POST\_NFRD_t) + \beta_2 ESGscore_{it} \\
& + \beta_3(TREATED_i \times POST\_NFRD_t \times ESGscore_{i,t}) \\
& + \sum_{k=1}^{K} \gamma_k X_{firm,i,t,k} + \sum_{j=1}^{J} \delta_j X_{deal,i,t,j} \\
& + \mu_i + \lambda_t + \varepsilon_{it}
\end{aligned} \tag{5.4}
$$

Where the parameters are coded as follows:

- $TREATED_i \times POST\_NFRD_t$ represents the average treatment effect of the regulation and is, therefore, the independent variable of interest when testing H3. It equals 1 if the acquiring firm is subject to NFRD and if the acquisition was completed during the enforcement of the NFRD. It examines whether the acquisition performance of acquiring firms experiences statistically significant different results if they are susceptible to the NFRD compared to US acquiring firms.
- $TREATED_i \times POST\_NFRD_t \times ESG\_SCORE_{it}$ as a three-way interaction term is the independent variable of interest when testing H4. It tests whether the relationship between ESG score and ROA differs for firms subject to the NFRD after its enforcement compared to all other combinations.
- $\sum_{k=1}^{K} X_{firm,i,t,k}$ and $\sum_{j=1}^{J} X_{deal,i,t,j}$ is vectors containing all variables specified and used in Section 4.1.
- μ_i: Firm fixed effects
- λ_t: Year fixed effects

When firm- and time-fixed effects are included in Equation 5.3 and 5.4 to form a two-way fixed effects model, the "$TREATED$" and "$POST\_NFRD$" variables were excluded from the model. The reason is that the fixed effects fully absorbed these variables as treatment status is constant within firms and the treatment period is constant within periods (Gormley & Matsa, 2014). Additionally, standard errors for all the model specifications are clustered at the firm level as described in section 4.1.

5.2 Data

The panel data used to test H3 and H4, which consists of deals that were completed between 01.01.2007 and 31.12.2023, will be separated into three different datasets which track the data on the dependent variable and the control variables for the acquiring firm in each deal relative to the exact deal completion date: (1) one year prior to deal completion, the completion date, and one year after deal completion (-1,+1), (2) Extended further with two years after deal completion (-1,+2), and (3) Extended further with three years after deal completion (-1,+3). Data on the dependent and control variables were retrieved similarly to section 4.2 but with reference to the deal completion date.

Further, the confounding variables selected for the PSM are both the defined deal-characteristics variables and firm-level variables, including the ESG score for the subsample used to test H4. The continuous variables were further standardised to improve comparability when applying PSM. Further, the observations on firm-level confounding variables in the pre-treatment period were aggregated for observations tracked on the acquiring firms for each unique deal. In contrast, the binary deal-characteristic variables remained unchanged to create a single observation per unique deal. Therefore, each unique deal will be matched with a similar one based on the observed covariates. A logistic regression model was utilised to estimate the probability of treatment, conditional on the included covariates. The matching algorithm that was implemented in the PSM process was nearest-neighbour matching. However, to improve the quality of the resulting matches, a calliper constraint of 0.2 standard deviations of the propensity score logit was applied to the matched pairs resulting from the nearest neighbour matching algorithm without replacement. This was implemented to ensure the matched pairs were as similar as possible (Benedetto et al., 2018). Figure 7 to 12 in the Appendix demonstrates that all the covariates exhibit a standardised mean difference below 0.1 after matching. Figure 13 to 18 shows further that the density of the propensity score distribution has sufficient common support (i.e., the distribution of propensity scores between the treated and control group sufficiently overlaps, confirming that the matched pairs are comparable; Caliendo & Kopeinig, 2008)).

Table 11 present the characteristics of the sample size for the matched sample enabled by PSM as

described earlier (see Table 25 in the Appendix for the unmatched sample):

Table 11: Number of transactions and unique Acquiring Firms collectively and by Region for each sample and time window - Matched Sample

	(-1,+1)			(-1,+2)			(-1,+3)		
	EU	**US**	**Total**	**EU**	**US**	**Total**	**EU**	**US**	**Total**
Main sample – Excluding ESG Score									
Deals	5175	7178	12353	4259	5631	9890	3342	4431	7773
Acquiring Firms	411	480	891	352	394	746	290	347	637
Subsample – Including ESG Score									
Deals	3320	4630	7950	2685	3719	6404	2146	2860	5006
Acquiring Firms	229	323	552	203	271	474	168	227	395

Note: Both samples cover completed transactions between 2007 and 2023. The subsample is restricted to deals where ESG scores are available for the acquiring firms.

Table 12 provides further summary statistics for the firm-level control variables for the matched sample (see Table 26 in the Appendix for the unmatched sample):

Table 12: Summary Statistics of firm-level control variables for each sample across time windows - Matched Sample

		Main sample - Excluding ESG			Subsample - Including ESG		
		Time Window			Time Window		
		(-1,+1)	(-1,+2)	(-1,+3)	(-1,+1)	(-1,+2)	(-1,+3)
	N	37074	39580	38890	23862	25628	25040
Total debt to	mean	60.3	-77.6	75.9	88.6	95.5	92.5
Common Equity	std	3981.6	19576.6	1657.9	1019.2	727.3	749.6
	25%	29.7	31.0	31.8	30.5	30.4	31.8
	50%	57.3	57.8	57.4	55.4	54.0	54.3
	75%	97.9	99.4	96.9	96.1	93.2	93.5
Quick ratio	mean	1.2	1.1	1.1	1.2	1.2	1.2
	std	0.8	0.6	0.6	0.6	0.8	0.8
	25%	0.8	0.8	0.8	0.8	0.8	0.8
	50%	1.0	1.0	1.0	1.0	1.0	1.0
	75%	1.3	1.3	1.3	1.3	1.3	1.3
Market value	mean	3.3	2.6	3.2	3.9	4.2	4.1
to book	std	42.5	139.7	42.0	45.8	29.0	30.0
	25%	1.6	1.6	1.6	1.8	1.8	1.8
	50%	2.6	2.5	2.5	2.9	2.9	2.8
	75%	4.2	4.1	4.0	4.8	4.6	4.5
ESG Score	mean	-	-	-	58.4	58.9	59.1
	std	-	-	-	20.3	20.0	19.8
	25%	-	-	-	42.6	43.6	44.2
	50%	-	-	-	60.5	61.3	61.3
	75%	-	-	-	75.4	75.8	75.8
Total assets	mean	20.3	21.1	22.0	29.7	30.8	31.6
(EUR billion)	std	49.8	49.0	50.3	57.4	58.3	59.5
	25%	1.3	1.4	1.6	3.9	3.9	4.1
	50%	4.3	4.6	5.1	10.3	10.6	11.3
	75%	17.0	18.0	20.4	27.9	29.2	29.5
EBITDA	mean	3.0	3.1	3.1	4.4	4.7	4.9
(EUR billion)	std	7.9	8.2	7.4	9.3	9.8	10.2
	25%	0.2	0.2	0.2	0.5	0.5	0.5
	50%	0.5	0.6	0.7	1.3	1.3	1.4
	75%	2.2	2.3	2.6	3.9	4.3	4.5

Note: Both samples cover completed transactions between 2007 and 2023. The subsample is restricted to deals where ESG scores are available for the acquiring firms. Total assets and EBITDA are scaled to billion euros for better interpretation.

Finally, Figure 5 displays the distribution of ESG scores for the acquiring firms by region for the matched sample (see Figure 6 in the Appendix for the unmatched sample):

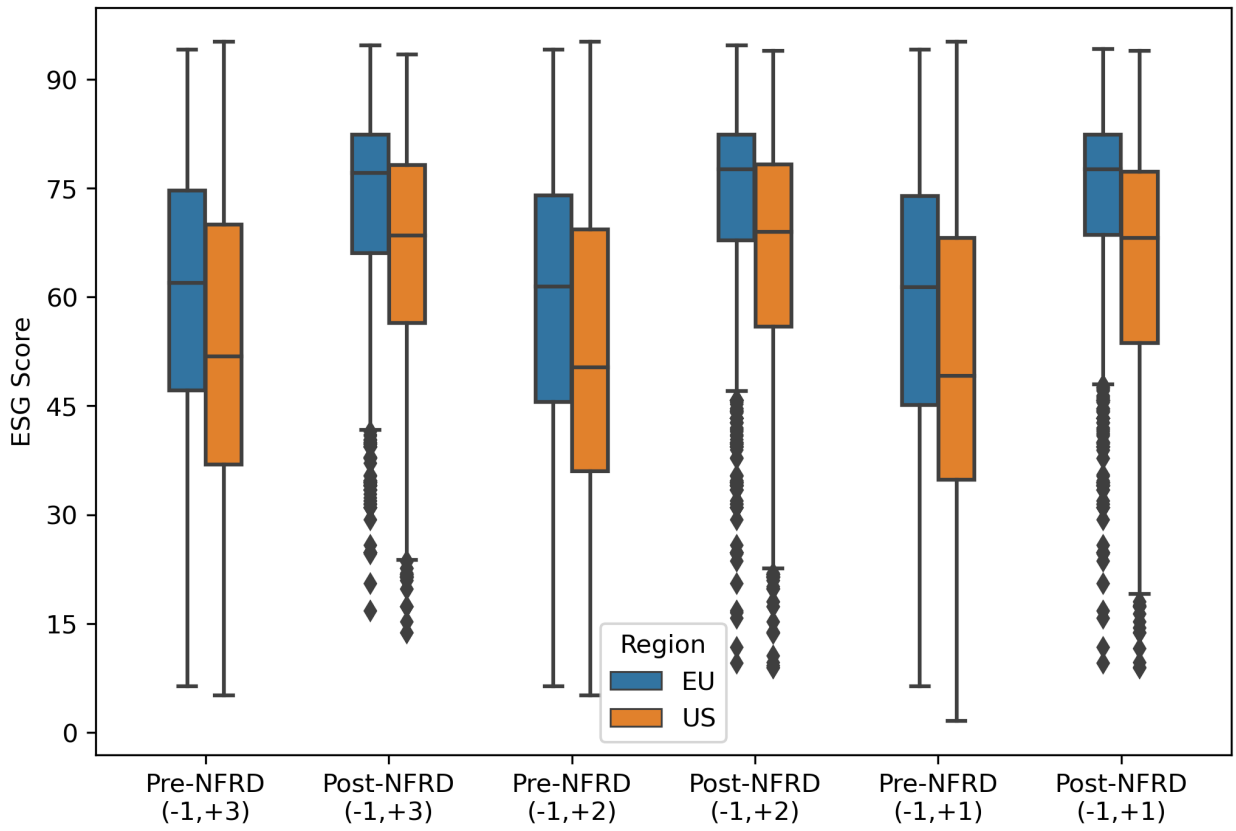

Figure 5: The distribution of ESG scores for EU and US acquiring firms between 2007 and 2023 prior to and after the enforcement of the NFRD across time windows (matched sample).

5.3 Results

Table 13 presents the results from estimating Equation 5.3 testing H3 on the matched sample. The average treatment effect ($Treated * Post\_NFRD$) of the NFRD on acquiring firms subject to it implies that these firms experience a decrease in ROA in the post-deal fiscal years that appear for all time windows (0, +1, +2, +3), which ranges from -0.80 to -1.16 pp across all time windows and model specifications, with reference to one year prior to deal completion (-1). When controlling for different deal and firm characteristics, the magnitude of the average treatment effect increases. Given the time window of (-1, +1) for model 3 and an estimated coefficient of -1.16 pp for $Treated * Post\_NFRD$, if an acquiring firm subject to the NFRD has an ROA equal to 5% one year prior to deal-completion (-1), its ROA would be expected to be 1.16 pp lower on average across the deal completion year (0) and the following year (+1), compared to a matched US acquiring. As this would represent a decrease of 23.2% in ROA, it is reasonable to argue that the average treatment

effect is economically significant. The estimated average treatment effect remains significant across all three time windows and model specifications at significance levels of 1% for (-1, +1), 5% for (-1, +3), and 10% for (-1, +2). As such, the results provide robust support for H3, and there is reason to believe that acquiring firms subject to the NFRD experience statistically significantly different (negative) post-acquisition performance compared to US acquiring firms not subject to the NFRD (see complete estimates for the results in Table 13 in Table 27 in the Appendix).

