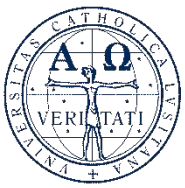

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Navigating Sustainability Reporting: the EU Taxonomy and Stock Returns in Nordic Markets

Rita Pinheiro Rodrigues de Jesus

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Author: Rita Pinheiro Rodrigues de Jesus

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Abstract

Sustainability disclosure has long been a topic of discussion and disagreement. Without consistent information and guidelines, investors struggle to measure the impact of their investments. To address this issue, in 2020 the European Commission introduced the EU Taxonomy, aiming to provide investors with a clear and comparable framework of environmental sustainability across economic activities. With this thesis, I aim to study the impact of the EU Taxonomy on stock returns in Nordic markets, the world's most sustainability-developed region. I find there to be an investment premium for firms with higher percentages of Taxonomy metrics. This premium is consistent with previous literature that sustainable investments yield higher returns. Examining market reaction through an event study, revealed initial hesitation from investors. The study indicates an investor preference for firms demonstrating improved Taxonomy performance, especially in the presence of sustainability rating discrepancies. Overall, my results suggest that Nordic firms with eligible economic activities, as per the EU Taxonomy, are benefitting from the implementation of the framework.

Keywords: EU Taxonomy, sustainable investments, sustainability reporting, ESG, Nordic markets

Autora: Rita Pinheiro Rodrigues de Jesus

Tópico: Navegando Relatórios de Sustentabilidade: a Taxonomia da União Europeia e o Retorno de Ações nos Mercados Nórdicos

Resumo

A divulgação de informações sobre sustentabilidade é há muito um tema de discussão e desacordo. Sem informações e diretrizes coerentes, os investidores têm dificuldade em medir o impacto dos seus investimentos. Para resolver esta questão, em 2020, a Comissão Europeia introduziu a Taxonomia da União Europeia (UE), com o objetivo de fornecer aos investidores definições claras e comparáveis de sustentabilidade ambiental para todas as atividades económicas. Com esta tese, pretendo estudar o impacto da Taxonomia da UE nos retornos das ações nos mercados nórdicos, a região mais desenvolvida mundialmente em termos de sustentabilidade. Verifico que existe um prémio de investimento para as empresas com percentagens mais elevadas de métricas da Taxonomia. Este prémio é coerente com literatura passada, segundo a qual os investimentos sustentáveis geram rendimentos mais elevados. A análise da reação do mercado através de um estudo de eventos revelou uma hesitação inicial por parte dos investidores. O estudo indica uma preferência dos investidores por empresas que demonstrem um melhor desempenho na Taxonomia, especialmente na presença de discrepâncias de classificação sustentável. Em geral, os resultados deste estudo sugerem que as empresas nórdicas com atividades económicas elegíveis, de acordo com a Taxonomia da UE, estão a beneficiar da implementação da regulamentação.

Palavras-chave: Taxonomia da União Europeia, investimentos sustentáveis, relatos de sustentabilidade, ESG, mercados nórdicos

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List of Abbreviations

CAPM	Capital Asset Pricing Model
ESG	Environmental, Social, and Governance
EU	European Union
FF	Fama-French
FE	Fixed effects
GRI	Global Reporting Initiative
GSV	Google Search Volume
KPI	Key performance indicator
TA	Taxonomy alignment
TE	Taxonomy eligibility

1. Introduction

In a world where environmental concerns are an increasingly alarming topic, both states and firms play an exceptionally important role in addressing the climate crisis. By investing in the right firms, investors provide corporations with the resources and recognition required to create a positive impact and support the transition to a sustainable future (UNEP FI, 2019).

But how do investors know which firms are "right"? What makes firms "green"? In 2004, the United Nations introduced the term ESG (Environmental, Social, and Governance), urging investors to integrate the three factors into "capital allocation and portfolio management processes" (UNGC, 2004). Nowadays, the term has become a popular measure of sustainability among firms, and with investors' increased climate awareness, it is more relevant than ever. In 2022, a total of 4,902 investors representing over US$120 trillion had committed to the integration of ESG into their "investment decision-making and ownership" (UNPRI, 2022). This approach not only aims to address pressing global issues such as climate change, social inequality, and corporate governance, but it is also a way for investors to seek financial returns.

The Nordic countries - Norway, Sweden, Finland, Denmark, and Iceland – have long been leaders in sustainable investments and climate action, consistently topping international sustainability and human development rankings[1]. In 2023, all five countries ranked within the top six most sustainable countries, according to the Robeco Country Sustainability Ranking (Robeco, 2023). This commitment to sustainability is reflected in local investors, who are renowned for actively integrating sustainable principles into their investments. Overall, the region's history with sustainability is long and can ultimately be traced back to a rich cultural and educational background that strongly emphasizes innovation, environmental consciousness, and social responsibility. In 2019, the Nordic Council of Ministers established a common goal for the region to become "the most sustainable and integrated region in the world by 2030" (Nordic Council of Ministers, 2019). To achieve this vision, the respective

[1] Sustainable Development Goals Index (Sachs et al., 2023), Global Sustainable Competitiveness Index (SolAbility), Human Development Index (UNDP, 2023)

governments have since been actively cooperating, implementing proactive policies and initiatives that are driving the countries towards carbon neutrality and circular economies.

Despite the progress made by states, a significant challenge remains for investors to contribute to this positive change – the lack of consensus on the definition of sustainable investing. Over the years, the subjectivity of the term "green", coupled with greenwashing practices and a lack of reporting standards, have made it challenging for sustainability-oriented investors to accurately assess the impact of their portfolios and develop sustainable investment strategies.

Hence, in June of 2020, the European Commission formally introduced the "EU Taxonomy for Sustainable Activities" – a sustainability classification system for economic activities (European Commission, 2020). The Taxonomy was developed to align with the objectives of the Paris Agreement and the European Green Deal and to contribute to the European Union's (EU) long-term goal of achieving climate neutrality by 2050, by redirecting financial flows towards sustainable investments (UNFCCC, 2016; European Commission, 2019). By providing mandatory and transparent sustainability reporting standards, investors, companies, and policymakers within the EU can easily identify and compare environmentally sustainable economic activities, and thus contribute to a positive climate transition.

To classify activities as sustainable, the Taxonomy outlines six main environmental objectives: (1) climate change mitigation, (2) climate change adaptation, (3) sustainable use and protection of water and marine resources, (4) transition to a circular economy, (5) pollution prevention and control and (6) protection and restoration of biodiversity and ecosystems. Within each objective, the European Commission establishes Technical Screening Criteria that include a wide range of sectors and activities to be assessed under the Taxonomy.

Economic activities are classified under two different scopes – Taxonomy eligibility (TE) and Taxonomy alignment (TA). Taxonomy eligibility provides an initial assessment of activities and establishes whether they classify under the Taxonomy. An activity is considered eligible if it meets at least one of the previously outlined sustainable objectives. Being Taxonomy-eligible does not necessarily imply that activities are sustainable. It rather implies that there is potential for said activity to be aligned with the principles of the Taxonomy and contribute to climate progress.

On the other hand, Taxonomy alignment provides a more accurate assessment of sustainability. To be classified as sustainable, i.e., Taxonomy-aligned, activities must comply with additional

criteria. Besides making a significant contribution to at least one of the six environmental objectives, activities must not significantly harm any of the remaining goals ("Do no significant harm" principle), and they must comply with minimum social safeguards.

Firms are then required to report three key performance indicators (KPIs) related to sustainable economic activities, i.e. the portion of Revenue, Capital Expenditures (CapEx) and Operating Expenses (OpEx) that comply with each scope of the Taxonomy.

Since its implementation in 2020, the Taxonomy has undergone constant updates and improvements to ensure that it remains aligned with the latest scientific and technical knowledge, as well as to address any identified gaps and inconsistencies. When it was first implemented, the EU Taxonomy only included the first two objectives, and solely required Taxonomy eligibility disclosure. As of 2023, the Taxonomy was updated to include Taxonomy alignment in its mandatory disclosures and is set to account for the four remaining objectives in its sustainability assessments (European Commission, 2023).

With the Taxonomy being in such an early stage of its implementation, research on its impact on firms and capital markets over the past 2 years is scarce, with only one existing study on the subject. By basing my research on Bassen et al. (2022), this dissertation aims to measure the impact of the Taxonomy on the Nordics by focusing on firms' reported KPIs, and understanding whether stocks in leading sustainable countries are benefitting from the implementation of this newly developed framework. Overall, I believe there to be a premium to investing in Nordic firms with higher Taxonomy eligibility metrics.

The study is organized as follows. Section 2 outlines an overview of the relevant literature. Section 3 describes the data and methodology. Section 4 reports empirical results and discusses findings and Section 5 provides final conclusions.

2. Literature review

2.1. Sustainable investments

Amid growing climate concerns, the importance of sustainable investments has rapidly increased in recent years, with investors being urged by governing agencies to assess and reconsider the impact of their investments. Financial markets have responded to this urgent call for action and in 2021, ESG-focused investments accounted for 14.4% of total assets under management (AUM) worldwide – a trend that is expected to continue its rapid growth in the coming years (PwC, 2022). Investors are increasingly seeking to align their investments with sustainability practices, but their motivations behind it are dubious. A global survey conducted in 2017 shows that the most frequent motivation for an ESG focus on investments is investment performance, followed by client demand, with most investors being motivated by financial reasons rather than ethical ones (Amel-Zadeh & Serafeim, 2018).