Table 13: Results for H3 - Main sample (matched) excluding ESG scores, covering completed deals between 2007 and 2023

	Model 1	Model 2	Model 3
Dependent Variable: ROA			
(-1,+1)			
Treated*Post_NFRD	-1.1157***	-1.1366***	-1.1570***
	(0.4014)	(0.4006)	(0.3926)
R^2	0.002	0.003	0.050
N	37074	37074	37074
Unique Acquiring Firms	891	891	891
(-1,+2)			
Treated*Post_NFRD	-0.7983*	-0.8022*	-0.8463*
	(0.4405)	(0.4390)	(0.4413)
R^2	0.001	0.003	0.054
N	39580	39580	39580
Unique Acquiring Firms	746	746	746
(-1,+3)			
Treated*Post_NFRD	-1.0994**	-1.1009**	-1.1128**
	(0.4888)	(0.4881)	(0.4916)
R^2	0.001	0.002	0.030
N	38890	38890	38890
Unique Acquiring Firms	637	637	637
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes

Note: Results are obtained by estimating equation 5.3 through a two-way fixed effects DiD model and are presented in the "model 3" column. The dependent variable (ROA) and the deal and firm-level control variables are tracked for each individual completed deal for (-1, +1), (-1, +2), and (-1, +3) years with reference to the deal completion date. The columns "Model 1" and "Model 2" introduce deal and firm-level control variables incrementally. Year and firm fixed effects are included in all model specifications (models 1,2 and 3). Standard errors are clustered at firm-level for all model specifications, and ***, **, and * demonstrate whether results are statistically significant at the 1%, 5% or 10% level.

Finally, Table 14 presents the result after estimating Equation 5.4 to test H4 for the matched sample of acquiring firms with reported ESG scores. The estimated effects of $Treated * Post\_NFRD * ESGscore$ (three-way interaction term) provide a nuanced relationship between how ESG scores impact ROA differently for firms subject to and after the enforcement of the NFRD. However, when analysing this relationship, the three-way interaction term has to be analysed in the context of the estimated effect of $Treated * Post\_NFRD$. The reason is that $Treated * Post\_NFRD$ estimates the effect of the NFRD after its implementation when the ESG score equals zero for EU acquiring firms, acting as a reference point for the interaction. As such, the three-way interaction term then informs whether ESG scores impact ROA differently in a regulated context compared to US-acquiring firms after enforcing the NFRD. The estimated effect of $Treated * Post\_NFRD$ on ROA ranges from -3.96 to -1.88 pp for the three time windows and model specifications. $Treated * Post\_NFRD * ESGscore$, however, informs that for each additional point in ESG score, firms subject to NFRD gain on average 0.009 to 0.036 pp more in ROA compared to similar US firms with equivalent ESG scores after the enforcement of the NFRD, across all time windows and model specifications. Considering the (-1, +1) time window for model 3 with coefficients estimated to -3.96 pp and 0.036 pp for $Treated * Post\_NFRD$ and $Treated * Post\_NFRD * ESGscore$ and the median ESG score of 78 (see Figure 5) for EU acquiring firms, an EU acquiring firm that completes a deal after the enforcement of the NFRD, will mitigate the decrease in ROA from -3.96 pp to -3.96 pp + 0.036 pp * 78 ESG Score = -1.15 pp. This economically significant result is statistically significant at a 5% level.

Although $Treated * Post\_NFRD * ESGscore$ is expected to have a positive effect on ROA and mitigate the negative effect of the NFRD, for (-1,+2) and (-1,+3) time windows and their corresponding model specifications, $Treated * Post\_NFRD * ESGscore$ remains statistically insignificant. The estimated coefficients on ESG Score are expected to have a positive effect on ROA for US-acquiring firms both pre and post-NFRD and for EU-acquiring firms prior to the enforcement of the NFRD, ranging from 0.0007 to 0.007 pp for each additional point in ESG score. However, this positive effect is smaller in magnitude compared to $Treated * Post\_NFRD * ESGscore$ and remains statistically insignificant across all time windows and model specifications. As such, H4 holds only for the (-1,+1) time window for the main model specification defined by equation 5.4 at a 5% significance level. Thus, the relationship between ESG performance and post-acquisition

performance is significantly different (positive) for firms subject to the NFRD compared to US acquiring firms not subject to the NFRD after its enforcement for a (-1,+1) time window (see complete estimates for the results in Table 14 in Table 28 in the Appendix).

Table 14: Results for H4 - Subsample (matched) including ESG scores, covering completed deals between 2007 and 2023

	Model 1	Model 2	Model 3
Dependent Variable: ROA			
(-1,+1)			
Treated*Post_NFRD	-2.8127*	-2.8140*	-3.9601***
	(1.4447)	(1.4544)	(1.4444)
ESG Score	0.0064	0.0055	0.0040
	(0.0160)	(0.0159)	(0.0159)
Treated*Post_NFRD*ESGscore	0.0204	0.0205	0.0356**
	(0.0183)	(0.0183)	(0.0179)
R^2	0.003	0.004	0.065
N	23862	23862	23862
Unique Acquiring Firms	552	552	552
(-1,+2)			
Treated*Post_NFRD	-2.1870	-2.2408	-3.7579*
	(1.9279)	(1.9347)	(1.9357)
ESG Score	0.0016	0.0007	0.0012
	(0.0183)	(0.0182)	(0.0185)
Treated*Post_NFRD*ESGscore	0.0111	0.0119	0.0327
	(0.0237)	(0.0238)	(0.0234)
R^2	0.002	0.005	0.066
N	25628	25628	25628
Unique Acquiring Firms	474	474	474
(-1,+3)			
Treated*Post_NFRD	-1.8818	-1.9500	-3.5143*
	(2.0705)	(2.0690)	(2.0975)
ESG Score	0.0068	0.0060	0.0059
	(0.0175)	(0.0174)	(0.0175)
Treated*Post_NFRD*ESGscore	0.0085	0.0092	0.0328
	(0.0256)	(0.0255)	(0.0254)
R^2	0.002	0.004	0.061
N	25040	25040	25040
Unique Acquiring Firms	395	395	395
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes

Note: Results are obtained by estimating equation 5.4 through a two-way fixed effects DiD model and are presented in the "model 3" column. The dependent variable (ROA) and the deal and firm-level control

variables are tracked for each individual completed deal for (-1, +1), (-1, +2), and (-1, +3) years with reference to the deal completion date. The columns "Model 1" and "Model 2" introduce deal and firm-level control variables incrementally. Year and firm fixed effects are included in all model specifications (models 1,2 and 3). Standard errors are clustered at firm-level for all model specifications, and ***, **, and * demonstrate whether results are statistically significant at the 1%, 5% or 10%1 level.

5.4 Robustness

Similarly to Section 4.4, which presents the imbalance of announced deals between industries for EU and US acquiring firms, Figure 3 in Chapter 3 demonstrates that within the High Technology and Healthcare industries, completed deals from EU acquirers amount to 6% compared to US acquiring firms, with 16% within High Technology and similarly 3% and 9% for the Healthcare industry. To ensure that this imbalance did not drive the results presented in Section 5.3 for H3 and H4, H3 and H4 are re-examined using a filtered version of the original sample that excludes the High Technology and Healthcare industries.

The results presented in Table 15 demonstrate that the results for H3 remain robust, as $Treated * Post\_NFRD$ does not become statistically insignificant for any of the three event windows or model specifications.

Table 15: Results for H3 Robustness (Industry-filtered) - Main sample excluding ESG scores, covering completed deals between 2007 and 2023

	Model 1	Model 2	Model 3
Dependent Variable: ROA			
(-1,+1)			
Treated*Post_NFRD	-1.1552***	-1.1707***	-1.0461***
	(0.3987)	(0.3989)	(0.3988)
R^2	0.002	0.003	0.044
N	25593	25593	25593
Unique Acquiring Firms	680	680	680
(-1,+2)			
Treated*Post_NFRD	-0.9573**	-0.9634**	-0.8073*
	(0.4485)	(0.4472)	(0.4432)
R^2	0.002	0.003	0.046
N	27196	27196	27196
Unique Acquiring Firms	566	566	566
(-1,+3)			
Treated*Post_NFRD	-1.0287**	-1.0358**	-0.8972*
	(0.4853)	(0.4842)	(0.4854)
R^2	0.001	0.001	0.021
N	27005	27005	27005
Unique Acquiring Firms	492	492	492
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes

Note: The methodology follows the exact same approach as outlined in the note in table 13. However, completed deals where the acquiring firm operates within the High Technology and Healthcare industries are excluded.

Similarly, when analysing the results presented in Table 16, it becomes evident that the mentioned imbalance does not alter the results presented in Section 5.3 for H4 as $Treated * Post\_NFRD * ESGscore$ remains statistically significant at a 5% level at a similar magnitude in model 3 for the (-1,+1) event window.

Table 16: Results for H4 Robustness (Industry-filtered) - Main sample excluding ESG scores, covering completed deals between 2007 and 2023

	Model 1	Model 2	Model 3
Dependent Variable: ROA			
(-1,+1)			
Treated*Post_NFRD	-3.0894**	-3.0908**	-3.4587**
	(1.5003)	(1.5153)	(1.4678)
ESG Score	-0.0196	-0.0201	-0.0236
	(0.0158)	(0.0158)	(0.0156)
Treated*Post_NFRD*ESGscore	0.0310	0.0310	0.0378**
	(0.0201)	(0.0202)	(0.0193)
R^2	0.002	0.003	0.048
N	15588	15588	15588
Unique Acquiring Firms	414	414	414
(-1,+2)			
Treated*Post_NFRD	-2.1314	-2.1825	-2.8922
	(2.1409)	(2.1492)	(2.1070)
ESG Score	-0.0287	-0.0292	-0.0331*
	(0.0186)	(0.0186)	(0.0184)
Treated*Post_NFRD*ESGscore	0.0193	0.0201	0.0316
	(0.0271)	(0.0272)	(0.0264)
R^2	0.002	0.004	0.053
N	16720	16720	16720
Unique Acquiring Firms	364	364	364
(-1,+3)			
Treated*Post_NFRD	-1.5420	-1.6336	-2.3888
	(2.4231)	(2.4374)	(2.4072)
ESG Score	-0.0234	-0.0238	-0.0264
	(0.0190)	(0.0189)	(0.0187)
Treated*Post_NFRD*ESGscore	0.0133	0.0141	0.0269
	(0.0309)	(0.0310)	(0.0302)
R^2	0.002	0.003	0.045
N	16220	16220	16220
Unique Acquiring Firms	293	293	293
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes

Note: The methodology follows the exact same approach as outlined in the note in table 14. However, completed deals where the acquiring firm operates within the High Technology and Healthcare industries are excluded.

To test further whether the results for H3 and H4 are robust, a placebo test in the same fashion as Cicchiello et al. (2023), was applied to assess whether the mentioned assumption of parallel trends in section 5.1 holds. To do so, acquiring firms from the US and EU countries were randomly assigned to be subject to the NFRD. Then, an artificial treatment period was chosen within the

pre-treatment period (01.01.2007 and 31.12.2016). Finally, the interaction between the placebo treatment and post variables yields a placebo estimator for the average treatment effect, named $Treated\_Pl * Post\_NFRD\_Pl$ in Table 17 and $Treated\_Pl * Post\_NFRD\_Pl$ (interacted with ESG Score to test H4) in Table 18.

As $Treated\_Pl * Post\_NFRD\_Pl$ in Table 17 and $Treated\_Pl * Post\_NFRD\_Pl * ESGscore$ in Table 18 remain statistically insignificant across all three time windows and model specifications, there is reason to argue that the parallel trend assumption holds reasonably well. As such, the enforcement of the NFRD truly has an average treatment effect that strengthens and supports the results presented for H3 and H4 in Section 5.3.

Table 17: Results for H3 Robustness (Placebo test) - Main sample excluding ESG scores, covering completed deals between 2007 and 2023

	Model 1	Model 2	Model 3
Dependent Variable: ROA			
(-1,+1)			
Treated_Pl*Post_NFRD_Pl	0.3864	0.3978	0.4480
	(0.2962)	(0.2962)	(0.2727)
R^2	0.000	0.001	0.048
N	37074	37074	37074
Unique Acquiring Firms	891	891	891
(-1,+2)			
Treated_Pl*Post_NFRD_Pl	0.1084	0.1141	0.1403
	(0.2585)	(0.2575)	(0.2479)
R^2	0.000	0.001	0.053
N	39580	39580	39580
Unique Acquiring Firms	746	746	746
(-1,+3)			
Treated_Pl*Post_NFRD_Pl	0.1141	0.1263	0.1948
	(0.2246)	(0.2239)	(0.2191)
R^2	0.000	0.001	0.028
N	38890	38890	38890
Unique Acquiring Firms	637	637	637
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes

Note: The methodology follows the exact same approach as outlined in the note in table 13. However, US and EU acquiring firms were randomly assigned NFRD treatment status, with an artificial treatment period set within the pre-treatment timeframe (2007-2016), creating $Treated\_Pl * Post\_NFRD\_Pl$.

Table 18: Results for H4 Robustness (Placebo test) - Subsample inccluding ESG scores, covering completed deals between 2007 and 2023

	Model 1	Model 2	Model 3
Dependent Variable: ROA			
(-1,+1)			
Treated_PI*Post_NFRD_PI	1.5028	1.5138	0.9026
	(1.1621)	(1.1602)	(0.9517)
ESG Score	0.0127	0.0118	0.0090
	(0.0166)	(0.0165)	(0.0163)
Treated_PI*Post_NFRD_PI*ESGscore	-0.0298	-0.0301	-0.0184
	(0.0212)	(0.0212)	(0.0167)
R^2	0.001	0.002	0.062
N	23862	23862	23862
Unique Acquiring Firms	552	552	552
(-1,+2)			
Treated_PI*Post_NFRD_PI	0.5027	0.5005	0.3886
	(0.9195)	(0.9103)	(0.7971)
ESG Score	0.0058	0.0049	0.0051
	(0.0186)	(0.0185)	(0.0188)
Treated_PI*Post_NFRD_PI*ESGscore	-0.0171	-0.0172	-0.0161
	(0.0158)	(0.0157)	(0.0129)
R^2	0.001	0.003	0.064
N	25628	25628	25628
Unique Acquiring Firms	474	474	474
(-1,+3)			
Treated_PI*Post_NFRD_PI	0.7951	0.7725	0.9664
	(0.7526)	(0.7416)	(0.7258)
ESG Score	0.0107	0.0098	0.0095
	(0.0176)	(0.0174)	(0.0175)
Treated_PI*Post_NFRD_PI*ESGscore	-0.0090	-0.0086	-0.0105
	(0.0133)	(0.0131)	(0.0137)
R^2	0.000	0.002	0.059
N	25040	25040	25040
Unique Acquiring Firms	395	395	395
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes

Note: The methodology follows the exact same approach as outlined in the note in table 14. However, US and EU acquiring firms were randomly assigned NFRD treatment status, with an artificial treatment period set within the pre-treatment timeframe (2007-2016), creating $Treated\_PI * Post\_NFRD\_PI$ (interacted with "ESGScore" to test H4).

6. Discussion

After examining both short-term (see Section 4.3) and long-term effects (see Section 5.3) of the NFDR on acquisition performance, the empirical results reveal a nuanced relationship. In the short term, markets seem to price announced deals higher for acquiring firms subject to the NFRD than similar US acquiring firms (H1). However, acquiring firms subject to the NFRD exhibit weaker post-acquisition performance than similar firms in the US (H3). These contradicting results are further nuanced when assessing how ESG performance might impact these short-term and long-term effects. When excluding acquiring firms operating within the High technology and Healthcare sectors, strong ESG performance seems to have a significant positive impact on how announced deals are priced by the market for acquiring firms subject to the NFDR, while stronger ESG performance for US acquiring firms contributes to weaker pricing by the market (H2 robustness). These results indicate that reported ESG scores reflect the actual characteristics of the acquiring firms in a regulated context and help mitigate the possibility of greenwashing. Diving further into this relationship, the results suggest that stronger ESG performance increases post-acquisition performance within the first year after deal completion for acquiring firms at a larger magnitude for acquiring firms subject to the NFRD, compared to US acquiring firms (H4). This result might indicate that the ESG scores disclosed by EU acquirers are less overstated than those of their U.S. peers, and it further reinforces the importance of genuine ESG performance in the context of M&A.

The greater short-term market reactions towards announced deals for acquiring firms subject to the NFRD over US acquirers could be explained through signalling theory as described by Connelly et al. (2024) in section 2.1). Mandatory disclosure of non-financial information seems to alleviate information asymmetry by providing acquiring firms in the EU with the possibility of strengthening the credibility of signalling their true firm characteristics that investors value through mandated non-financial disclosures (Huang, 2022), as seen through their enhanced CARs. As the NFRD defines standards for reported non-financial information, it becomes more costly for EU-acquiring firms to withhold information on non-financial information that could weaken their credibility in the market (Connelly et al., 2024). As such, corporate executives might be less incentivised and cautious to consider value-destroying acquisitions motivated by executive hubris (Haleblian et al.,

2009), and investors are better positioned to evaluate the true value creation potential for announced deals as information asymmetry is alleviated through more credible signals enabled by the NFRD. This also suggests that the NFRD has benefited society since increased transparency of non-financial information allows investors to make more informed decisions, where corporate executives are held more accountable in their corporate decision-making, aligning with the public interest theory of regulations (Hantke-Domas, 2003). According to European Commission et al. (2021), firms subject to the NFRD report that they have gained a stronger reputation amongst customers, but it has also enabled firms to gain enhanced exposure and traction amongst sustainability-focused investors and indices with ESG performance as investment criteria. In addition, Breijer and Orij (2022) find empirical results of increased comparability of disclosed non-financial information across EU firms and reduced information asymmetry after the implementation of the NFRD. Collectively, these theoretical implications and empirical findings might explain why acquiring firms subject to the NFRD experience greater CARs on average compared to acquiring firms operating in a market where non-financial information is disclosed voluntarily.

However, Breijer and Orij (2022) also find evidence that firms only disclosing non-financial information after the enforcement of the NFRD ("resisters") led to increased information asymmetry through compliance-driven reporting by disguising weak non-financial performance through boilerplate reporting. Coupled with the earlier findings of Breijer et al. (2024), who find that this suggests that the costs of mandated reporting outweigh the perceived benefits, and Kathan et al. (2025), who suggest that regulatory pressure to disclose non-financial information can incentivise firms to produce boilerplate reports, can help explain why acquiring firms subject to the NFRD seem to exhibit weaker post-acquisition performance compared to similar acquiring firms in the US. According to European Commission et al. (2021), who studied the impact of the NFRD, the total of large publicly listed companies was estimated to face total administrative costs of 172 and 112 million euros in the first and following years after the enforcement of the NFRD. In addition, the total incremental costs estimated to be incurred for the firms amount to 69 and 42 million euros in the first and following years. Their survey also revealed that enforcing the NFRD has increased the bureaucratic workload related to documentation processes to meet auditor requirements while creating operational complications, administrative burdens, and higher overall compliance costs for affected companies. This finding could also be explained through Haleblian et al.'s (2009) frame-

work, where the regulatory shift of the NFRD may temporarily motivate acquisitions of targets that enable effective compliance rather than engaging in acquisitions primarily focused on value creation by integrating targeted assets to enhance competitiveness. The resources devoted to establishing internal capabilities for regulatory compliance may divert managerial attention and operational focus away from effectively integrating and leveraging acquired resources. This could explain weaker post-acquisition performance for NFRD subjects compared to the US-acquiring firms not facing these additional costs and operational complications. As such, it is possible to argue that the NFRD enables resisters to benefit from initially increased CARs for their announced deals. However, their inflated non-financial performance materialises in weaker post-acquisition performance compared to US-acquiring firms. This illustrates how the NFRD might be supported by the capture theory of regulations (Etzioni, 2009). It also illustrates that the NFRD has struggled to balance the perceived costs and benefits of the regulation, as Masur and Posner (2011) stress that this is a common issue in implementing effective regulations.

Furthermore, as ESG scores have both a positive and negative effect on short-term market reactions towards announced deals for acquiring firms in the EU and the US when excluding High technology and Healthcare industries, the results discussed for H1 further strengthen. This result aligns with Yu et al. (2020), who argue that the absence of a governing body that regulates the disclosure of non-financial information related to ESG factors makes it harder for investors to evaluate the ESG performance, as it may incentivise "greenwashing". As increased ESG scores negatively affect announcement returns for acquiring firms in the US, it is reasonable to argue that investors are suspicious and sceptical of high ESG scores being "greenwashed" as they are built upon voluntarily disclosed non-financial information. In contrast, the positive effect of higher ESG scores on announcement returns for acquiring firms subject to the NFRD indicates that regulating non-financial information enhances investor confidence and views ESG scores as more credible as it is rooted in regulated non-financial information. Luu et al.'s (2025) empirical evidence that mandatory reporting requirements significantly reduce the presence of "greenwashing" further supports that ESG scores are interpreted differently across regulatory environments.

As ESG scores increase post-acquisition performance at a larger magnitude compared to US acquiring firms up until the first year after deal completion (H4), this presents evidence of investors' dif-

fering perception of reported ESG scores (H2 robustness) materialises in improved post-acquisition performance, confirming that ESG score based on regulated non-financial information better reflects actual firm characteristics. Considering empirical evidence that highlights the importance of alignment between social and governance factors between acquiring and target firms to reduce deal-completion time and cultural frictions during the integration of acquired targets (Cardillo & Harasheh, 2023), the results suggesting that acquiring firms subject to the NFRD with higher ESG scores are better positioned to succeed in the early stages of the M&A process. This result aligns with Huang et al.'s (2023), which provides empirical results that argue that strong ESG performance enables firms to adapt more effectively to M&A processes and reduce cultural frictions by enhancing stakeholder support through strong ESG performance. While the NFRD has had a negative effect on post-acquisition performance, acquiring firms within the EU with genuinely strong ESG performance can generate stronger post-acquisition performance during the first year after deal completion, which supports Feyisetan et al.'s (2024) conclusion that ESG acts as a value driver in M&As. This ultimately demonstrates that the results align with the stakeholder theory outlined by Mahajan et al. (2023), as providing genuine and strong non-financial information in a regulated context improves post-acquisition performance in the early stage through strong ESG performance.

7. Limitations

The screening process for announced deals and completed deals was structured to obtain a sufficiently large number of observations by including deals where the target was privately held. As such, the research designs fail to control for the target firm's level characteristics and deal value when analysing the presented hypothesis. It also makes it difficult to estimate realised synergies post-acquisition accurately, which made me rely on the most common accounting measure used when estimating post-acquisition performance for acquiring firms. Another limitation that arises when measuring whether the effect of ESG performance on acquisition performance matters more in a regulated context is that several third-party providers provide ESG scores. The issue arises as there exists substantial divergence in their assessment, as Berg et al. (2022) found that the correlation between these providers ranges between 0.38 and 0.71 on ESG ratings. This divergence underscores the challenge of identifying greenwashing as firms may strategically disclose positive ESG information while concealing negative impacts (Kathan et al., 2025; Yu et al., 2020). As I am limited in sourcing ESG data from Refinitiv, the findings might not be consistent if alternative ESG rating providers were utilised.

8. Conclusion and Avenues for Future Research

After conducting a comparative analysis to examine whether acquiring firms subject to the NFRD experience significantly different acquisition performance compared to US acquiring firms not subject to the NFRD, it becomes evident that acquisition performance differs significantly.

The empirical results demonstrate that the market reacts more favourably to announced deals when the acquiring firm is subject to the NFRD and that their corresponding ESG scores are valued by market participants (when excluding announced deals where the acquiring firms operate within High technology and Healthcare industries) when analysing CARs for announced deals. However, ESG scores related to acquiring firms in the US have a negative effect on CARs for announced deals. These results indicate that the NFRD has benefited society by enabling investors to better evaluate the true value creation potential for announced deals, as information asymmetries are alleviated through more credible signals enabled by the NFRD. The enhanced transparency might also make corporate executives more cautious about conducting value-destroying acquisitions to benefit their own interests.

However, the empirical results demonstrate that acquiring firms subject to the NFRD experience weaker post-acquisition performance than similar firms in the US. But, within the first year after deal completion, stronger ESG performance increases post-acquisition performance at a larger magnitude for acquiring firms subject to the NFRD. These results reflect that the outlined costs and administrative burdens of complying with the NFRD might incentivise acquiring firms to acquire targets with resources that enable effective compliance rather than engaging in acquisitions primarily focused on value creation. However, it also demonstrates that investors' differing perceptions of reported ESG scores materialise in improved post-acquisition performance when ESG scores are based on regulated non-financial information. This highlights the importance of genuine ESG commitment acting as a value driver in M&A, as acquiring firms subject to the NFRD with higher ESG scores are better positioned to engage stakeholders and succeed in the early stages of the M&A process.

Collectively, these results pose important implications for investors, corporate executives, and poli-

cymakers. While investors capture higher CARs for their investments when acquiring firms subject to NFRD publicly announced deals, they should identify firms with genuine ESG commitments rather than compliance-driven reporting, as these firms demonstrate better post-acquisition performance in the early stages of the M&A. While compliance costs and administrative burdens may divert resources from engaging in value-creating acquisitions, corporate executives should recognise the importance of integrating genuine ESG commitment in corporate strategy, as it is an important value driver in M&A. For policymakers, future regulatory frameworks related to mandated non-financial disclosure should be aimed at balancing the perceived benefits and compliance costs better to enforce regulations that benefit the whole society.

As this research has revealed that the NFRD has indeed had a significant impact on acquisition performance for acquiring firms both short- and long-term, future research should study how the evolving and future regulations on non-financial information, such as the SFDR and the CSRD, have altered the results presented in this research. Future research could also dive deeper into how these regulations impact individual industries and/or countries within the EU member states. Future research could also test whether the presented findings alter when only transactions of publicly listed target firms are analysed, as it would allow for a more accurate estimation of post-acquisition performance and control for target firm characteristics. Sourcing ESG data from several providers should also be considered due to the issue of greenwashing and divergence in ESG ratings amongst providers.