Research on the correlation between sustainable investments and their subsequent financial performance is extensive and dates back many decades. In a 2015 study, Friede et al. conducted a meta-analysis on the topic that included the findings of over 2200 empirical studies published over 4 decades and found a general positive correlation between ESG and corporate financial performance. Most recently, Whelan et al. (2021) expanded on these findings with over 1000 papers published between 2015-2020 and found that 59% of the studies still supported this positive correlation, with only 14% of papers yielding negative results.

The exact definition of sustainable investments is however still a subject of debate, and there remains a lack of consensus among relevant parties. ESG ratings have historically been the most common metric for measuring sustainability practices (Ferrell et al., 2016; Pástor et al., 2022) allowing investors to gauge companies' risks and performance across the three pillars. However, there is no globally accepted definition when it comes to rating ESG standards (Jonsdottir et al., 2022). Presently, over 140 rating agencies provide ESG data, with some of the most popular being MSCI, Sustainalytics, Refinitiv, and FTSE, and each agency has developed its own methodology and criteria to assess companies through ESG metrics. This lack of common guidelines, coupled with the recent surge in ESG demand has resulted in substantial rating discrepancies among providers and poses significant consequences for all parties involved (Berg et al., 2022).

Over the years, numerous researchers have attempted to study the heterogeneity of ESG ratings and their subsequent effect on financial performance and measurement. Chatterji et al. (2016) argue this disagreement mainly stems from the absence of standard "theorization" (i.e., the absence of common guidelines), and lack of "commensurability". In extreme cases, this can lead to the identification of different benchmarks on a sustainable level, which in turn affects the performance measurement of ESG investments, as well as asset allocation and stock selection (Billio et al., 2020). In addition, the loose standards allow management to manipulate the different ratings, and ultimately select the provider that is most advantageous to their firm. Consequently, investors have become less likely to invest in sustainable investments, as they find it increasingly difficult to accurately assess the impact of their portfolios, representing a significant impediment to the integration of ESG in the investment process (Amel-Zadeh & Serafeim, 2018). Amongst the confusion, Berg et al. (2023) found evidence that combining the scores from multiple firms leads to a stronger relationship between ESG and performance, giving investors an alternative to mitigate the negative effects of rating disagreements.

All things considered, one finding remained consistent across all studies: in times of climate urgency, where companies play a fundamental role in steering the economy towards a more sustainable future, there is an urgent need among academics and investors to establish a clear and uniform reporting framework of ESG performance (Avramov et al., 2021).

2.2. Previous disclosure regulations and the EU Taxonomy

Previous efforts have been made to address the aforementioned challenges and establish a common framework for sustainability and reporting standards. In 1997, the Global Reporting Initiative (GRI) introduced the first global standards for sustainability reporting, covering a wide range of ESG-related topics. Today, these standards have become the world's most widely used sustainability standards, with over 10,000 adopting companies across the globe.

Since their introduction, the GRI guidelines have undergone frequent updates, to adapt and remain relevant in today's ever-evolving world. Overall, the GRI has demonstrated a "positive correlation between sustainable activities, the impact on sustainable development, and the financial performance of companies" (Weber et al., 2008), paving the way for further developments in the field. However, as a pioneer in sustainability reporting, the GRI has faced significant criticism over the years, with many authors arguing that these standards are insufficient and merely promote a "managerialist" approach to sustainability, allowing companies to hide behind the standards to feign sustainability (Dumay et al., 2010, Moneva et

al., 2006). Since disclosures are voluntary, similar to ESG, management tends to select the most beneficial information, consequently manipulating stockholder's perceptions and thus reducing GRI's efficiency (Adams et al., 2022).

In a more recent effort to address this issue, the EU introduced the Non-Financial Reporting Directive (NFRD) requiring European companies to publish a sustainability report alongside their annual report. The NFDR was first announced in 2014 and came into effect in 2018. Grewal et al. (2019) studied the equity market reaction to three aggregated events surrounding the announcement of the disclosure, before its implementation. The authors found an overall negative market reaction to the directive, with results being more pronounced in firms with lower ESG performance prior to the NFRD. Further research showed that the directive has led to an increase in Corporate Social Responsibility (CSR) transparency and that firms adopting CSR reporting "experienced lower systematic risk and cost of equity" (Cuomo et al., 2022).

The EU Taxonomy emerged following the NFRD and presents as the European Commission's latest effort to establish common and mandatory reporting guidelines for sustainability. Following its implementation in 2021, Bassen et al. (2022) were reportedly the first to study the Taxonomy's effects on capital markets. Using the FTSE Russel's Green Revenues dataset to assess Taxonomy-aligned revenue percentage, the authors observed a significant Taxonomy alignment premium. When distinguishing between ESG and the Taxonomy, they found there to be no evidence that ESG scores influenced this premium. Overall, their findings suggest that following the introduction of the Taxonomy, investors increased their capital allocation towards firms with high Taxonomy alignment revenue percentages and began to favor the Taxonomy alternatively to traditional ESG ratings when identifying sustainable investment opportunities.

In the present study, I propose a different approach to Bassen et al. (2022) by using a combination of all three Taxonomy-reported KPIs to analyze the stock market reaction. This approach differs from the one employed by Bassen et al., who employ the FTSE Russel's Green Revenue dataset, which estimates the percentage of firms' revenues aligned with the Taxonomy. In my study I refer to the different firms' annual reports for data, allowing for a better understanding of investors' true perception of sustainability metrics as pertaining to the Taxonomy. Additionally, I am expanding on the research by focusing on the Nordic stock market, to study whether sustainable firms in the world's most developed region are benefitting from additional sustainability disclosures.

3. Methodology and data

3.1. Sample selection and data collection

The core of my research lies in the Taxonomy KPIs reported by firms in their Annual and Sustainability reports. As there is no publicly available dataset comprising firms' Taxonomy metrics, all data is collected manually from each firm's individual reports. The data collected includes Taxonomy-eligible portions of Revenue, CapEx, and OpEx for the years 2021 and 2022. The sample period is limited to these 2 years, as the Taxonomy only came into effect in 2021 and there is no reported data prior to that period.

In order to capture the Nordic stock market, I collect data for mid and large capitalization firms listed on the NASDAQ Nordic Stock Exchanges (OMX), specifically on the Stockholm, Copenhagen, and Helsinki Stock Exchanges, representing a large portion of the Nordic countries. The EU Taxonomy is only enforced within the EU, and thus neither Icelandic nor Norwegian firms are included in this study as they are not encompassed by it.

The list of relevant stocks is then manually matched with the respective tickers from Refinitiv and Wharton Research Data Services (WRDS) using each stock's ISIN code.

The preliminary dataset consists of 262 firms, comprising all Swedish, Danish, and Finnish mid and large-cap firms that reported according to the EU Taxonomy in both 2021 and 2022. In order to perform the core analysis of this study, additional data is required. To reduce the impact of limited data availability, any ESG-related variables with one year of missing data are extrapolated. This is done for 6 firms, by multiplying the previous year's data by the average annual change in each variable. For the remaining variables, all firms with any missing data are excluded, resulting in a final sample of 219 firms.

Table 1 displays summary statistics (in percent) for the Taxonomy KPIs. Across the sample, I observe a consistent uptrend in all variables throughout the period. Particularly, *TE CapEx* exhibits the most significant rise (c. 11 pp), while *TE Revenue* shows a more modest increase (c. 1.4 pp). Overall, *average EU Taxonomy Eligibility* increases by over 5 percentage points, indicating that firms are developing their activities along with the development of the EU Taxonomy.

Table 1 - Summary statistics of EU Taxonomy eligibility

	Obs.	Mean	Std. Dev.	Min	Max
2021					
TE Revenue	219	16.02	27.90	0	100
TE CapEx	219	16.34	27.52	0	100
TE OpEx	219	15.54	27.46	0	100
Avg. EU Taxonomy Eligibility	219	15.97	25.61	0	100
2022					
TE Revenue	219	17.51	28.85	0	100
TE CapEx	219	27.17	32.41	0	100
TE OpEx	219	18.96	29.57	0	100
Avg. EU Taxonomy Eligibility	219	21.21	26.42	0	100

Table 2 displays the sample breakdown by country. With 124 firms, Sweden is the most represented country in the sample, followed by Finland and Denmark. Along with the most significant presence, Sweden also represents the lowest percentage of average EU Taxonomy Eligibility. Throughout the period, Denmark reports the highest average EU Taxonomy Eligibility, as well as the most significant increase (c. 10 pp) from 2021 to 2022. These statistics are consistent with country weights in the sample and are likely due to the increased sensitivity in the smaller samples.

Table 2 - Sample breakdown by country

		2021	2022
	# of Firms	Avg. EU Taxonomy Eligibility (%)	Avg. EU Taxonomy Eligibility (%)
Sweden	124	13.80	17.77
Finland	56	17.91	22.42
Denmark	39	20.07	30.45
Total	219		

Table 3 reports the sample breakdown by industry. Each stock is classified using the respective firm's SIC (Standard Industrial Classification) code, as extracted from Compustat – Capital IQ and sorted using Kenneth R. French 10 Industry classification. The sample is dominated by firms within "Other" industries, which encompasses firms not explicitly included in the existing categories, followed by Utilities and Consumer Durables. The percentages are in line with the sectors included in the initial Taxonomy Delegated Acts, which currently focus on climate action and environmental sustainability.

Table 3 - Sample breakdown by industry

Industry Code	Industry Name	Avg. EU Taxonomy Eligibility (%)	# of Firms
1	Consumer Nondurables	9.93	20
2	Consumer Durables	24.77	9
3	Manufacturing	22.04	61
4	Energy	-	-
5	High Technology	13.32	33
6	Telecommunications	2.98	5
7	Retail and Services	9.02	24
8	Healthcare	4.98	21
9	Utilities	26.65	1
10	Other*	33.16	45
Total			219

*Other refers to mining, construction, building materials, hotels, business services, entertainment, and financial services.