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Appendix

A Statistical significance of ACAR

Table 19: Statistical significance of ACAR for the main and subsample across event-windows

	N	t-stat
Main sample - Excluding ESG Score		
ACAR(-1,1)	5519.00	5.84
ACAR(-3,3)	5519.00	3.96
ACAR(-5,5)	5519.00	2.79
Subsample - Including ESG Score		
ACAR(-1,1)	5152.00	4.57
ACAR(-3,3)	5152.00	3.10
ACAR(-5,5)	5152.00	2.08

Note: T-stat for the ACAR for the different event windows are based on the individual CARs that result from estimating expected returns with the standard market model.

Table 20: Statistical significance of ACAR for the main and subsample across event-windows

	N	t-stat
Main sample - Excluding ESG Score		
ACAR(-1,1)	5519.00	6.03
ACAR(-3,3)	5519.00	4.29
ACAR(-5,5)	5519.00	3.18
Subsample - Including ESG Score		
ACAR(-1,1)	5152.00	4.72
ACAR(-3,3)	5152.00	3.36
ACAR(-5,5)	5152.00	2.38

Note: T-stat for the ACAR for the different event windows are based on the individual CARs that result from estimating expected returns with the market model that applies GARCH(1,1) to the error term.

B Results for H1 and H2 - GARCH(1,1)

Table 21: Results for H1 - Main sample excluding ESG scores, covering announced deals between 2018 and 2023

	Model 1	Model 2	Model 3
CAR(-1,1)			
NFRD_SUBJECT	0.5842***	0.7702***	0.7936***
	(0.1450)	(0.1518)	(0.1500)
R^2	0.004	0.019	0.024
CAR(-3,3)			
NFRD_SUBJECT	0.5480***	0.7563***	0.7784***
	(0.1694)	(0.1880)	(0.1880)
R^2	0.003	0.017	0.022
CAR(-5,5)			
NFRD_SUBJECT	0.4580***	0.6758***	0.7151***
	(0.1966)	(0.2236)	(0.2238)
R^2	0.002	0.014	0.020
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	No	Yes	Yes
Industry Fixed Effects	No	Yes	Yes
N	5,519	5,519	5,519
Unique Acquiring Firms	1357	1357	1357

Note: The methodology follows the exact same approach as outlined in the note in table 5. However, the dependent varaible (CAR) for the three different event windows result from estimating expected returns with the market model that applies GARCH(1,1) to the error term.

Table 22: Results for H2 - Subsample including ESG scores, covering announced deals between 2018 and 2023

	Model 1	Model 2	Model 3
CAR(-1,1)			
ESG Score - Scaled	-1.7366***	-1.2627**	-1.2861**
	(0.4988)	(0.5227)	(0.5461)
NFRD_SUBJECT	0.9804*	1.1308*	1.1632**
	(0.5851)	(0.5839)	(0.5816)
NFRD_SUBJECT*ESGscore	-0.5189	-0.5697	-0.5775
	(0.8250)	(0.8353)	(0.8385)
R^2	0.008	0.023	0.029
CAR(-3,3)			
ESG Score - Scaled	-1.7637***	-1.3280*	-1.4272**
	(0.6306)	(0.6799)	(0.7163)
NFRD_SUBJECT	0.4238	0.5026	0.4989
	(0.6741)	(0.6979)	(0.6980)
NFRD_SUBJECT*ESGscore	0.3484	0.4501	0.5267
	(0.9831)	(1.0053)	(1.0110)
R^2	0.004	0.014	0.019
CAR(-5,5)			
ESG Score - Scaled	-2.0943***	-1.5571*	-1.6419*
	(0.7423)	(0.8093)	(0.8467)
NFRD_SUBJECT	-0.0647	0.0681	0.0861
	(0.7720)	(0.8132)	(0.8138)
NFRD_SUBJECT*ESGscore	1.0297	1.0656	1.1259
	(1.1376)	(1.1735)	(1.1769)
R^2	0.003	0.011	0.016
Deal Controls	No	Yes	Yes
Firm Controls	No	No	Yes
Year Fixed Effects	No	Yes	Yes
Industry Fixed Effects	No	Yes	Yes
N	5,152	5,152	5,152
Unique Acquiring Firms	1229	1229	1229

Note: The methodology follows the exact same approach as outlined in the note in table 6. However, the dependent varaible (CAR) for the three different event windows result from estimating expected returns with the market model that applies GARCH(1,1) to the error term.

C Complete model specifications - H1 and H2 results

Table 23: Results for H1 (complete estimates resulting from estimating euqation 4.9) - Main sample excluding ESG scores, covering announced deals between 2018 and 2023

	CAR(-1,1)	CAR(-3,3)	CAR(-5,5)
Intercept	0.6765*	0.3949	0.5233
	(0.3611)	(0.4521)	(0.5029)
NFRD_SUBJECT	0.8031***	0.8107***	0.7687***
	(0.1489)	(0.1865)	(0.2231)
Acquisition Type_conglomerate	0.2150	0.1955	0.0802
	(0.1953)	(0.2335)	(0.2683)
Acquisition Type_horizontal	0.1697	0.2434	0.0840
	(0.1761)	(0.2176)	(0.2533)
Cross Border Deal Flag_True	-0.2535*	-0.3092*	-0.3879*
	(0.1331)	(0.1784)	(0.2109)
Deal_Attitude_Non_Friendly	-0.1220	1.2558	0.7214
	(0.9291)	(0.8906)	(1.1183)
Payment_Cash and Stock Combination	-0.1473	-0.4694	-0.2941
	(0.8259)	(0.8799)	(0.9976)
Payment_Other	-0.8081***	-0.8733***	-0.8372***
	(0.1780)	(0.2038)	(0.2341)
Payment_Stock Only	-0.0570	-0.6205	-1.4381
	(1.6036)	(1.5569)	(1.5456)
Target Public Status_Joint Venture	-0.0071	0.6562	1.2711
	(0.8261)	(0.9610)	(1.1240)
Target Public Status_Public	-1.6015***	-1.5685***	-1.5285***
	(0.4790)	(0.5273)	(0.5891)
Target Public Status_Subsidiary	-0.0050	-0.0990	-0.1556
	(0.1611)	(0.1970)	(0.2281)
Debt_to_equity_decimal	0.0382***	0.0410***	0.0442***
	(0.0047)	(0.0050)	(0.0059)
EBITDA_scaled	0.0059	0.0220**	0.0227
	(0.0096)	(0.0096)	(0.0142)
Market value to book	-0.0068**	-0.0075***	-0.0101***
	(0.0029)	(0.0026)	(0.0037)
Quick ratio	0.0688	0.0186	0.0616
	(0.0803)	(0.0973)	(0.1195)
Total_assets_scaled	-0.0019	-0.0036	-0.0033
	(0.0018)	(0.0022)	(0.0033)
R^2	0.025	0.018	0.015
N	5519	5519	5519
Unique Acquiring Firms	1357	1357	1357

Note: The methodology follows the exact same approach as outlined in the note in table 5. However, Total assets and EBITDA was scaled to billion EUR, debt-to-equity ratio was transformed from percentage to decimal format, and ESG score was transformed from its original scale (0-100) to a zero to one scale (0-1).

Table 24: Results for H2 (complete estimates resulting from estimating euqation 4.10) - Subsample including ESG scores, covering announced deals between 2018 and 2023

	CAR(-1,1)	CAR(-3,3)	CAR(-5,5)
Intercept	1.1357**	0.8757	1.1604*
	(0.4464)	(0.5905)	(0.6782)
ESG Score - Scaled	-1.2199**	-1.3113*	-1.4984*
	(0.5484)	(0.7198)	(0.8508)
NFRD_SUBJECT	1.2078**	0.5879	0.2213
	(0.5817)	(0.6962)	(0.8156)
NFRD_SUBJECT*ESGscore	-0.6263	0.4598	1.0313
	(0.8359)	(1.0049)	(1.1789)
Acquisition Type_conglomerate	0.2063	0.1528	0.0348
	(0.2024)	(0.2397)	(0.2778)
Acquisition Type_horizontal	0.1759	0.1875	0.0045
	(0.1782)	(0.2231)	(0.2643)
Cross Border Deal Flag_True	-0.1746	-0.2583	-0.3926*
	(0.1398)	(0.1891)	(0.2253)
Deal_Attitude_Non_Friendly	-0.1177	1.3636	0.9404
	(0.9817)	(0.9412)	(1.1768)
Payment_Cash and Stock Combination	-0.3281	-0.6607	-0.2651
	(0.8878)	(0.9409)	(1.0569)
Payment_Other	-0.8120***	-0.8834***	-0.7830***
	(0.1802)	(0.2071)	(0.2416)
Payment_Stock Only	-0.0747	-0.7527	-1.7570
	(1.6440)	(1.6317)	(1.5926)
Target Public Status_Joint Venture	-0.4815	0.1767	1.0310
	(0.4052)	(0.7646)	(1.0665)
Target Public Status_Public	-1.5177***	-1.4726***	-1.4168**
	(0.4748)	(0.5310)	(0.5979)
Target Public Status_Subsidiary	-0.0045	-0.0875	-0.1472
	(0.1636)	(0.2036)	(0.2386)
Debt_to_equity_decimal	0.0380***	0.0409***	0.0444***
	(0.0046)	(0.0048)	(0.0058)
EBITDA_scaled	0.0084	0.0252***	0.0275*
	(0.0074)	(0.0096)	(0.0158)
Market value to book	-0.0065**	-0.0073***	-0.0100***
	(0.0029)	(0.0025)	(0.0036)
Quick ratio	0.0355	0.0178	0.0410
	(0.0860)	(0.1003)	(0.1231)
Total_assets_scaled	-0.0002	-0.0024	-0.0024
	(0.0014)	(0.0021)	(0.0034)
R^2	0.029	0.020	0.017
N	5152	5152	5152
Unique Acquiring Firms	1229	1229	1229

Note: The methodology follows the exact same approach as outlined in the note in table 6. However, Total assets and EBITDA was scaled to billion EUR, debt-to-equity ratio was transformed from percentage to decimal format, and ESG score was transformed from its original scale (0-100) to a zero to one scale (0-1).

D Unmatched sample characteristics

Table 25: Number of transactions and unique Acquiring Firms collectively and by Region for each sample and time window - Unmatched Sample

	(-1,+1)			(-1,+2)			(-1,+3)		
	EU	**US**	**Total**	**EU**	**US**	**Total**	**EU**	**US**	**Total**
Main sample – Excluding ESG Score									
Number of Unique Deals	5434	8268	13702	4484	6946	11430	3588	5538	9126
Number of Unique Acquiring Firms	468	648	1116	407	586	993	343	512	855
Subsample – Including ESG Score									
Number of Unique Deals	3438	4731	8169	2775	3871	6646	2263	3041	5304
Number of Unique Acquiring Firms	258	345	603	228	306	534	196	273	469

Note: Both samples cover completed transactions between 2007 and 2023. The subsample is restricted to deals where ESG scores are available for the acquiring firms.

Table 26: Summary Statistics of firm-level control variables for each sample across time windows - Unmatched Sample

		Main sample - Excluding ESG			Subsample - Including ESG		
		Time Window			Time Window		
		(-1,+1)	(-1,+2)	(-1,+3)	(-1,+1)	(-1,+2)	(-1,+3)
	N	41127	45740	45655	24519	26596	26530
Total debt to	mean	-28.0	-58.1	-101.9	85.3	97.5	92.4
Common Equity	std	18190.1	18236.9	18896.1	1065.6	934.9	732.1
	25%	27.4	28.0	28.9	30.8	31.0	32.2
	50%	55.7	55.7	56.3	55.7	54.7	55.9
	75%	96.8	97.2	96.9	97.8	94.4	94.9
Quick ratio	mean	1.2	1.2	1.2	1.2	1.1	1.2
	std	0.9	0.9	0.8	0.9	0.9	0.8
	25%	0.8	0.8	0.8	0.8	0.8	0.8
	50%	1.0	1.0	1.0	1.0	1.0	1.0
	75%	1.4	1.4	1.4	1.3	1.3	1.3
Market value	mean	2.7	2.8	2.7	3.8	4.1	4.1
to book	std	137.4	130.8	131.5	47.3	32.6	32.4
	25%	1.6	1.6	1.6	1.8	1.8	1.7
	50%	2.6	2.5	2.5	2.9	2.8	2.8
	75%	4.2	4.1	4.1	4.8	4.6	4.5
ESG Score	mean	-	-	-	58.3	58.7	59.0
	std	-	-	-	20.2	20.1	19.8
	25%	-	-	-	42.8	43.2	43.9
	50%	-	-	-	60.4	60.8	61.1
	75%	-	-	-	75.3	75.5	75.7
Total assets	mean	19.5	20.3	21.7	29.3	30.2	31.1
(EUR billion)	std	48.5	49.4	50.9	56.8	57.6	59.2
	25%	1.2	1.3	1.4	3.8	3.9	3.9
	50%	4.1	4.3	4.7	10.0	10.3	10.6
	75%	15.9	16.6	18.3	27.5	28.5	28.8
EBITDA	mean	2.9	3.0	3.3	4.3	4.6	4.8
(EUR billion)	std	7.8	8.1	8.7	9.2	9.7	10.1
	25%	0.1	0.2	0.2	0.5	0.5	0.5
	50%	0.5	0.5	0.6	1.2	1.3	1.3
	75%	2.0	2.1	2.4	3.8	4.1	4.3

Note: Both samples covers completed transactions between 2007 and 2023. The subsample is restricted to deals where ESG scores are available for the acquiring firms. Total assets and EBITDA are scaled to billion euros for better interpretation.

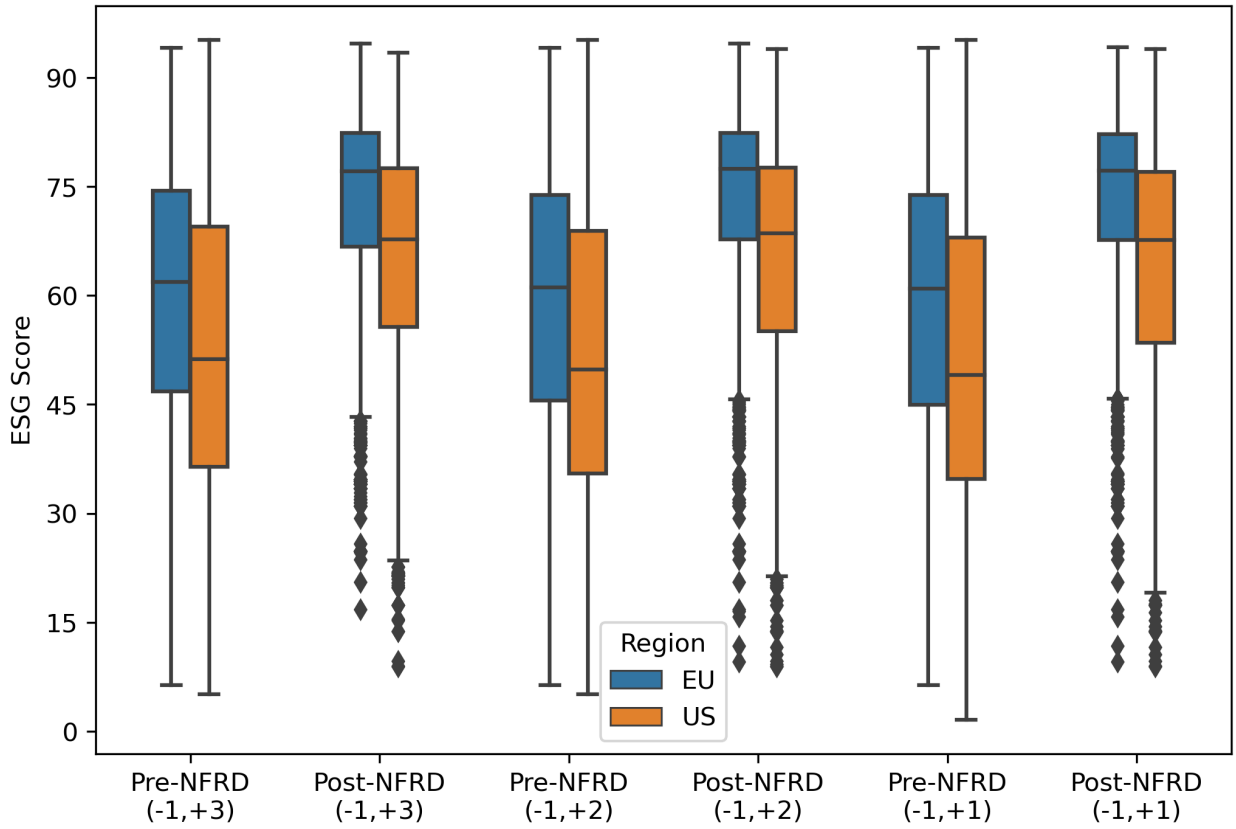

Figure 6: The distribution of ESG scores for EU and US acquiring firms between 2007 and 2023 prior to and after the enforcement of the NFRD across time windows (unmatched sample). The boxplots show the median, 25% and 75% quantiles, minimum and maximum values, and outliers represented as individual points.

E Standard Mean Difference (SMD)

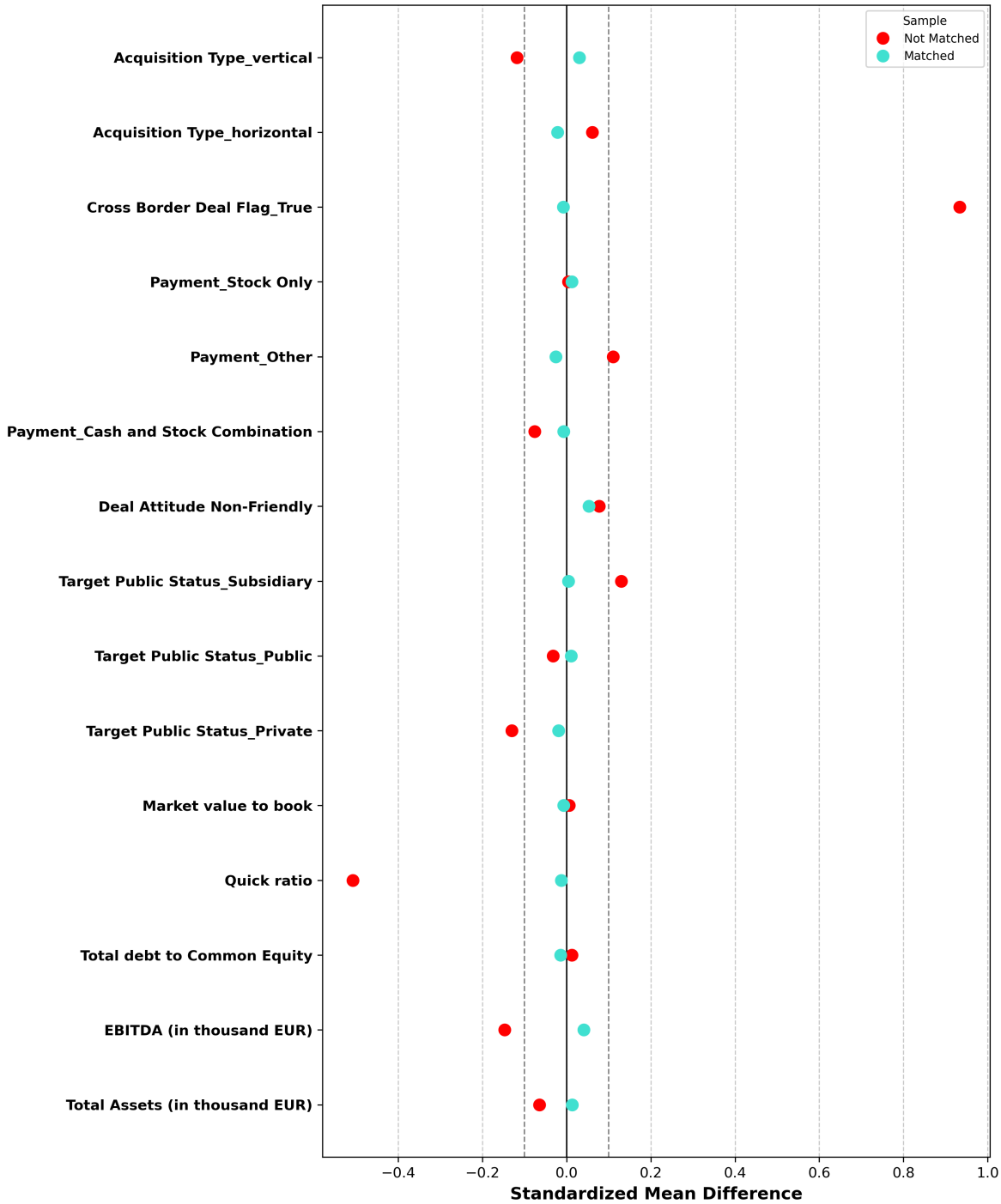

Figure 7: The standardized mean difference (SMD) computed for the selected confounding variables outlined in 5.2 for the main sample (excluding data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +1) time window. Equation 5.1 was used to compute the SMD for the continuous variables (Such as ”EBITDA (in thousand EUR)”), while equation 5.2 was used for the binary variables (Such as ”Acquisition Type˙vertical”)

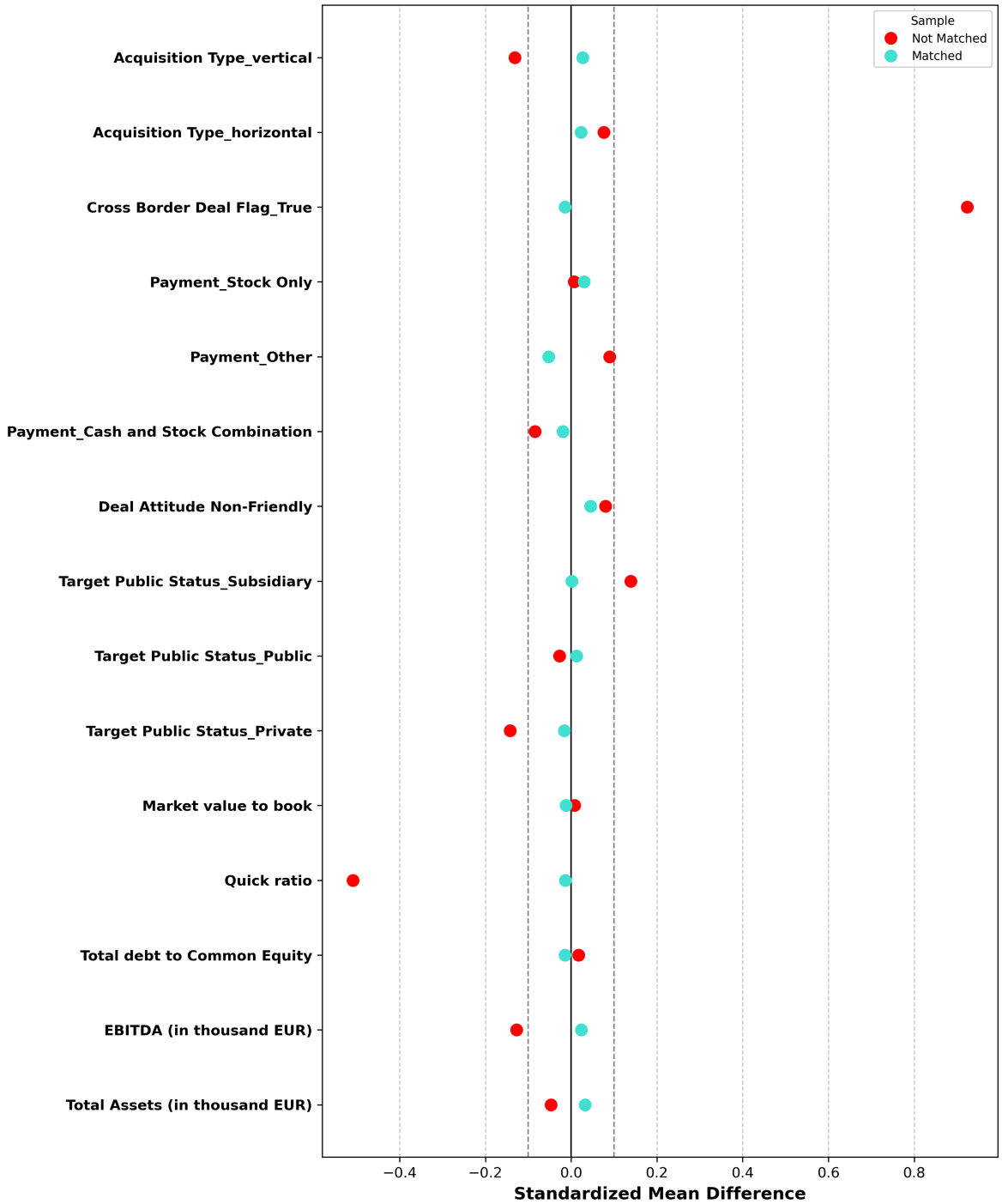

Figure 8: The standardized mean difference (SMD) computed for the selected confounding variables outlined in 5.2 for the main sample (excluding data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +2) time window. Equation 5.1 was used to compute the SMD for the continuous variables (Such as ”EBITDA (in thousand EUR)”), while equation 5.2 was used for the binary variables (Such as ”Acquisition Type˙vertical”)