3.2. Cross-sectional study

In order to capture the Taxonomy's effect on stock performance, I perform a cross-sectional returns regression – a common methodology used to measure market reaction, by analyzing the relationship between different variables at specific points in time (Armstrong et al., 2010; Larcker et al., 2011).

The Taxonomy is not a classification for firms, but rather for their underlying activities. As such, I employ *Taxonomy Eligibility* – the arithmetic average of all three reported Taxonomy KPIs – as a proxy for firm sustainability in the regression. In particular, I aim to measure the impact of this variable on stock returns over the sample period, and how this impact is influenced by different firm characteristics (control variables).

3.2.1. Dependent variables

I employ monthly stock returns (of stock *i* at month *t*) as the dependent variable of interest in this study. In line with Bassen et al. (2022), to gain a more comprehensive understanding of the investment performance and its risk exposure, I use 4 different measures of returns – *Raw Return*, *CAPM-adjusted Return*, *Fama French 3 (FF3)-adj. Return* and *Fama French 5 (FF5)-adj. Return*.

Raw Return represent the absolute monthly performance of each stock, without accounting for external factors. *CAPM-adj. Return* measures expected return based on risk and overall market return. *FF3-adj. Return* and *FF5-adj. Return* both expand on *CAPM* by adding additional factors. Particularly, in addition to market risk, *FF3* accounts for size (Small Minus Big – SMB)

and value (High Minus Low – HML) factors, with *FF5* further accounting for profitability (Robust Minus Weak – RMW) and the investment strategy (Conservative Minus Aggressive – CMA). Equation (1) presents the model used to calculate returns as per the *FF5* model. *CAPM* and *FF3* returns are computed using the same equation, excluding the non-relevant factors for each model.

$$R_{it} - R_{ft} = \alpha_i + \beta_i MRP_t + s_i SMB_t - h_i HML_t - r_i RBW_t - c_i CMA_t + \varepsilon_{i,t} \quad (1)$$

Each beta coefficient measures the stock's sensitivity to factor movements and is calculated using a 2-year rolling Ordinary Least Squares (OLS) regression of monthly excess returns ($R_{it} - R_{ft}$) on the relevant factors for each model. Monthly factor data is extracted from the Kenneth French Data Library. Adjusted returns are calculated as the difference between each stock's excess return on the risk-free rate and the expected return estimated as per *CAPM*, *FF3*, and *FF5*.

3.2.2. Control variables

Following Bassen et al. (2022), I include control variables known to predict stock returns. Apart from *Age* (retrieved from each company's individual website), all variables are extracted from Refinitiv Datastream. A summarized list of variables can be found in Appendix A. The variables are employed as follows:

ESG Controversies Score measures companies' exposure to ESG-related controversies in global media based on 23 different topics. A score of 100 represents no controversies over the period. *Age* is measured as the natural logarithm of one plus the number of years since foundation. *Market Cap* is the natural logarithm of the market value calculated by multiplying the market price at year end by the number of common shares outstanding. Using the previous variable and book value (total shareholder's equity), *Book-to-Market* is calculated as the latter divided by market capitalization. *Debt* is the natural logarithm of total debt, representing "all interest-bearing and capitalized lease obligations". *Cash* is the natural logarithm of total cash and cash equivalents. *Current Ratio* is total current assets divided by total current liabilities. *Profitability* is the pre-tax return on assets, which was calculated as pre-tax income divided by total assets. Finally, *Volatility* and *Momentum* are calculated as the standard deviation of raw returns over the previous 12 months, and the average return over the previous 6 months, respectively.

3.2.3. Additional variables

To increase the scope of my study I include additional variables to be used in robustness tests.

ESG Score is the "overall company score based on the self-reported information in the environmental, social and corporate governance pillars" (LSEG, 2022), ranging from least (0) to most (100) sustainable. *E Score* is the rating based solely on the environmental pillar of ESG.

GSV refers to the Google Trends Search Volume Index for the term "EU Taxonomy" over the sample period. The Index measures search popularity relative to location and the chosen time frame, and results are scaled from 0 to 100 based on the proportion of search volume. I retrieve data for each of the three countries individually, as well as the worldwide index. Google Trends provides weekly data, which I aggregate into monthly data by first expanding to daily and then computing monthly arithmetic means. This process is repeated for each of the location's indexes. As a proxy to measure Nordic investors' interest, I create the variable *GSV Nordic* as the market-cap weighted average of *GSV* in Sweden, Denmark, and Finland. I also employ the variable *GSV World*, representing the worldwide search volume during the period.

3.2.4. Cross-sectional returns regression

As final steps in the model estimation process, I winsorize all continuous variables at the 0.5 percent level to reduce the impact of potential outliers and improve robustness. I employ robust standard errors to account for potential heteroscedasticity. To control for unobserved factors, I include time (month), industry, and country fixed effects (FE).

The regression is estimated as follows:

$$R_{i,t} = \beta_0 + \beta_1 Taxonomy\ Eligibility_{i,t-1} + \sum \beta_k Controls_{i,t-1} + Time\ FE + Country\ FE + Industry\ FE + \varepsilon_{i,t} \quad (2)$$

$R_{i,t}$ alternatively stands for *Raw Return*, *CAPM-adj. Return*, *FF3-adj. Return* and *FF5-adj. Return*. Coefficients are denoted as β, and $\varepsilon_{i,t}$ is the residual term.

3.3. Event study

Event studies are a common statistical methodology used to measure the impact of particular events on capital markets (MacKinlay, 1997). By analyzing abnormal returns, we can gain a better understanding of investors' perception of specific events and their consequent effect on firm value. In the scope of this research, this methodology is relevant to assess how the Nordic stock market responded to the initial publication of the EU Taxonomy on June 22nd, 2020.

In line with my previous methodology, I employ the Fama French 5-factor model (equation (1)) to estimate expected/normal returns, i.e., the returns that would have likely been realized had the event in question not taken place. Following Bassen et al. (2022), I calculate the model coefficients using daily returns over an estimation window of 250 days before the event date (t = -260 to t = -10). I then compute abnormal returns as the difference between raw returns and the estimated normal returns.

As per prior research in the field of EU Regulations (Armstrong et al., 2010; Grewal et al., 2019), I calculate cumulative abnormal returns (CAR) over a 5 [t = ±2] and 11-day [t = ±5] event window centered around the event date. The broader event window is relevant to capture potential early speculation from investors.

Upon the initial publication of the EU Taxonomy, investors lacked the means to assess what percentage of firms' KPIs would align with the new framework. As the Taxonomy is currently developed around good sustainability practices, it could be argued that investors would turn to ESG Scores to measure their portfolios' "greenness" as a response to the event.

As such, I employ two different methodologies to assess market reaction to the publication of the EU Taxonomy. To measure the impact across firms, I estimate the following cross-sectional regression:

$$CAR_i = \beta_0 + \beta_1 ESGScore_i + \sum \beta_k Controls_i + Country\ FE + Industry\ FE + \varepsilon_i \quad (3)$$

To understand market behavior across the overall event windows, I employ the following panel-data regression:

$$CAR_{i,t} = \beta_0 + \beta_1 ESGScore_{i,t-1} + \sum \beta_k Controls_{i,t-1} + Country\ FE + Industry\ FE + \varepsilon_i \quad (4)$$

4. Results

4.1. Descriptive statistics

Table 4 reports summary statistics for the entirety of the sample. The sample period is January 2021 to December 2022. The table reveals that the average *Taxonomy Eligibility* among firms is 18.59. By analyzing each KPI individually, *TE CapEx* displays the highest mean across the sample. All three KPIs show standard deviations ranging between 28 and 30 percent, indicating that there is significant variation in the firms' underlying economic activities. The mean monthly *Raw Return* is 0.56 with a standard deviation of 11.17. The remaining three measures of stock returns display similar statistics, with both Fama French returns yielding the highest results.

Table 4 - Summary statistics

This table reports summary statistics for all variables in the sample. Particularly, the number of observations, mean, standard deviation, minimum, and maximum. All continuous variables are winsorized at the 0.5% level. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

Variables	Obs.	Mean	Std. Dev.	Min.	Max.
Dependent variables					
Raw Return	5256	0.56	11.17	-29.45	38.79
CAPM-adj. Return	5256	0.44	10.89	-28.74	37.12
FF3-adj. Return	5256	0.87	10.38	-27.06	37.44
FF5-adj. Return	5256	0.80	10.24	-27.13	35.03
CARs	1095	-0.39	1.09	-4.34	3.74
Main variables					
TE Revenue	5256	16.77	28.39	0.00	100.00
TE CapEx	5256	21.76	30.55	0.00	100.00
TE OpEx	5256	17.25	28.58	0.00	100.00
Taxonomy Eligibility	5256	18.59	26.15	0.00	100.00
ESG Score	5256	60.02	16.51	14.73	94.36
E Score	5256	53.14	23.69	0	94.10
GSV Nordic	5256	20.79	7.10	7.75	34.98
GSV World	5256	40.73	11.83	22.32	67.18
Control variables					
ESG Controversies	5256	93.79	18.41	8.33	100.00
Age	5256	4.05	0.83	1.79	5.81
Market Cap	5256	16.13	1.93	11.84	20.45
Book-to-Market	5256	0.47	0.38	-0.11	2.34
Debt	5256	14.44	2.01	8.33	18.50
Cash	5256	13.17	1.82	8.77	17.91
Current Ratio	5256	1.51	0.91	0.24	7.99
Profitability	5256	8.25	7.50	-15.62	33.41
Volatility	5256	10.58	4.15	4.01	28.99
Momentum	5256	0.85	5.09	-13.87	16.95

The average *ESG Score* stands at 60.02, followed by an average *E Score* of 53.14, indicating that the Environmental Pillar Score plays an overall significant role in determining ESG ratings in the sample. Average values for *TE minus ESG Score* and *TE minus E Score* are negative and rather substantial, suggesting discrepancies among rating methodologies. Lastly, *ESG Controversies* displays a mean value of 93.79, which indicates that overall, firms in the sample were not exposed to any major sustainability-related controversies.