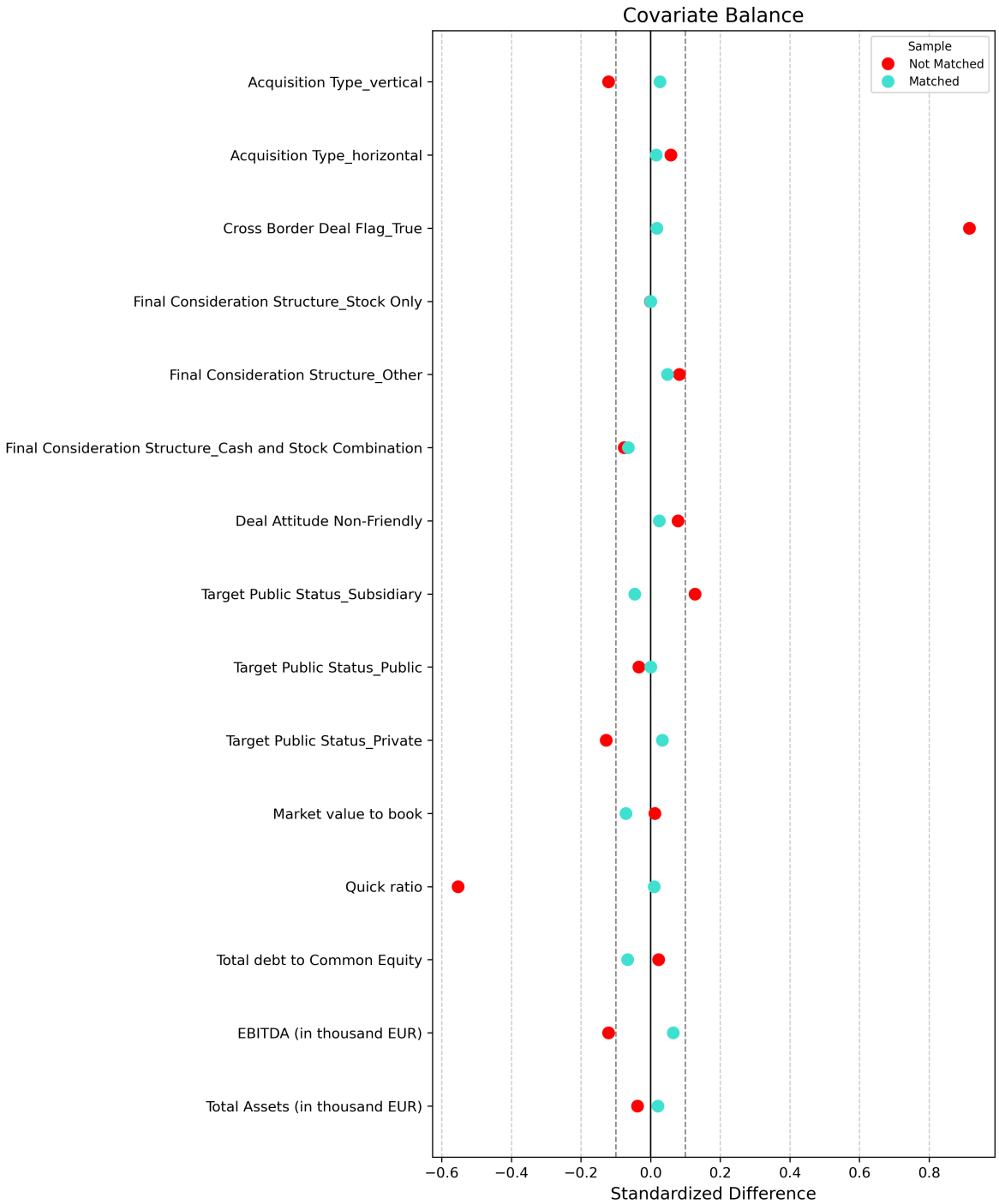

Figure 9: The standardized mean difference (SMD) computed for the selected confounding variables outlined in 5.2 for the main sample (excluding data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +3) time window. Equation 5.1 was used to compute the SMD for the continuous variables (Such as ”EBITDA (in thousand EUR)”), while equation 5.2 was used for the binary variables (Such as ”Acquisition Type˙vertical”)

Figure 10: The standardized mean difference (SMD) computed for the selected confounding variables outlined in 5.2 for the subsample (including data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +1) time window. Equation 5.1 was used to compute the SMD for the continuous variables (Such as ”EBITDA (in thousand EUR)”), while equation 5.2 was used for the binary variables (Such as ”Acquisition Type˙vertical”)

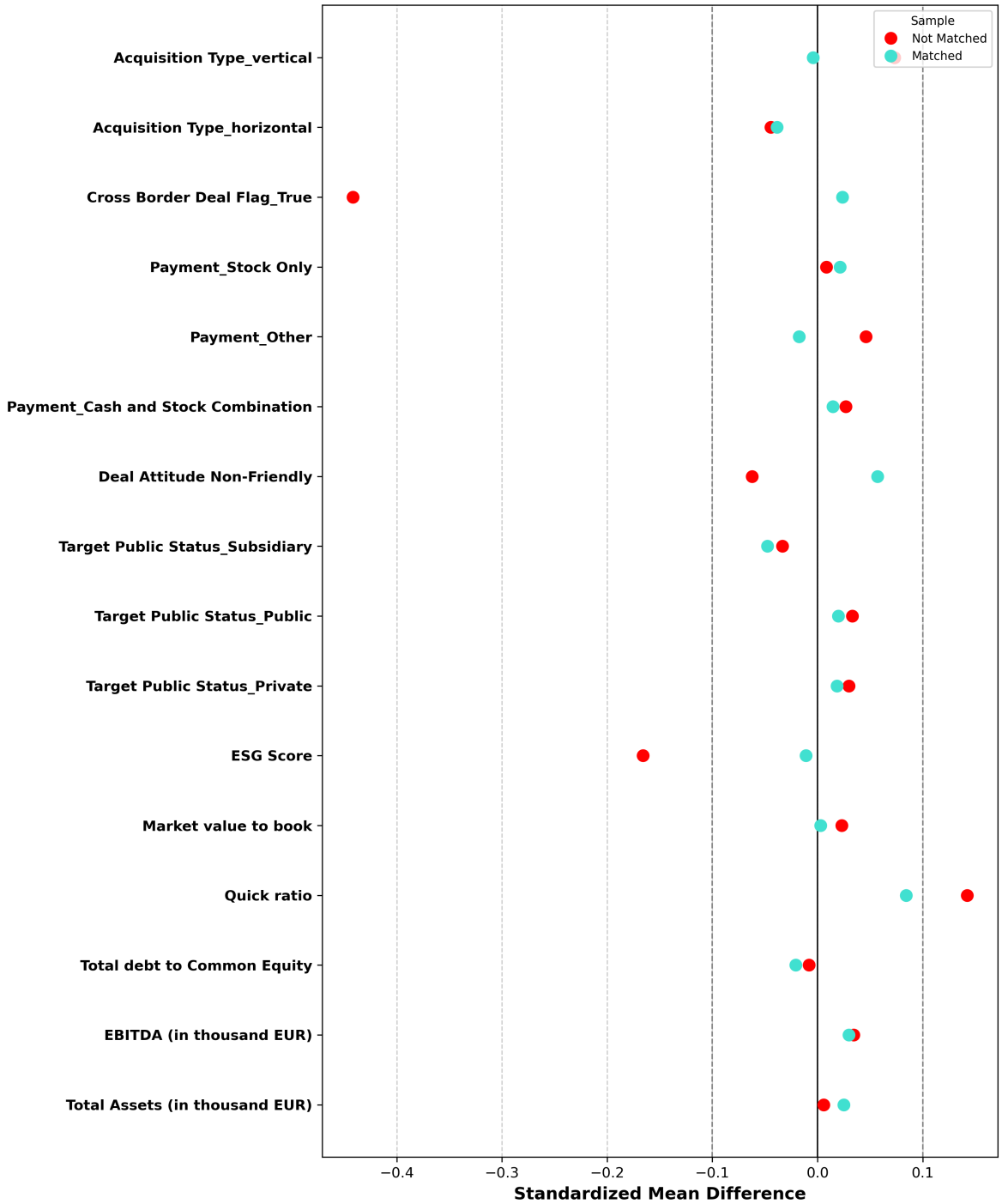

Figure 11: The standardized mean difference (SMD) computed for the selected confounding variables outlined in 5.2 for the subsample (including data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +2) time window. Equation 5.1 was used to compute the SMD for the continuous variables (Such as ”EBITDA (in thousand EUR)”), while equation 5.2 was used for the binary variables (Such as ”Acquisition Type˙vertical”)

Figure 12: The standardized mean difference (SMD) computed for the selected confounding variables outlined in 5.2 for the subsample (including data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +3) time window. Equation 5.1 was used to compute the SMD for the continuous variables (Such as ”EBITDA (in thousand EUR)”), while equation 5.2 was used for the binary variables (Such as ”Acquisition Type˙vertical”)

F Distribution of propensity scores - common support

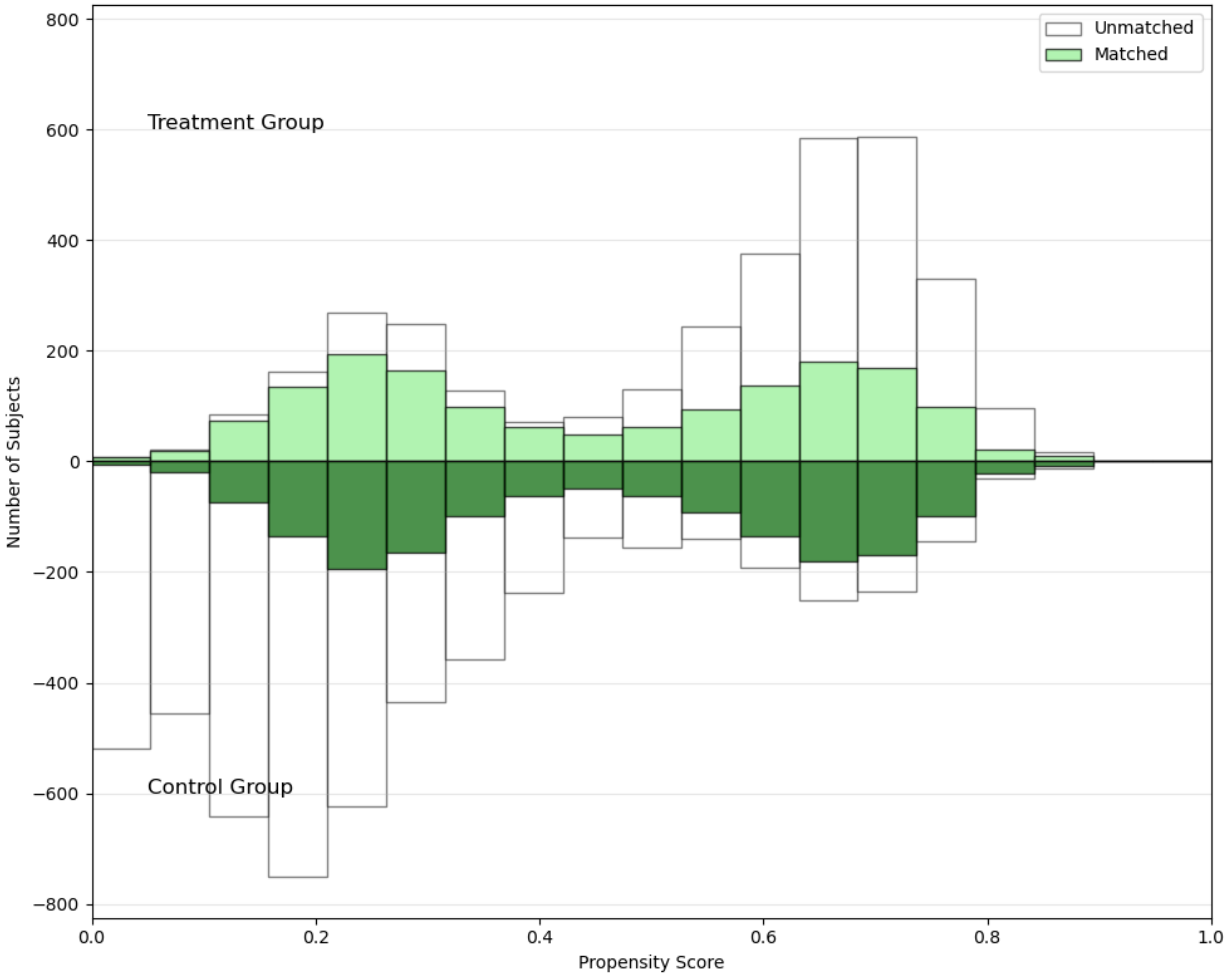

Figure 13: The distribution of propensity scores between the treated (EU acquiring firms) and control group (US acquiring firms) for the main sample (excluding data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +1) time window. The figure shows both unmatched and matched distributions.