Appendix B presents the univariate Pearson correlation for the primary variables in the study. The table reports no significant correlation between *Taxonomy Eligibility* and any measure of stock return. It does however show a significant correlation between *TE CapEx* and *Raw Return*, *CAPM-adj. Return* and *FF3-adj. Return*. The remaining KPIs do not display any significant correlation with any measure of stock returns.

4.2. Taxonomy eligibility and stock returns

Table 5 displays the main results of the cross-sectional returns across the four different return measures. Within each main dependent variable, the regressions are progressively run to include fixed effects, by first including Time FE, and followed by Industry and Country FE. Columns (1) to (3) display results using the variable *Raw Return*. I find there to be a positive Taxonomy Eligibility coefficient (at the 10 percent level) only when controlling for both Industry and Country FE. When testing for robustness using the remaining three methodologies, I find similar results with *CAPM-adj. Return*. When employing *FF3* and *FF5-adj. Returns*, I find consistently significant positive results (at the 10 and 5 percent levels, respectively). This shows that *Taxonomy Eligibility* is positively associated with future returns across all model specifications, with this being particularly evident in Fama French returns.

Appendices C and D further support the main results. Employing stepwise regressions to each of the model specifications provides a better understanding of the statistical significance of the chosen control variables. In particular, I find *Taxonomy Eligibility* to increase in significance across all model specifications when increasing the number of control variables known to predict stock returns. This increase in significance is particularly noticeable when adding the variables *Book-to-Market* and *Cash*, both of which present negative coefficients.

Table 5 - EU Taxonomy eligibility and stock returns

This table presents regression results across the sample using the four measures of return and progressive fixed effects. The independent variable of interest is *Taxonomy Eligibility.* Control variables remain as previously described. All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. Fixed effects are progressively added to each column. Standard errors are robust. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	Raw Return			CAPM-adj. Return			FF3-adj. Return			FF5-adj. Return		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Taxonomy Eligibility	**0.0080**	**0.0087**	**0.0103***	**0.0088**	**0.0094**	**0.0105***	**0.0098***	**0.0100***	**0.0113***	**0.0137****	**0.0137****	**0.0133****
	(0.0050)	**(0.0051)**	**(0.0049)**	**(0.0049)**	**(0.0050)**	**(0.0048)**	**(0.0048)**	**(0.0048)**	**(0.0047)**	**(0.0047)**	**(0.0047)**	**(0.0048)**
ESG	-0.0062	-0.0041	-0.0034	-0.0044	-0.0024	-0.0011	-0.0045	-0.0031	-0.0020	0.0059	0.0055	0.0057
Controversies	(0.0058)	(0.0060)	(0.0063)	(0.0054)	(0.0057)	(0.0060)	(0.0052)	(0.0054)	(0.0056)	(0.0052)	(0.0053)	(0.0060)
Age	0.1423	0.1183	0.1320	0.1400	0.1158	0.1255	0.0946	0.0805	0.0920	0.0467	0.0588	0.0551
	(0.1625)	(0.1533)	(0.1500)	(0.1555)	(0.1471)	(0.1446)	(0.1468)	(0.1408)	(0.1381)	(0.1349)	(0.1293)	(0.1284)
Market Cap	0.1333	0.0310	0.0824	0.1799	0.0937	0.1587	0.2377	0.1497	0.2105	0.3646*	0.3639	0.3615
	(0.1754)	(0.1790)	(0.1880)	(0.1727)	(0.1770)	(0.1855)	(0.1547)	(0.1587)	(0.1687)	(0.1831)	(0.1865)	(0.1871)
Debt	-0.0674	0.0474	0.0830	-0.0924	0.0008	0.0370	-0.1747	-0.0767	-0.0400	-0.2324	-0.2183	-0.2236
	(0.1337)	(0.1659)	(0.1640)	(0.1317)	(0.1602)	(0.1588)	(0.1304)	(0.1550)	(0.1539)	(0.1690)	(0.1728)	(0.1791)
Book-to-Market	-1.2737**	-1.4289**	-1.4712**	-1.1432*	-1.2843**	-1.2949**	-1.2477**	-1.3970**	-1.4204**	-1.2154**	-1.3029**	-1.2836**
	(0.4785)	(0.4697)	(0.4696)	(0.4679)	(0.4600)	(0.4611)	(0.4646)	(0.4527)	(0.4553)	(0.4434)	(0.4364)	(0.4362)
Cash	-0.0204	0.0086	-0.0521	-0.0539	-0.0229	-0.0736	-0.0360	-0.0181	-0.0737	-0.0172	-0.0128	0.0005
	(0.1441)	(0.1501)	(0.1584)	(0.1394)	(0.1454)	(0.1527)	(0.1285)	(0.1326)	(0.1394)	(0.1637)	(0.1682)	(0.1705)
Profitability	0.0817***	0.0874***	0.0876***	0.0759***	0.0802***	0.0798***	0.0507**	0.0558**	0.0557**	0.0186	0.0179	0.0176
	(0.0237)	(0.0230)	(0.0228)	(0.0225)	(0.0221)	(0.0219)	(0.0191)	(0.0191)	(0.0193)	(0.0232)	(0.0236)	(0.0239)
Current Ratio	-0.1102	-0.0847	-0.0361	-0.1101	-0.0906	-0.0457	-0.0802	-0.0417	0.0055	-0.1809	-0.1345	-0.1434
	(0.1415)	(0.1448)	(0.1471)	(0.1373)	(0.1380)	(0.1403)	(0.1337)	(0.1337)	(0.1381)	(0.1744)	(0.1796)	(0.1812)
Volatility	0.0634	0.0640	0.0646	0.0606	0.0616	0.0652	0.0727*	0.0724	0.0748	0.0659	0.0655	0.0666
	(0.0404)	(0.0402)	(0.0417)	(0.0396)	(0.0397)	(0.0413)	(0.0366)	(0.0373)	(0.0387)	(0.0426)	(0.0422)	(0.0423)
Momentum	-0.0092	-0.0163	-0.0183	-0.0115	-0.0180	-0.0199	0.0202	0.0142	0.0122	0.0097	0.0059	0.0062
	(0.0433)	(0.0423)	(0.0419)	(0.0417)	(0.0407)	(0.0404)	(0.0377)	(0.0368)	(0.0364)	(0.0363)	(0.0359)	(0.0358)
Constant	1.6223	1.4071	0.8426	1.5633	1.4149	0.3273	0.2986	0.1586	-0.7437	-1.6164	-1.6647	-1.7893
	(1.5572)	(1.6088)	(2.2724)	(1.4751)	(1.5445)	(2.2364)	(1.4783)	(1.5122)	(2.1111)	(1.5017)	(1.5179)	(2.3792)
N	5037	5037	5037	5037	5037	5037	5037	5037	5037	5037	5037	5037
R^2	0.3273	0.3272	0.3273	0.3271	0.3271	0.3272	0.2928	0.2928	0.2929	0.3291	0.3292	0.3292
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Country FE	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes

4.3. The three EU Taxonomy KPIs

Table 6 - Taxonomy KPIs and stock returns

This table presents regression results across the sample using *FF5-adj. Return*. The independent variables of interest are the three EU Taxonomy KPIs – *Revenue*, *CapEx*, and *OpEx*. Control variables remain as previously described. All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. All regressions include Time, Industry, and Country fixed effects. Standard errors are robust. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	FF5-adj. Return		
	(1)	(2)	(3)
TE Revenue	**0.0097***		
	(0.0043)		
TE CapEx		**0.0125****	
		(0.0043)	
TE OpEx			**0.0084**
			(0.0044)
ESG Controversies	0.0056	0.0053	0.0059
	(0.0060)	(0.0060)	(0.0060)
Age	0.0499	0.0554	0.0631
	(0.1286)	(0.1301)	(0.1301)
Market Cap	0.3675	0.3596	0.3637
	(0.1885)	(0.1855)	(0.1879)
Debt	-0.2140	-0.2297	-0.2284
	(0.1796)	(0.1793)	(0.1786)
Book-to-Market	-1.1840**	-1.2983**	-1.2236**
	(0.4316)	(0.4513)	(0.4395)
Cash	-0.0060	0.0108	0.0151
	(0.1715)	(0.1685)	(0.1698)
Profitability	0.0195	0.0163	0.0178
	(0.0241)	(0.0238)	(0.0242)
Current Ratio	-0.1570	-0.1346	-0.1417
	(0.1821)	(0.1807)	(0.1784)
Volatility	0.0669	0.0688	0.0643
	(0.0424)	(0.0422)	(0.0424)
Momentum	0.0084	0.0044	0.0088
	(0.0357)	(0.0359)	(0.0357)
Constant	-1.9437	-1.7862	-2.0141
	(2.3630)	(2.3834)	(2.3763)
N	5037	5037	5037
R^2	0.3290	0.3295	0.3288
Time FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Country FE	Yes	Yes	Yes

Previous findings suggest substantial differences across the three individual Taxonomy KPIs, with *TE CapEx* displaying the highest mean over the sample. Additionally, Appendix B, which presents the correlation matrix, shows there to be a significant correlation between this variable and nearly all measures of stock returns, which is not the case for the remaining metrics. To assess the KPIs' impact on stock returns, Table 6 reports regression results using each of the

KPIs (*Revenue, CapEx, OpEx*) as the independent variables in each of the columns (1), (2), (3). All three metrics report positive coefficients, with only *CapEx* and *Revenue* demonstrating statistical significance at the 5 and 10 percent levels, respectively. A higher percentage of *TE CapEx* could indicate that firms are shifting their capital investments toward creating sustainable activities. In line with the idea that today's investors are favoring sustainable investments, higher *TE CapEx* might lead investors to believe firms are investing in their longer-term sustainable growth and therefore driving positive stock returns.