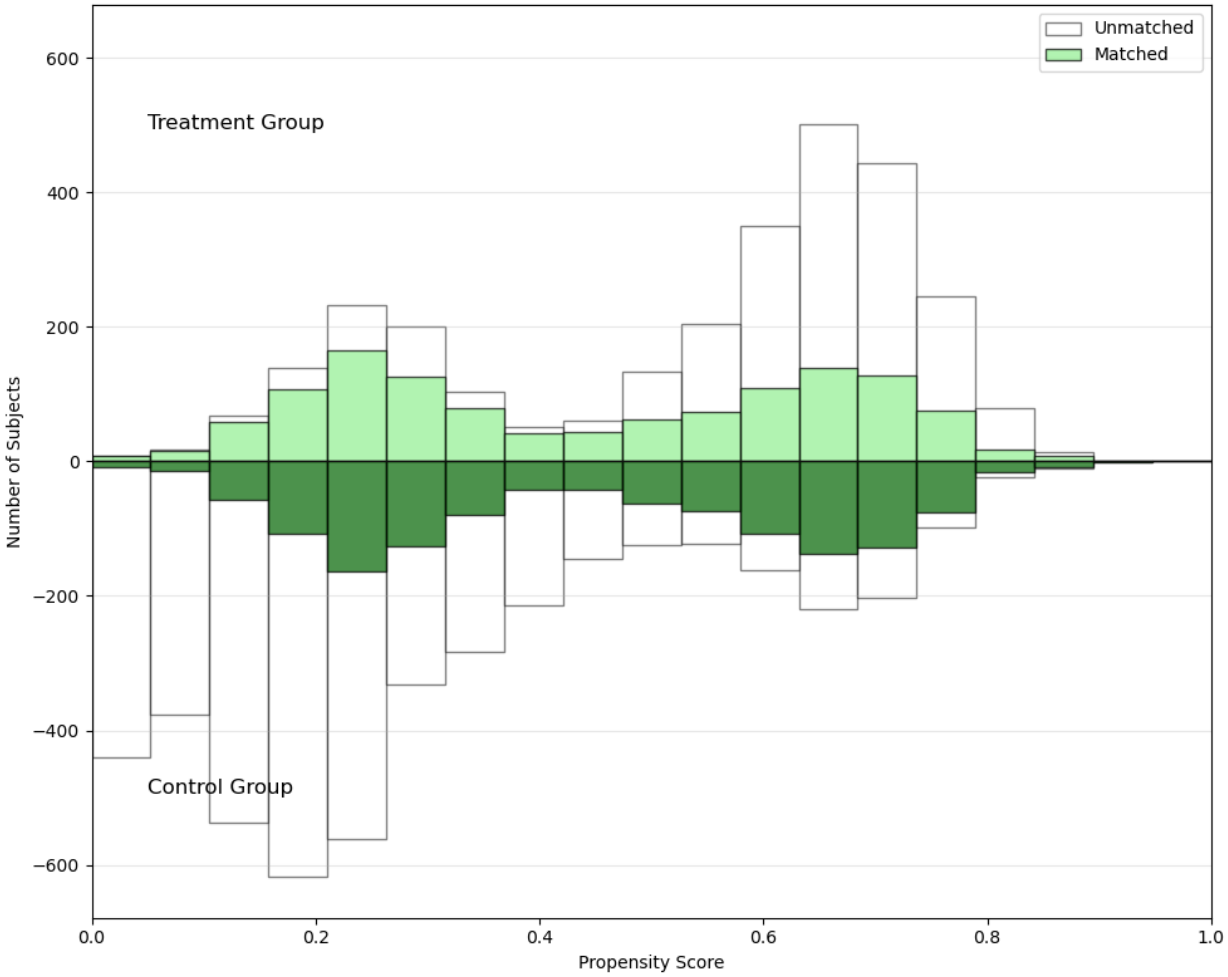

Figure 14: The distribution of propensity scores between the treated (EU acquiring firms) and control group (US acquiring firms) for the main sample (excluding data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +2) time window. The figure shows both unmatched and matched distributions.

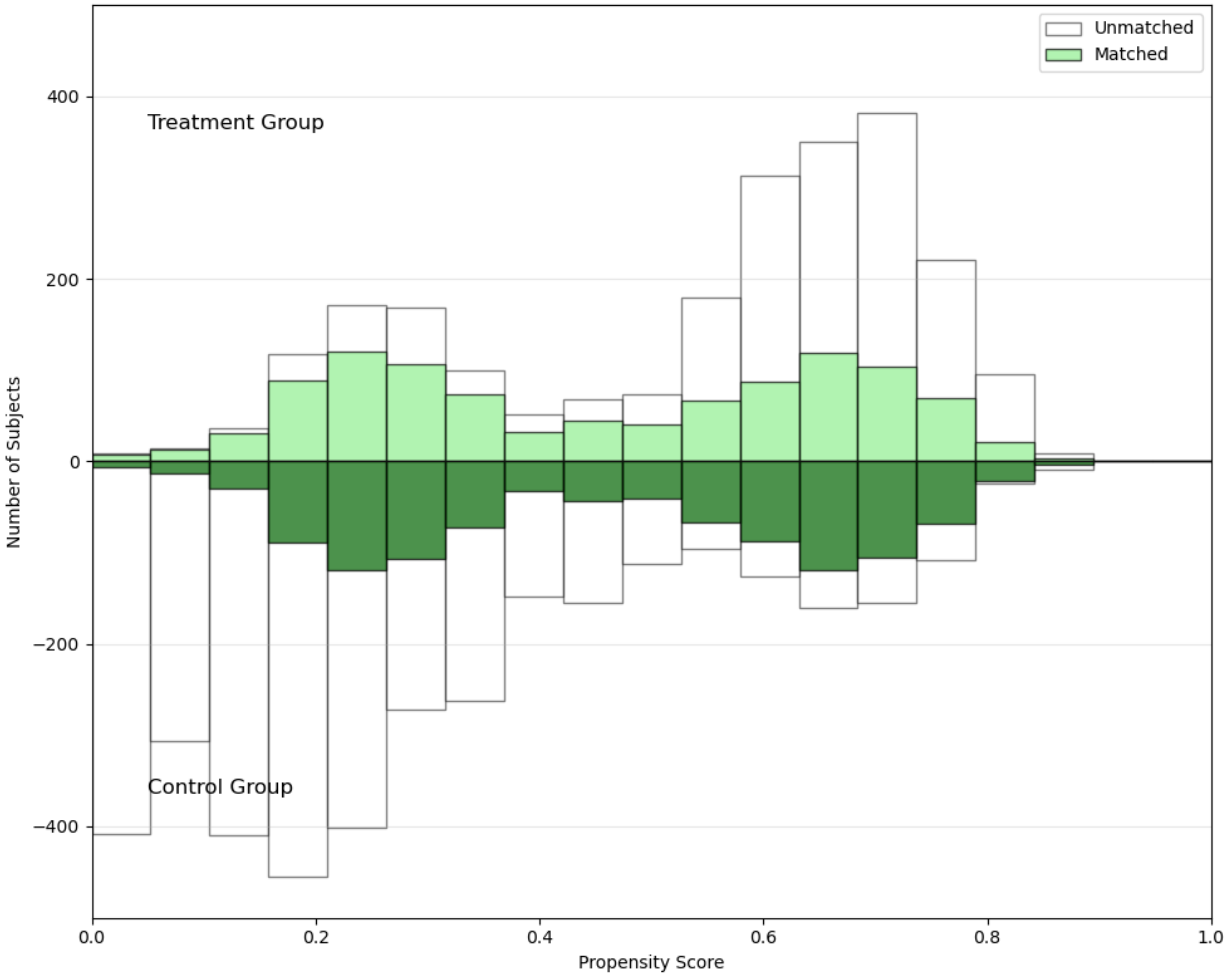

Figure 15: The distribution of propensity scores between the treated (EU acquiring firms) and control group (US acquiring firms) for the main sample (excluding data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +3) time window. The figure shows both unmatched and matched distributions.

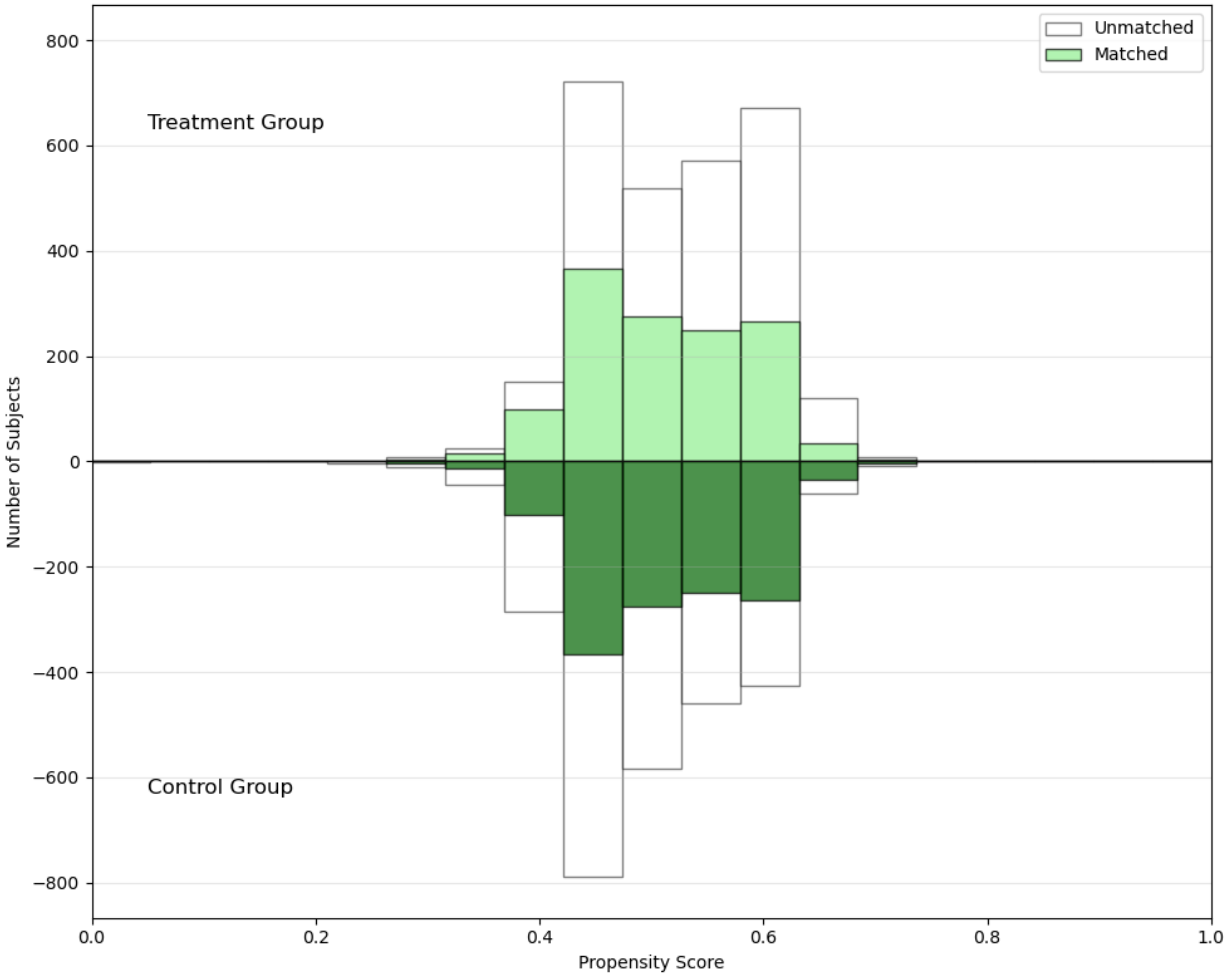

Figure 16: The distribution of propensity scores between the treated (EU acquiring firms) and control group (US acquiring firms) for the subsample (including data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +1) time window. The figure shows both unmatched and matched distributions.