4.4. Market reaction to the publication of the EU Taxonomy

Table 7 - 5-day cross-sectional market reaction

This table presents cross-sectional regression results at t = 2 using five-day *FF5-adj. Cumulative Abnormal Returns (CARs).* The independent variable of interest is *ESG Score*. Control variables are progressively included in the regressions in columns (1) through (5). All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. All regressions include Time, Industry, and Country fixed effects. Standard errors are robust. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	CARs at t = 2				
	(1)	(2)	(3)	(4)	(5)
ESG Score	**-0.0138****	**-0.0120****	**-0.0123****	**-0.0105***	**-0.0067**
	(0.0042)	**(0.0044)**	**(0.0045)**	**(0.0042)**	**(0.0035)**
ESG Controversies	0.0012	-0.0002	-0.0010	-0.0022	-0.0036
	(0.0047)	(0.0045)	(0.0047)	(0.0043)	(0.0036)
Age	-0.0283	-0.0195	-0.0238	-0.0399	-0.0476
	(0.0796)	(0.0796)	(0.0811)	(0.0772)	(0.0633)
Market Cap	0.2827***	0.2643**	0.2595**	0.2243*	-0.0964
	(0.0527)	(0.0799)	(0.0913)	(0.0925)	(0.0626)
Debt	-0.3386***	-0.2872***	-0.3198***	-0.3597***	-0.0909
	(0.0554)	(0.0653)	(0.0910)	(0.0921)	(0.0662)
Book-to-Market		-0.3275	-0.2455	-0.2744	-0.4171*
		(0.2479)	(0.2522)	(0.2318)	(0.1929)
Cash		-0.0719	-0.0424	-0.0337	-0.0028
		(0.0746)	(0.0745)	(0.0665)	(0.0516)
Profitability			0.0074	-0.0022	-0.0060
			(0.0102)	(0.0108)	(0.0087)
Current Ratio			-0.1277	-0.1152	-0.1021
			(0.0736)	(0.0758)	(0.0591)
Volatility				-0.4154**	-0.5581***
				(0.1351)	(0.1119)
Momentum					3.4183***
					(0.2681)
Constant	-0.2038	0.4604	0.8509	3.0226*	4.4617***
	(1.0532)	(1.0532)	(1.0687)	(1.1924)	(1.0243)
N	219	219	219	219	219
R^2	0.4975	0.5052	0.5121	0.5407	0.7138
Time FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes

Previous results have indicated there to be a Taxonomy eligibility premium when investing in Nordic stocks. To assess whether there was an immediate impact across firms, Table 7 displays cross-sectional regression results at t = 2, where the methodology employed involved adding control variables in increments. Columns (1) through (3) report a negative, but statistically significant (at the 5 percent level) coefficient for *ESG Score*. The coefficient remains consistent in column (4), which adds *Volatility* as an additional control variable, but with decreased significance (at the 10 percent level). Column (5) however displays no statistical significance for *ESG Score* when controlling for *Momentum*.

Table 8 - 5-day panel data market reaction

This table presents panel data regression results across the sample using five-day *FF5-adj. Cumulative Abnormal Returns (CARs).* The independent variable of interest is *ESG Score*. Control variables remain as previously described and are progressively included in the regressions. All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. All regressions include Time, Industry, and Country fixed effects. Standard errors are robust. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	5-day event window CARs				
	(1)	(2)	(3)	(4)	(5)
ESG Score	**-0.0069****	**-0.0059***	**-0.0060***	**-0.0053***	**-0.0024**
	(0.0024)	**(0.0026)**	**(0.0026)**	**(0.0026)**	**(0.0018)**
ESG Controversies	0.0003	-0.0004	-0.0007	-0.0012	-0.0022
	(0.0027)	(0.0026)	(0.0027)	(0.0025)	(0.0019)
Age	-0.0131	-0.0118	-0.0144	-0.0201	-0.0315
	(0.0461)	(0.0461)	(0.0470)	(0.0460)	(0.0351)
Market Cap	0.2658***	0.2837***	0.2776***	0.2638***	0.0245
	(0.0320)	(0.0477)	(0.0557)	(0.0571)	(0.0361)
Debt	-0.2167***	-0.2000***	-0.2098***	-0.2246***	-0.0408
	(0.0331)	(0.0379)	(0.0531)	(0.0537)	(0.0380)
Book-to-Market		-0.0539	-0.0185	-0.0289	-0.1700
		(0.1448)	(0.1456)	(0.1399)	(0.1092)
Cash		-0.0543	-0.0417	-0.0388	-0.0065
		(0.0446)	(0.0451)	(0.0423)	(0.0294)
Profitability			0.0041	0.0005	-0.0016
			(0.0061)	(0.0062)	(0.0046)
Current Ratio			-0.0535	-0.0490	-0.0439
			(0.0449)	(0.0451)	(0.0304)
Volatility				-0.1601*	-0.2863***
				(0.0790)	(0.0554)
Momentum					2.3516***
					(0.1493)
Constant	-1.3627*	-1.1541	-0.9902	-0.1524	1.0385
	(0.6280)	(0.6261)	(0.6346)	(0.7378)	(0.5504)
N	876	876	876	876	876
R^2	0.8089	0.8089	0.8089	0.8090	0.8086
Time FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes

Table 8 displays similar results when employing a panel data regression across the entire 5-day event window. This methodology captures market reaction over time and across firms. Significance remains unchanged from the cross-sectional regression, but I find *ESG Score* coefficients to be less negative when conducting the panel data analysis.

Overall, the negative *ESG Score* coefficient indicates that firms with better ESG performances experienced lower abnormal returns over the event window. As mentioned previously, the most prevalent issue in sustainable investments is the heterogeneity among sustainability classification systems. If investors were struggling to differentiate between existing sustainability metrics, it is likely that the introduction of a classification system increased overall confusion and reluctance toward sustainable investments. As such, investors may have refrained from sustainable investments as they navigated the implications of the EU Taxonomy.

For robustness, I test these results by conducting a similar analysis across the 11-day event window, as can be found in Appendices E and F. Although not significant, coefficients remain consistently negative throughout the regressions, further indicating that investors did not turn to high ESG firms upon the publication of the Taxonomy.

4.5. Nordic investors' attention to the EU Taxonomy

Prior research by Bassen et al. (2022) found that firms with higher Taxonomy alignment performed better in times when investors were paying more attention to the topic. Previous studies have also demonstrated the relevance of investor attention in capital markets (Choi et al., 2020; Chen et al., 2022) and the importance of capturing it.

With the globalization of stock markets (Lam & Ang, 2006), it is difficult to measure domestic investors' behavior based solely on firms' location. As my research is focused on Nordic stocks, studying the behavior of Nordic investors can provide interesting insights. To do so, I employ *GSV Nordic* and *GSV World* to capture the attention of local investors in comparison to their international counterparts. Across the sample, Table 4 shows a significantly lower average for *GSV* in the Nordic countries, when compared to the worldwide index.