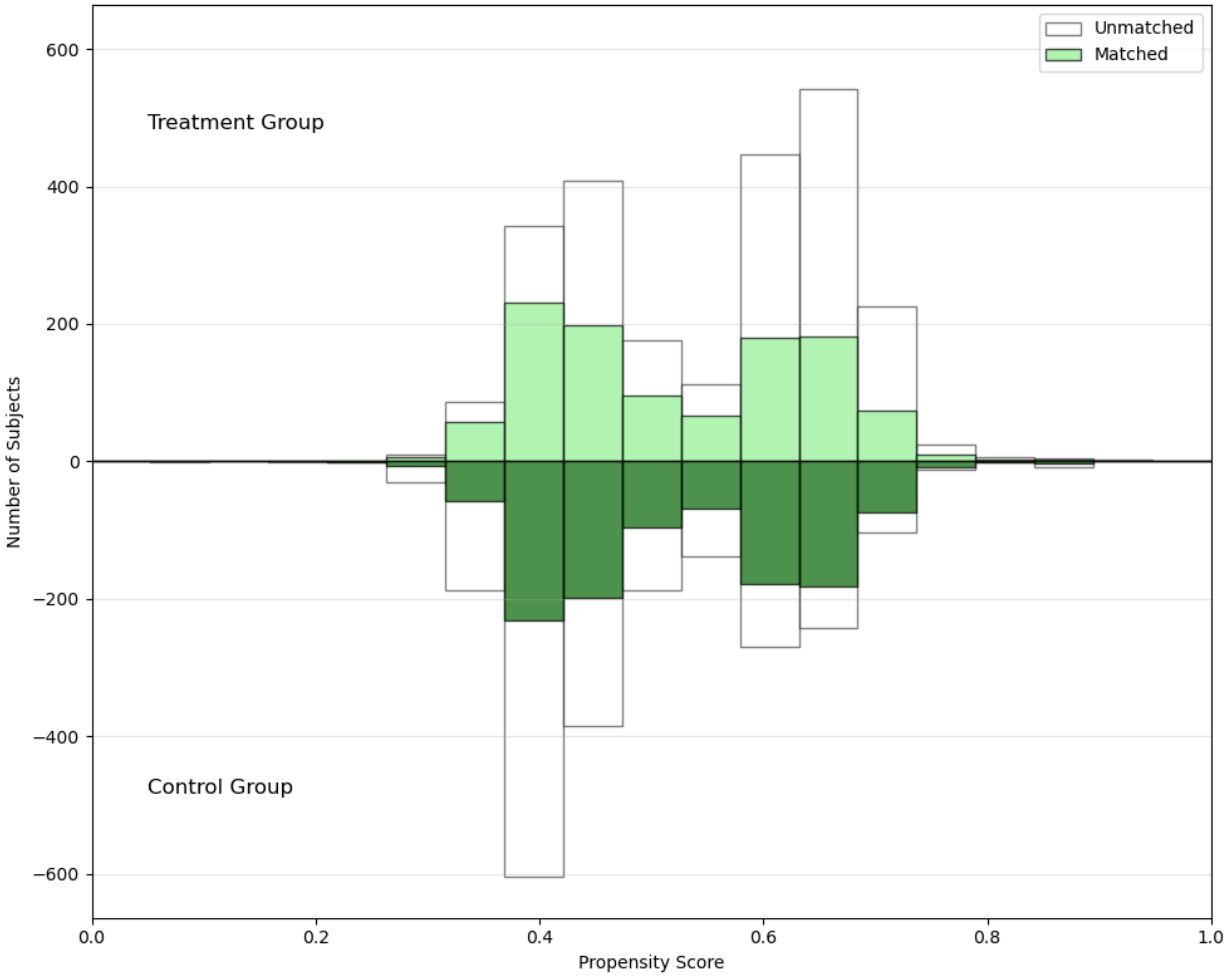

Figure 17: The distribution of propensity scores between the treated (EU acquiring firms) and control group (US acquiring firms) for the subsample (including data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +2) time window. The figure shows both unmatched and matched distributions.

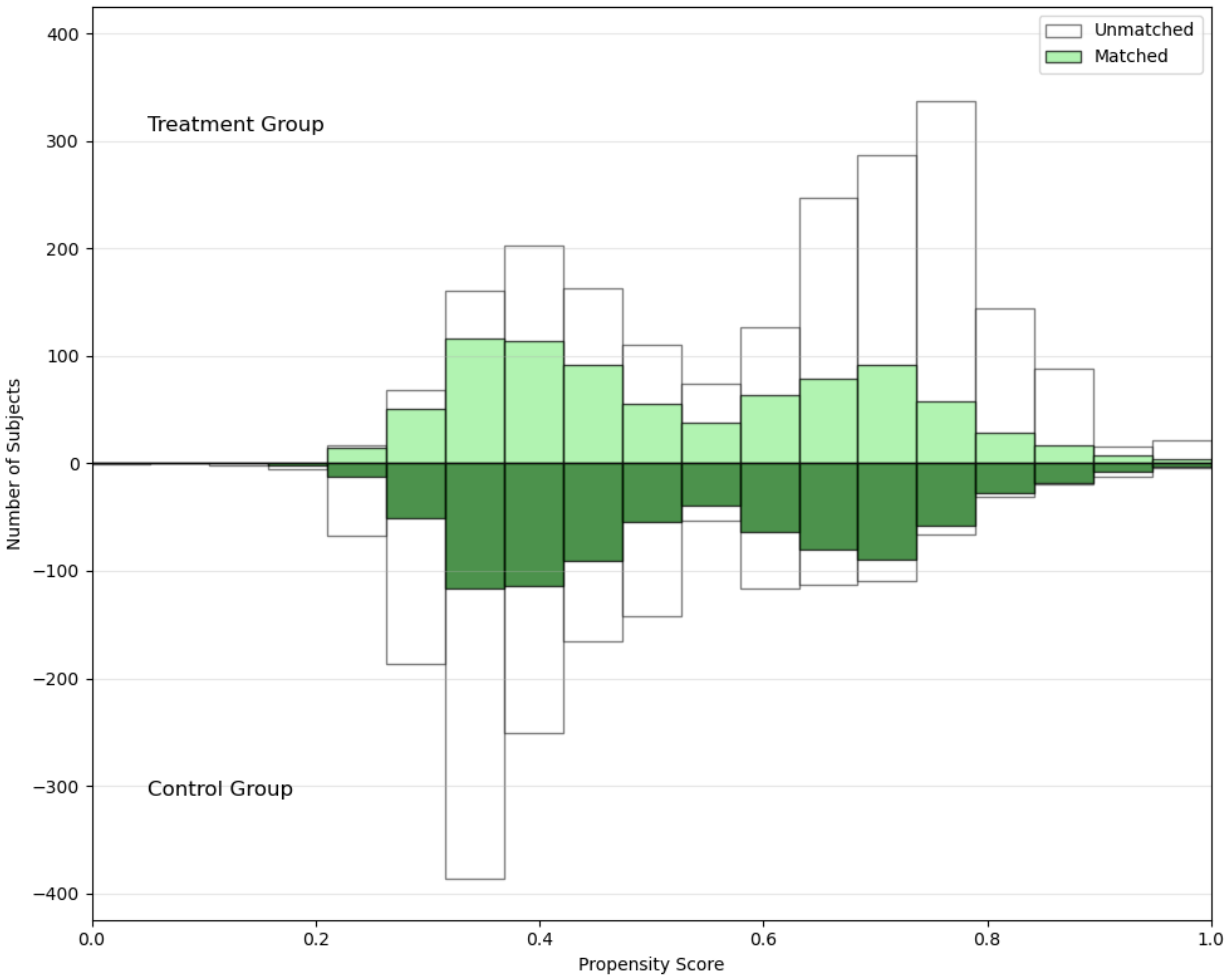

Figure 18: The distribution of propensity scores between the treated (EU acquiring firms) and control group (US acquiring firms) for the subsample (including data on ESG score, covering completed deals between 2007 and 2023) using the (-1, +3) time window. The figure shows both unmatched and matched distributions.

G Complete model specifications - H3 and H4 results

Table 27: Results for H3 (complete estimates resulting from estimating euqation 5.3) - Main sample (matched) excluding ESG scores, covering completed deals between 2007 and 2023

Dependent Variable: ROA	**(-1, +1)**	**(-1, +2)**	**(-1, +3)**
Intercept	6.5046***	6.3289***	6.4503***
	(0.5580)	(0.5300)	(0.6856)
Treated*Post_NFRD	-1.1570***	-0.8463*	-1.1128**
	(0.3926)	(0.4413)	(0.4916)
Target Public Status_Joint Venture	-0.0945	0.0516	0.1552
	(0.2355)	(0.2607)	(0.2773)
Target Public Status_Public	-0.0546	0.0632	-0.0241
	(0.1953)	(0.2009)	(0.2147)
Target Public Status_Subsidiary	-0.0458	-0.0421	-0.0968
	(0.0777)	(0.0782)	(0.0921)
Deal Attitude Non-Friendly	0.3553	0.1136	0.1985
	(0.3583)	(0.3253)	(0.3133)
Payment_Cash and Stock Combination	-0.6484**	-0.8643***	-0.6939**
	(0.2659)	(0.2690)	(0.2977)
Payment_Other	-0.2743**	-0.2460*	-0.2169
	(0.1170)	(0.1411)	(0.1672)
Payment_Stock Only	-1.2895***	-1.0091**	-1.0604**
	(0.4688)	(0.4540)	(0.4859)
Cross Border Deal Flag_True	0.1075	0.0370	0.0210
	(0.0912)	(0.0806)	(0.1013)
Acquisition Type_horizontal	-0.0426	0.0762	0.0903
	(0.1030)	(0.0907)	(0.1066)
Acquisition Type_vertical	0.0876	0.2150**	0.1673
	(0.1077)	(0.1083)	(0.1245)
Total Assets (in thousand EUR)	-5.71e-08***	-6.51e-08***	-6.09e-08***
	(1.59e-08)	(1.41e-08)	(1.37e-08)
EBITDA (in thousand EUR)	3.60e-07***	3.56e-07***	3.55e-07***
	(7.54e-08)	(5.91e-08)	(7.70e-08)
Total debt to Common Equity	-4.92e-06	-1.74e-06	-6.81e-05
	(4.58e-06)	(3.89e-06)	(0.0001)
Quick ratio	1.3187***	1.3632***	1.2157**
	(0.3898)	(0.3513)	(0.5050)
Market value to book	0.0003	0.0002	0.0011
	(0.0016)	(0.0006)	(0.0037)
R^2	0.050	0.054	0.030
N	37074	39580	38890
Unique Acquiring Firms	891	756	637

Note: The methodology follows the exact same approach as outlined in the note in table 13.

Table 28: Results for H4 (complete estimates resulting from estimating euqation 5.4) - Subsample (matched) including ESG scores, covering completed deals between 2007 and 2023

Dependent Variable: ROA	**(-1, +1)**	**(-1, +2)**	**(-1, +3)**
Intercept	7.0576***	7.1940***	7.3314***
	(1.1144)	(1.1782)	(1.1348)
Treated*Post_NFRD	-3.9601***	-3.7579*	-3.5143*
	(1.4444)	(1.9357)	(2.0975)
ESG Score	0.0040	0.0012	0.0059
	(0.0159)	(0.0185)	(0.0175)
Treated*Post_NFRD*ESGscore	0.0356**	0.0327	0.0328
	(0.0179)	(0.0234)	(0.0254)
Target Public Status_Joint Venture	-0.1063	0.0972	-0.0827
	(0.2863)	(0.2878)	(0.3370)
Target Public Status_Public	0.2353	0.0607	0.0090
	(0.2393)	(0.2525)	(0.2356)
Target Public Status_Subsidiary	-0.0043	-0.0141	-0.0936
	(0.1060)	(0.1157)	(0.1144)
Deal Attitude Non-Friendly	0.3134	0.2360	0.3711
	(0.3835)	(0.3941)	(0.3761)
Payment_Cash and Stock Combination	-1.0756*	-1.5485**	-0.8310
	(0.5632)	(0.6324)	(0.6729)
Payment_Other	-0.0888	-0.1498	-0.0959
	(0.1655)	(0.2005)	(0.1953)
Payment_Stock Only	-0.6665	-0.2926	-1.2851**
	(0.4878)	(0.5096)	(0.6195)
Cross Border Deal Flag_True	0.0162	0.0580	0.0046
	(0.1328)	(0.1288)	(0.1226)
Acquisition Type_horizontal	0.0122	0.0694	-0.0303
	(0.1392)	(0.1394)	(0.1389)
Acquisition Type_vertical	0.2876**	0.4571***	0.3548**
	(0.1376)	(0.1528)	(0.1637)
Total Assets (in thousand EUR)	-6.82e-08***	-6.85e-08***	-6.54e-08***
	(1.57e-08)	(1.50e-08)	(1.53e-08)
EBITDA (in thousand EUR)	4.11e-07***	3.96e-07***	3.74e-07***
	(7.62e-08)	(7.22e-08)	(7.70e-08)
Total debt to Common Equity	-3.22e-05	0.0001	0.0001
	(0.0001)	(0.0005)	(0.0004)
Quick ratio	1.0361**	0.9618**	0.5737
	(0.4837)	(0.4370)	(0.4237)
Market value to book	0.0007	-0.0004	-0.0009
	(0.0020)	(0.0049)	(0.0052)
R^2	0.065	0.066	0.061
N	23862	25628	25040
Unique Acquiring Firms	552	474	395

Note: The methodology follows the exact same approach as outlined in the note in table 14.