Table 9 - Investor attention to the EU Taxonomy

This table presents regression results to assess how investor attention to the EU Taxonomy impacts stock returns. The dependent variable is the monthly *FF5-adj. Return*. The independent variables being studied include *Taxonomy Eligibility*, *GSV Nordic, TE*GSV, GSV World*, *TE*GSV World. TE*GSV* are interaction terms of *Taxonomy Eligibility* and relevant *GSV* for the term "EU Taxonomy". Control variables remain as previously described. All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. Fixed effects are progressively added to each column. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	FF5-adj. Return					
	(1)	(2)	(3)	(4)	(5)	(6)
Taxonomy Eligibility	-0.0015	-0.0016	-0.0020	-0.0043	-0.0045	-0.0049
	(0.0130)	(0.0129)	(0.0130)	(0.0184)	(0.0184)	(0.0185)
GSV Nordic	0.2166**	0.2149*	0.2154*			
	(0.0836)	(0.0836)	(0.0836)			
TE*GSV Nordic	**0.0007**	**0.0008**	**0.0008**			
	(0.0006)	**(0.0006)**	**(0.0006)**			
GSV World				0.1163**	0.1153**	0.1156**
				(0.0440)	(0.0440)	(0.0440)
TE*GSV World				**0.0004**	**0.0004**	**0.0004**
				(0.0004)	**(0.0004)**	**(0.0004)**
ESG Controversies	0.0060	0.0057	0.0059	0.0063	0.0061	0.0063
	(0.0052)	(0.0053)	(0.0060)	(0.0051)	(0.0053)	(0.0060)
Age	0.0436	0.0552	0.0515	0.0381	0.0485	0.0447
	(0.1348)	(0.1293)	(0.1284)	(0.1354)	(0.1299)	(0.1290)
Market Cap	0.3638*	0.3620	0.3609	0.3614*	0.3577	0.3589
	(0.1829)	(0.1864)	(0.1870)	(0.1824)	(0.1859)	(0.1866)
Debt	-0.2335	-0.2187	-0.2234	-0.2350	-0.2194	-0.2233
	(0.1690)	(0.1728)	(0.1791)	(0.1688)	(0.1725)	(0.1788)
Book-to-Market	-1.2213**	-1.3101**	-1.2896**	-1.2322**	-1.3227**	-1.3005**
	(0.4436)	(0.4364)	(0.4363)	(0.4440)	(0.4369)	(0.4365)
Cash	-0.0144	-0.0094	0.0037	-0.0083	-0.0022	0.0103
	(0.1638)	(0.1682)	(0.1705)	(0.1632)	(0.1677)	(0.1701)
Profitability	0.0186	0.0179	0.0176	0.0183	0.0178	0.0174
	(0.0232)	(0.0236)	(0.0239)	(0.0231)	(0.0236)	(0.0238)
Current Ratio	-0.1823	-0.1358	-0.1443	-0.1842	-0.1374	-0.1452
	(0.1744)	(0.1796)	(0.1813)	(0.1743)	(0.1796)	(0.1811)
Volatility	0.0662	0.0657	0.0670	0.0657	0.0652	0.0668
	(0.0426)	(0.0422)	(0.0423)	(0.0425)	(0.0421)	(0.0422)
Momentum	0.0087	0.0049	0.0053	0.0091	0.0053	0.0056
	(0.0363)	(0.0358)	(0.0358)	(0.0361)	(0.0356)	(0.0356)
Constant	-5.5226*	-5.5407*	-5.7075	-4.1704*	-4.1954*	-4.4169
	(2.3005)	(2.3122)	(2.9449)	(1.9621)	(1.9710)	(2.6783)
N	5037	5037	5037	5037	5037	5037
R^2	0.3293	0.3294	0.3294	0.3292	0.3294	0.3294
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	No	Yes	Yes
Country FE	No	No	Yes	No	No	Yes

Table 9 shows regression results with *TE*, *GSV*, and *TE*GSV*, for both regions, as the independent variables of interest. I find positive and significant coefficients for both GSV variables across the sample and fixed effects specifications, with *GSV Nordic* reporting higher coefficients. On the other hand, I find no significance for both *TE* and *TE*GSV*. Results remain unchanged after controlling for Industry and Country fixed effects.

These findings suggest, that although there is a positive relationship between investor attention to the EU Taxonomy and stock returns, particularly in the Nordics, I cannot conclude that firms with higher levels of *Taxonomy Eligibility* perform better at times when investor attention to the Taxonomy is higher.

4.6. Taxonomy eligibility and ESG scores

In theory, firms with higher percentages of Taxonomy eligibility should also exhibit higher ESG scores. Hence, if investors' sustainability preferences are driving positive stock returns, it would be expected for ESG scores to produce a similar effect.

Appendix B shows a positive correlation (0.14, p-value = 0.00) between *Taxonomy Eligibility* and *ESG Score*. Consistent with Dumrose et al. (2022), I identify a positive correlation (0.20, p-value = 0.00) of the same variable with the *E Score*. These findings support the reflection of similar criteria used in both assessment methodologies but further corroborate the conceptual differences between ratings. While I use the ESG and E scores developed by Refinitiv, the existing discrepancies among rating agencies suggest that this analysis would yield different results depending on the rating employed. However, previous studies show there is a positive correlation among ratings from major providers (Berg et al., 2022), and as such it is unlikely that said heterogeneity would result in significant deviations.

Table 10 reports the results of the primary regression using different approaches to analyze the relationship between the EU Taxonomy and ESG scores in capital markets. Columns (1) and (2) each include *ESG Score* and *E Score* as an additional control variable. Both variables yield negative and statistically significant coefficients, with *E Score* reporting a less negative value and lower significance. Additionally, in comparison with the *ESG Score*, controlling for the *E Score* results in a higher and more statistically significant (at the 1 percent level) *Taxonomy Eligibility* coefficient. At the time of this study, the EU Taxonomy solely measures climate impact, and thus these findings suggest that among other factors, Nordic investors are prioritizing firms with improved environmental performances.

Table 10 - EU Taxonomy and ESG Scores

This table presents regression results to assess how Taxonomy eligibility and ESG scores impact stock returns. The dependent variable is the monthly *FF5-adj. Return*. The independent variables being studied include *Taxonomy Eligibility, ESG Score, E Score, TE minus ESG Score,* and *TE minus E Score*. TE minus *ESG Score* is the difference between *Taxonomy Eligibility* and the *ESG Score*. TE minus E Score is the difference between Taxonomy Eligibility and the E Score. Control variables remain as previously described. All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. All specifications include Time, Industry, and Country fixed effects. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	FF5-adj. Return			
	(1)	(2)	(3)	(4)
Taxonomy Eligibility	**0.0149****	**0.0158*****		
	(0.0047)	**(0.0046)**		
ESG Score	**-0.0290*****			
	(0.0082)			
E Score		**-0.0205****		
		(0.0065)		
TE minus ESG Score			**0.0180*****	
			(0.0042)	
TE minus E Score				**0.0175*****
				(0.0041)
ESG Controversies	0.0040	0.0044	0.0037	0.0046
	(0.0062)	(0.0062)	(0.0054)	(0.0062)
Age	0.0508	0.0512	0.0559	0.0496
	(0.1313)	(0.1324)	(0.1299)	(0.1307)
Market Cap	0.3836*	0.4359*	0.3484	0.4221*
	(0.1918)	(0.1957)	(0.1892)	(0.1920)
Debt	-0.1945	-0.1916	-0.2091	-0.1952
	(0.1822)	(0.1804)	(0.1747)	(0.1807)
Book-to-Market	-1.2904**	-1.2439**	-1.3791**	-1.2854**
	(0.4503)	(0.4512)	(0.4481)	(0.4480)
Cash	0.1280	0.0641	0.0656	0.0509
	(0.1774)	(0.1732)	(0.1683)	(0.1708)
Profitability	0.0191	0.0162	0.0192	0.0163
	(0.0241)	(0.0240)	(0.0236)	(0.0239)
Current Ratio	-0.1775	-0.1618	-0.1622	-0.1590
	(0.1896)	(0.1806)	(0.1868)	(0.1813)
Volatility	0.0548	0.0519	0.0551	0.0540
	(0.0427)	(0.0433)	(0.0429)	(0.0432)
Momentum	-0.0008	0.0029	0.0007	0.0025
	(0.0357)	(0.0358)	(0.0358)	(0.0358)
Constant	-2.1621	-2.9889	-1.1007	-2.6978
	(2.4369)	(2.4392)	(1.5134)	(2.3950)
N	5037	5037	5037	5037
R^2	0.3187	0.3188	0.3183	0.3186
Time FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes

To further evaluate rating disparities between the EU Taxonomy and traditional ESG scores and investors' subsequent behavior, I include *TE minus ESG Score,* and *TE minus E Score* as the independent variables of interest (Bassen et al., 2022) in columns (3) and (4), respectively. These variables represent the difference between *Taxonomy Eligibility* and the corresponding *ESG/E Score* for each firm, with higher values indicating higher discrepancies among rating methodologies. Both regressions yield similar and equally significant positive coefficients, suggesting that investors are shifting their capital allocation preferences toward Taxonomy-eligible firms, particularly when Taxonomy metrics outperform traditional ESG scores.

5. Conclusion

This study provides a comprehensive analysis of the EU Taxonomy in Nordic markets. In particular, I studied the stock price premium for stocks concerning their percentage of Taxonomy eligibility. I find significantly higher stock returns for firms with higher Taxonomy eligibility. The analysis of the individual KPIs highlighted this premium on *TE Revenue* and especially *TE CapEx*, suggesting that overall, investors are shifting their capital allocation towards firms with these specifications.

I studied market reaction to the introduction of the EU Taxonomy by conducting an event study methodology and analyzing the impact of *ESG* on *CAR*. As investors had no way to assess what percentage of their portfolios were eligible when the Taxonomy was first introduced, they likely turned to ESG scores to measure sustainable alignment. Throughout the immediate event window, results reveal a negative and significant *ESG Score* coefficient. In a market already overwhelmed with sustainability measures, these results indicate that investors likely refrained from investing in green stocks during the period immediately around the introduction of the Taxonomy. The analysis of a wider event window yielded similar, but not significant results.

Further analysis of the Google Search Volume for the term "EU Taxonomy", with the aim of examining Nordic investors, indicates that although Nordic investors' attention yields better returns overall, I find no evidence of an increase in performance for Taxonomy-eligible firms at times when investor attention to the framework is particularly high.

Lastly, results suggest an enhanced investor preference for firms with improved Taxonomy performance, particularly when rating discrepancies are high.

This research contributes to the literature on the effects of sustainability reporting frameworks, specifically that on the EU Taxonomy, and the possible investment premium it provides. I employ an interesting approach by conducting my research on one of the leading regions regarding sustainability. To the best of my knowledge, there are no other studies capturing Taxonomy metrics using firms' reported KPIs, and as such this provides a novel and perhaps more accurate approach to sustainability metrics, avoiding ambiguity in rating providers.

Nevertheless, this study is not without its limitations. First and foremost, data availability proved to be the main challenge in the elaboration of this research. Although originally implemented in July 2020, the EU Taxonomy was first used for reporting purposes in FY 2021. As such, at the time of this research, only two annual data points were publicly available.

Additionally, as the European Commission continuously revises and updates the framework and its requirements, it is hard to accurately grasp the evolution of firms. With the introduction of new sectors to the Technical Screening Criteria, firms that previously reported null KPIs might start reporting higher TE and TA. From an analytical standpoint, this might wrongfully be perceived as an increase in the firm's sustainable practices, by disregarding the update in the assessment methodology.

In the future, I believe this study would prove more beneficial with the use of a longer sample period, to truly measure the impact of the EU Taxonomy in financial markets once the framework has been consolidated across sectors. Another potential avenue for further research could be to center the study around Taxonomy alignment to better capture investors' attention to good sustainability practices among firms.

Overall, this study provides interesting insights into the initial reaction as markets navigate the implementation of the EU Taxonomy, highlighting the evolving landscape of the sustainable investing premium within Nordic markets.

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Appendix A - Table of variables

Name	Definition	Source
Dependent variables		
Raw Return	Monthly stock return based on monthly pricing data.	Datastream (P)
CAPM-adj. Return	Monthly stock return based on monthly pricing data, adjusted for the market factor.	Datastream (P) and Kenneth French Data Library
FF3-adj. Return	Monthly stock return based on monthly pricing data, adjusted for the market, size, and value factors.	Datastream (P) and Kenneth French Data Library
FF5-adj. Return	Monthly stock return based on monthly pricing data, adjusted for the market, size, value, profitability, and investment factors.	Datastream (P) and Kenneth French Data Library
CARs	Cumulative five-day abnormal returns adjusted according to FF5. Daily returns are based on daily pricing data.	Datastream (P) and Kenneth French Data Library
Main variables		
TE Revenue	Proportion of firms' revenue that meets eligibility criteria for the EU Taxonomy.	Annual and Sustainability Reports
TE CapEx	Proportion of firms' CapEx that meets eligibility criteria for the EU Taxonomy.	Annual and Sustainability Reports
TE OpEx	Proportion of firms' OpEx that meets eligibility criteria for the EU Taxonomy.	Annual and Sustainability Reports
Taxonomy Eligibility	Arithmetic average of TE Revenue, CapEx, and OpEx.	-
ESG Score	Environmental, Social, and Governance score.	Datastream
E Score	Environmental pillar score.	Datastream
TE minus ESG	Difference between Taxonomy Eligibility and ESG Score.	-
TE minus E	Difference between Taxonomy Eligibility and the E Score.	-
GSV Nordic	Monthly market-cap weighted average of the "EU Taxonomy" Google Search Volume in Sweden, Denmark, and Finland.	Google Trends
GSV World	Monthly worldwide "EU Taxonomy" Google Search Volume.	Google Trends
TE*GSV Nordic	Interaction term between Taxonomy Eligibility and GSV Nordic.	-
TE*GSV World	Interaction term between Taxonomy Eligibility and GSV World.	-
Control variables		
ESG Controversies	Measure of ESG-related controversies	
Age	Natural logarithm of one plus the number of years since foundation.	Institutional websites
Market Cap	Natural logarithm of market capitalization.	Datastream (WC08001)
Book-to-Market	Book value divided by Market Cap.	Datastream (WC03995, WC08001)
Debt	Natural logarithm of total debt.	Datastream (WC03255)
Cash	Natural logarithm of total cash and cash equivalents.	Datastream (WC02003)
Current Ratio	Current assets divided by current liabilities	Datastream (WC08106)
Profitability	Pre-tax income divided by total assets	Datastream (WC01401, WC02999)
Volatility	Rolling 12-month standard deviation of raw returns	Datastream (P)
Momentum	Rolling 6-month average of raw returns	Datastream (P)

Appendix B - Correlation matrix

This table reports the univariate Pearson correlation across the sample. All continuous variables are winsorized at the 0.5% level. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1) Raw Ret.	1.00																			
(2) CAPM-adj. Ret.	0.99***	1.00																		
(3) FF3-adj. Ret.	0.95***	0.96***	1.00																	
(4) FF5-adj. Ret.	0.90***	0.91***	0.95***	1.00																
(5) TE Revenue	0.00	0.00	0.00	0.01	1.00															
(6) TE CapEx	-0.02*	-0.03*	-0.03*	-0.01	0.64***	1.00														
(7) TE OpEx	-0.01	-0.01	-0.01	0.00	0.78***	0.70***	1.00													
(8) Tax. Eligibility	-0.01	-0.01	-0.01	0.00	0.90***	0.88***	0.92***	1.00												
(9) ESG Score	-0.02*	-0.03*	-0.03**	-0.04***	0.12***	0.13***	0.13***	0.14***	1.00											
(10) E Score	-0.02	-0.02	-0.03**	-0.04***	0.17***	0.19***	0.17***	0.20***	0.82***	1.00										
(11) ESG Cont.	0.01	0.02	0.02	0.03**	-0.07***	-0.06***	-0.09***	-0.08***	-0.35***	-0.31***	1.00									
(12) Age	-0.01	-0.01	-0.01	-0.02	0.07***	0.08***	0.06***	0.08***	0.03**	0.07***	-0.02	1.00								
(13) Market Cap	0.04***	0.04***	0.04***	0.05***	0.01	0.02	0.01	0.01	0.43***	0.37***	-0.24***	-0.05***	1.00							
(14) Book-to-Mkt.	-0.11***	-0.12***	-0.12***	-0.12***	0.17***	0.23***	0.22***	0.23***	0.02	0.04***	-0.01	0.23***	-0.31***	1.00						
(15) Debt	-0.02*	-0.03**	-0.03**	-0.02	0.08***	0.14***	0.11***	0.12***	0.43***	0.39***	-0.25***	0.09***	0.74***	0.09***	1.00					
(16) Cash	0.00	0.00	0.00	0.01	0.14***	0.12***	0.11***	0.14***	0.52***	0.43***	-0.36***	-0.02	0.82***	-0.02	0.77***	1.00				
(17) Current Ratio	0.01	0.01	0.01	0.00	0.01	-0.06***	-0.03**	-0.03**	-0.05***	-0.07***	0.02	-0.07***	0.04***	-0.02	-0.26***	0.05***	1.00			
(18) Profitability	0.09***	0.09***	0.08***	0.06***	-0.04***	-0.04***	-0.04***	-0.04***	-0.01	-0.01	0.02	0.01	0.23***	-0.35***	-0.20***	-0.02*	0.31**	1.00		
(19) Volatility	0.09***	0.08***	0.09***	0.08***	-0.05***	-0.06***	-0.04***	-0.06***	-0.24***	-0.26***	0.11***	-0.07***	-0.09***	-0.13***	-0.12***	-0.09***	0.08***	-0.05***	1.00	
(20) Momentum	0.47***	0.47***	0.45***	0.43***	-0.01	-0.08***	-0.03**	-0.04***	-0.09***	-0.07***	0.07***	-0.02	0.08***	-0.29***	-0.08***	-0.03**	0.01	0.20***	0.16***	1.00

Appendix C – Stepwise regression, EU Taxonomy eligibility and stock returns (1)

This table presents stepwise regression results employing *Raw Return – columns* (1) to (5) – and *CAPM-adj. Return* – columns (6) to (10) – as dependent variables. The independent variable of interest is *Taxonomy Eligibility*. All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. All specifications include Time, Industry, and Country fixed effects. Standard errors are robust. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	Raw Return					CAPM-adj. Return				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Taxonomy Eligibility	**0.0061 (0.0052)**	**0.0108* (0.0053)**	**0.0101* (0.0048)**	**0.0101* (0.0048)**	**0.0103* (0.0049)**	**0.0066 (0.0051)**	**0.0109* (0.0052)**	**0.0103* (0.0047)**	**0.0103* (0.0047)**	**0.0105* (0.0048)**
ESG Controversies	-0.0008 (0.0060)	-0.0035 (0.0061)	-0.0034 (0.0061)	-0.0034 (0.0062)	-0.0034 (0.0063)	0.0017 (0.0057)	-0.0012 (0.0058)	-0.0010 (0.0058)	-0.0011 (0.0060)	-0.0011 (0.0060)
Age	0.1249 (0.1718)	0.2124 (0.1643)	0.1311 (0.1514)	0.1307 (0.1481)	0.1320 (0.1500)	0.1199 (0.1633)	0.1976 (0.1573)	0.1244 (0.1459)	0.1240 (0.1425)	0.1255 (0.1446)
Market Cap	0.6124*** (0.1043)	0.4161** (0.1465)	0.0353 (0.1892)	0.0810 (0.1843)	0.0824 (0.1880)	0.6114*** (0.1022)	0.4509** (0.1513)	0.1113 (0.1871)	0.1571 (0.1815)	0.1587 (0.1855)
Debt	-0.4162*** (0.1243)	-0.1779 (0.1288)	0.0768 (0.1645)	0.0812 (0.1623)	0.0830 (0.1640)	-0.4142*** (0.1213)	-0.1933 (0.1249)	0.0306 (0.1589)	0.0350 (0.1568)	0.0370 (0.1588)
Book-to-Market		-1.5920*** (0.4555)	-1.6126*** (0.4611)	-1.4490** (0.4698)	-1.4712** (0.4696)		-1.4224** (0.4465)	-1.4350** (0.4498)	-1.2707** (0.4592)	-1.2949** (0.4611)
Cash		-0.1552 (0.1512)	-0.0489 (0.1563)	-0.0494 (0.1554)	-0.0521 (0.1584)		-0.1680 (0.1450)	-0.0701 (0.1505)	-0.0706 (0.1499)	-0.0736 (0.1527)
Profitability			0.0829*** (0.0226)	0.0859*** (0.0229)	0.0876*** (0.0228)			0.0749*** (0.0216)	0.0780*** (0.0219)	0.0798*** (0.0219)
Current Ratio			-0.0006 (0.1481)	-0.0333 (0.1449)	-0.0361 (0.1471)			-0.0098 (0.1409)	-0.0426 (0.1379)	-0.0457 (0.1403)
Volatility				0.0605 (0.0406)	0.0646 (0.0417)				0.0608 (0.0400)	0.0652 (0.0413)
Momentum					-0.0183 (0.0419)					-0.0199 (0.0404)
Constant	-0.8019 (2.1044)	1.7043 (2.1619)	2.4145 (2.0276)	0.8181 (2.2466)	0.8426 (2.2724)	-1.0542 (2.0445)	1.2549 (2.1421)	1.9040 (2.0099)	0.3006 (2.2081)	0.3273 (2.2364)
N	5037	5037	5037	5037	5037	5037	5037	5037	5037	5037
R^2	0.3275	0.3276	0.3270	0.3265	0.3273	0.3273	0.3273	0.3267	0.3263	0.3272
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Appendix D - Stepwise regression, EU Taxonomy eligibility and stock returns (2)

This table presents stepwise regression results employing *FF3-adj. Return – columns* (1) to (5) – and *FF5-adj. Return* – columns (6) to (10) – as dependent variables. The independent variable of interest is *Taxonomy Eligibility*. All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. All specifications include Time, Industry, and Country fixed effects. Standard errors are robust. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	FF3-adj. Return					FF5-adj. Return				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Taxonomy Eligibility	**0.0072 (0.0050)**	**0.0119* (0.0050)**	**0.0114* (0.0048)**	**0.0114* (0.0047)**	**0.0113* (0.0047)**	**0.0095 (0.0050)**	**0.0135** (0.0049)**	**0.0134** (0.0049)**	**0.0133** (0.0048)**	**0.0133** (0.0048)**
ESG Controversies	0.0006 (0.0055)	-0.0019 (0.0056)	-0.0019 (0.0056)	-0.0020 (0.0057)	-0.0020 (0.0056)	0.0066 (0.0059)	0.0054 (0.0060)	0.0056 (0.0059)	0.0057 (0.0060)	0.0057 (0.0060)
Age	0.0543 (0.1578)	0.1436 (0.1521)	0.0933 (0.1448)	0.0929 (0.1395)	0.0920 (0.1381)	-0.0108 (0.1413)	0.0743 (0.1347)	0.0571 (0.1347)	0.0555 (0.1290)	0.0551 (0.1284)
Market Cap	0.6124*** (0.1039)	0.4020** (0.1353)	0.1530 (0.1744)	0.2115 (0.1701)	0.2105 (0.1687)	0.6058*** (0.1084)	0.3665* (0.1616)	0.3201 (0.2038)	0.3620 (0.1878)	0.3615 (0.1871)
Debt	-0.4594*** (0.1200)	-0.2263 (0.1223)	-0.0443 (0.1607)	-0.0387 (0.1560)	-0.0400 (0.1539)	-0.4283** (0.1401)	-0.2287 (0.1567)	-0.2360 (0.1842)	-0.2229 (0.1804)	-0.2236 (0.1791)
Book-to-Market		-1.6111*** (0.4355)	-1.6448*** (0.4522)	-1.4352** (0.4626)	-1.4204** (0.4553)		-1.5183*** (0.4096)	-1.4684*** (0.4282)	-1.2912** (0.4362)	-1.2836** (0.4362)
Cash		-0.1318 (0.1352)	-0.0750 (0.1435)	-0.0756 (0.1409)	-0.0737 (0.1394)		-0.0456 (0.1589)	-0.0004 (0.1752)	-0.0004 (0.1714)	0.0005 (0.1705)
Profitability			0.0530** (0.0199)	0.0568** (0.0196)	0.0557** (0.0193)			0.0144 (0.0234)	0.0182 (0.0238)	0.0176 (0.0239)
Current Ratio			0.0456 (0.1430)	0.0037 (0.1395)	0.0055 (0.1381)			-0.1134 (0.1768)	-0.1444 (0.1819)	-0.1434 (0.1812)
Volatility				0.0775* (0.0382)	0.0748 (0.0387)				0.0680 (0.0413)	0.0666 (0.0423)
Momentum					0.0122 (0.0364)					0.0062 (0.0358)
Constant	-1.5093 (1.9359)	0.9777 (2.0171)	1.3184 (1.9243)	-0.7274 (2.1343)	-0.7437 (2.1111)	-2.5357 (2.1786)	-0.3789 (2.1521)	-0.0015 (2.2886)	-1.7810 (2.3839)	-1.7893 (2.3792)
N	5037	5037	5037	5037	5037	5037	5037	5037	5037	5037
R^2	0.2949	0.2950	0.2945	0.2934	0.2929	0.3305	0.3304	0.3306	0.3294	0.3292
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Appendix E - 11-day cross-sectional market reaction

This table presents cross-sectional regression results at t = 5 using eleven-day *FF5-adj. Cumulative Abnormal Returns (CARs)*. The independent variable of interest is *ESG Score*. Control variables are progressively included in the regressions in columns (1) through (5). All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. All regressions include Time, Industry, and Country fixed effects. Standard errors are robust. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	CARs at t = 5				
	(1)	(2)	(3)	(4)	(5)
ESG Score	**-0.0187***	**-0.0151**	**-0.0152**	**-0.0168**	**-0.0094**
	(0.0079)	**(0.0084)**	**(0.0086)**	**(0.0088)**	**(0.0069)**
ESG Controversies	-0.0041	-0.0066	-0.0073	-0.0064	-0.0092
	(0.0071)	(0.0069)	(0.0070)	(0.0073)	(0.0063)
Age	0.0097	0.0193	0.0076	0.0213	0.0062
	(0.1386)	(0.1389)	(0.1424)	(0.1441)	(0.1218)
Market Cap	0.9087***	0.9324***	0.8828***	0.9127***	0.2848
	(0.1047)	(0.1520)	(0.1726)	(0.1725)	(0.1472)
Debt	-0.6752***	-0.5993***	-0.5784***	-0.5444***	-0.0181
	(0.1087)	(0.1239)	(0.1673)	(0.1612)	(0.1402)
Book-to-Market		-0.3709	-0.2996	-0.2750	-0.5543
		(0.4465)	(0.4527)	(0.4561)	(0.3878)
Cash		-0.1717	-0.1483	-0.1557	-0.0952
		(0.1322)	(0.1389)	(0.1331)	(0.1149)
Profitability			0.0164	0.0246	0.0170
			(0.0220)	(0.0214)	(0.0173)
Current Ratio			-0.0936	-0.1042	-0.0785
			(0.1463)	(0.1450)	(0.1234)
Volatility				0.3535	0.0743
				(0.2373)	(0.1970)
Momentum					6.6930***
					(0.6646)
Constant	-1.3499	-0.3856	-0.1017	-1.9499	0.8679
	(2.0990)	(2.0840)	(2.0989)	(2.5049)	(2.0348)
N	219	219	219	219	219
R^2	0.4527	0.4593	0.4619	0.4679	0.6599
Time FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes

Appendix F - 11-day panel data market reaction

This table presents panel data regression results across the sample using eleven-day *FF5-adj. Cumulative Abnormal Returns (CARs).* The independent variable of interest is *ESG Score*. Control variables remain as previously described and are progressively included in the regressions. All continuous variables are winsorized at the 0.5% level. All independent variables are lagged by 1 period. All regressions include Time, Industry, and Country fixed effects. Standard errors are robust. *, **, ***, denote statistical significance at the 10%, 5% and 1% levels, respectively.

	11-day event window CARs				
	(1)	(2)	(3)	(4)	(5)
ESG Score	**-0.0116**	**-0.0088**	**-0.0089**	**-0.0100**	**-0.0059**
	(0.0060)	**(0.0063)**	**(0.0063)**	**(0.0064)**	**(0.0055)**
ESG Controversies	-0.0037	-0.0056	-0.0061	-0.0054	-0.0067
	(0.0058)	(0.0058)	(0.0058)	(0.0059)	(0.0045)
Age	0.0010	0.0095	0.0012	0.0104	-0.0014
	(0.1055)	(0.1050)	(0.1073)	(0.1082)	(0.0957)
Market Cap	0.6119***	0.6207***	0.5832***	0.6048***	0.2714*
	(0.0746)	(0.1105)	(0.1185)	(0.1186)	(0.1227)
Debt	-0.4451***	-0.3832***	-0.3622**	-0.3390**	-0.0799
	(0.0806)	(0.0910)	(0.1188)	(0.1153)	(0.1184)
Book-to-Market		-0.3265	-0.2840	-0.2684	-0.4541
		(0.3206)	(0.3236)	(0.3249)	(0.2931)
Cash		-0.1265	-0.1129	-0.1176	-0.0770
		(0.0964)	(0.0998)	(0.0955)	(0.0850)
Profitability			0.0115	0.0172	0.0126
			(0.0160)	(0.0155)	(0.0135)
Current Ratio			-0.0525	-0.0595	-0.0505
			(0.1004)	(0.0996)	(0.0907)
Volatility				0.2498	0.0544
				(0.1780)	(0.1553)
Momentum					3.3438***
					(0.6912)
Constant	-0.2713	0.5184	0.6784	-0.6253	1.1655
	(1.5310)	(1.5146)	(1.5292)	(1.8287)	(1.5975)
N	2190	2190	2190	2190	2190
R^2	0.4411	0.4411	0.4411	0.4410	0.4385
Time FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes