

Article

Does a Change in the ESG Ratings Influence Firms' Market Value? Evidence from an Event Study

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Abstract: In recent years, the field of “ESG finance” has seen rapid growth, resulting in the emergence and expansion of ESG ratings and rating agencies. This study investigates how financial investors react to updates in ESG ratings provided by two prominent ESG rating agencies, namely MSCI and Refinitiv. The main objective is to determine whether any positive or negative changes in a company’s sustainability ratings directly impact its market value. The Event Study methodology was used for this investigation, which analyses the Cumulated Average Abnormal Returns (CAARs) of economic events to assess their influence on corporate valuations. We analysed over 840 rating updates (events) using a sample of 75 companies across various industries, all listed on major stock exchanges. Our findings indicate that shifts in sustainability ratings, as evaluated by the two rating agencies, do not significantly impact companies’ market capitalisation. Furthermore, these outcomes remain consistent over time, suggesting that financial markets are not assigning increasing significance to ESG ratings. We offer potential explanations for these findings, which are discussed in light of the existing literature on the subject.

Keywords: ESG; ESG finance; ESG rating agencies; ESG rating divergence; firm value; market capitalisation



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1. Introduction

For a long time, there has been a debate on the impact that investments in corporate sustainability could have on the financial performance of companies and, ultimately, on their value (Derwall et al. 2004; Edmans 2011; Manrique and Marti-Ballester 2017; Velte 2017; Narula et al. 2023). The role of corporate sustainability management has become more strategic in recent years. Sustainability strategies are now being integrated into companies’ competitive strategies because they can create new business opportunities. However, they also come with various risks that, if not managed properly, could harm competitiveness and even threaten the survival of companies (Porter and Kramer 2006; Orsato 2009; Surroca et al. 2010; Engert et al. 2016). From a theoretical point of view, therefore, one would expect a correlation between the effectiveness in managing sustainability (and therefore the related performance) and financial performance and, ultimately, the value of the company. One of the main problems in designing and conducting empirical studies on this topic was the availability of sustainability performance measures for companies: sustainability reports, besides being drafted according to different reference standards, include several indicators, but a synthetic and comprehensive measure of the sustainability performance of a company is missing. In recent years, however, several specialised organisations have developed rating/scoring criteria, which usually lead to a final score (or rank). Financial investors then use these scores/rankings in their decision-making processes regarding asset allocation (i.e., in which companies they should invest). It is therefore possible to investigate the existing relationship between a company’s sustainability (or “ESG”) performance (as measured by these rating agencies) and its market value to assess whether

or not the financial markets appreciate the sustainability performance of companies. The literature on this topic shows contrasting results. If it is true that the majority of studies highlight a positive correlation between sustainability (or “ESG”) performance and financial performance/market value (see for example [Griffin and Mahon 1997](#); [Orlitzky et al. 2003](#); [Margolis et al. 2009](#); [Naeem et al. 2021](#); [Zhou et al. 2022](#)), other studies do not show any statistical significance ([Surroca et al. 2010](#); [Billio et al. 2021](#)), while other researchers have found a negative correlation ([Branco and Rodrigues 2008](#); [Rodrigo et al. 2016](#)). Starting from these considerations, the objective of this study is to analyse the reaction of the financial markets to a change of the score (i.e., an upgrade/downgrade) periodically communicated by two of the most relevant ESG rating agencies (MSCI and Refinitiv). The methodology used was the Event Study: the market value of a sample of companies operating in different sectors (and in different stock markets) in the days immediately preceding and following the communication of the new score was monitored to identify possible anomalous trends in their share prices. The results show a relative insensitivity of the markets towards upgrades/downgrades: in no case were Abnormal Cumulative Return values recorded. The interpretations could be different: the low efficiency of financial markets, the inability of ESG rating systems to correctly measure the sustainability performance of companies, or the phenomenon of the ESG ratings “divergence”, due to the heterogeneity of the methodologies used by the rating companies (which could “disorient” investors and therefore in some way “invalidate” the work of the rating companies themselves). This study contributes to the existing literature by providing new empirical evidence of the absence of a clear link between companies’ commitment to sustainability (and the corresponding outcome, as measured by ESG ratings) and their market value (at least in the short term), calling for further research to investigate the topic more thoroughly.

2. Literature Review

Sustainable development is defined in the Brundtland Report ([UN World Commission on Environment and Development 1987](#)) as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” In the financial world, it translates into the term ESG, which was coined in 2004 with the publication of the report “Who Cares Wins” by the [UN Global Compact \(2004\)](#). According to this framework, to be sustainable, companies should care about three pillars while conducting their businesses:

- The environmental pillar: it evaluates the sustainability of those companies’ activities carrying a direct and indirect impact on the environment;
- The social pillar: it evaluates the sustainability of the corporations by looking at the way they can manage the impact of business activities on the social dimension;
- The governance pillar concerns how a firm is managed by its top management. It focuses on aligning a company’s executive management interests with those of its shareholders and stakeholders, as well as on issues concerning business ethics and management board independence, diversity, and structure.

From a theoretical perspective, the link between ESG (or sustainability) performance and market value can be analysed using different interpretative lenses. For example, according to the shareholder’s theory ([Friedman 2007](#)), the only purpose of a company is to maximise the value generated for its shareholders. So, ESG performances should lead to an increase in a firm value only if these performances are supposed to generate higher profitability (and, then, more significant cash flows) and/or a reduction in the cost of capital in the future ([Porter and Kramer 2006](#); [Jo and Na 2012](#)). According to the stakeholder’s theory ([Freeman 1984](#)), instead, the company is a multi-stakeholder and multi-objective system: shareholders can be considered as one of the different types of stakeholders, and the company must balance expectations about profitability by shareholders with the expectations of all the other stakeholders. This may lead to the need to reduce profitability to achieve other (socially or environmentally-related) objectives (as in the case of investments in programs aimed at reducing GHG emissions below the upper limits imposed by

regulation or other—not binding—policies, which are not supposed to generate sufficient financial returns for the company). The legitimacy theory (Suchman 1995) may also help to explain the link between the commitment to sustainability (and the achieved outcomes) and firm value. Indeed, legitimacy is a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions. The social perceptions of the organisation's activities depend on society's expectations. When an organisation's activities violate moral values, society may impose severe sanctions, which may lead even to the organisation's failure. Investing in sustainability-related projects, achieving satisfactory results, and effectively communicating them to external stakeholders is crucial to gaining legitimacy to operate. However, this may be reconstructed to shareholder's theory: in ultimate analysis, it is a matter of risk management. The risk of not investing in sustainability-related initiatives is being boycotted by customers, banks, or other financing entities or by local and central governments, negatively impacting the company's competitiveness and, then, its market value.

Probably the most exhaustive paper on the link between corporate sustainability (or "ESG") and financial performance is the one by Friede et al. (2015), a recapitulatory work that provides a comprehensive picture of more than 2000 studies' findings. The analysis shows that most studies show a positive correlation between ESG and corporate financial performance. However, the correlation is not so strong, and it varies a lot from region to region (developed Europe showing the lowest percentage of positive correlation) and according to the type of study (portfolio-based analysis showing a much lower incidence of positive correlation). However, most of these studies focus on one or two dimensions of sustainability (typically the environmental or the social one) or sometimes even on more specific subdimensions (such as the level of GHG emissions or the amount of natural resources used). Moreover, many studies included in the sample do not use ESG scoring/ratings provided by third-party entities; indeed, some of them were conducted when the term "ESG" had not been coined yet. ESG (better, sustainability or "CSR") performances are measured through KPIs taken from sustainability reports (or other publicly available documentation) provided by companies.

If, instead, we limit the analysis to those works that investigate the link between ESG scoring (provided by specialised ESG rating agencies) and financial performance (and/or firm value), the number of works is considerably lower. Among the most recent and interesting papers, we can cite the one by Garcia and Orsato (2020), who examined the correlation between ESG performances (as measured by Thomson Reuters ASSET4) and financial performances of 2165 companies from both developed and developing countries. The main findings are that firms from developed countries show a positive correlation between ESG and financial performance, but the same is not true for companies based in developing countries. Another interesting work by Naeem et al. (2021) focuses their analysis on emerging markets. As in the previous case, ESG data are extracted from Thomson Reuters ASSET4. The results show that ESG performances significantly impact firms' profitability (measured through ROA) and their value (measured through Tobin's Q).

Yoon et al. (2018) analyse the effect of ESG ratings on the value of Korean firms. The ESG rating agency used is KCGS. The results show that sustainability performances positively and significantly affect a firm's market value. However, quite surprisingly, the impact is lower for companies that operate in "environmentally-sensitive" industries (i.e., industries characterised by high environmental impact) than for those operating in "non-sensitive" ones. Similarly, Zhou et al. (2022) investigate the relationship between ESG performance and firm value in a sample of Chinese listed companies. In this case, the ESG rating data are extracted from Syn Tao Green Finance. The peculiarity of this work is that measures of financial performances, operating capacity, and growth rate are used as intermediary variables, mediating the effect of ESG performances on firm value (measured through Tobin Q). The results show that improving ESG performances is

conducive to enhancing the market value of a firm and that operating capacity (but not financial performance) plays a relevant mediating effect.

However, the results of studies examining the relationship between ESG performance and corporate value, which rely on values provided by one or more rating agencies as proxies for a company's overall sustainability performance, may be influenced by a fundamental issue: the lack of uniformity in the methodologies used by the various agencies to formulate the synthetic judgment (the "rating" or "scoring"). The problem, also known as the so-called "ESG rating divergence" phenomenon, was well illustrated by [Berg et al. \(2022\)](#). The authors investigate the divergence of ESG ratings, and they conclude that this phenomenon exists and can be explained by looking at three principal constituents, namely as follows:

- Scope divergence: it happens when the ratings are based on different sets of attributes;
- Measurement divergence: in this case, the rating agencies measure the same attribute using different indicators;
- Weights divergence: the rating agencies give different relative importance to the attributes.

Previously, [Capizzi et al. \(2021\)](#) had already conducted a similar analysis on a sample of Italian-listed companies, leading to similar results. The same can be said about the results of the study conducted by [Zumente and Lāce \(2021\)](#).

Moving from these considerations, in their study, [Billio et al. \(2021\)](#) created two different types of portfolios:

- An "ESG-consistent" portfolio, composed of the stocks of those companies that are considered "ESG leaders" by all the analysed rating agencies;
- A "non-ESG" portfolio, i.e., a portfolio built through a negative screening approach, including all the stocks of those companies excluded by institutional investors (due to their poor ESG performances).

The results show no relevant differences in the performances of the two types of portfolios. The authors suggest that the reason why ESG investors' preferences do not seem to impact stock prices significantly is that different agencies often evaluate the same company's ESG performance differently. This creates a dispersion effect that reduces the influence of ESG preferences on stock prices. Even when there is agreement among agencies, the ESG effect is weakened, and its impact on performances becomes neutralised.

In light of the theories mentioned above, and starting from the outcome of the literature review, the present work aims to further investigate the correlation between ESG performance (as measured by ESG rating agencies) and firm value. More precisely, the study analyses the reaction of financial markets to rating agencies' ESG grade updates, understanding whether possible variations in the sustainability ratings of publicly listed companies have a direct (and timely) impact on their market value, as suggested by theory. So, the following hypotheses have been formulated:

- I. An upgrade to a company's sustainability rating positively affects its market value in the days following the official communication;
- II. A downgrade to a company's sustainability rating negatively affects its market value in the days following the official communication;
- III. A confirmation of the ESG rating of a company does not significantly affect its market value.

3. Materials and Methods

To test the hypotheses formulated at the end of the previous section, we utilised the Event Study methodology. This model helps assess an economic event's impact on corporations' valuation by analysing their Cumulated Average Abnormal Returns (CAAR). This quantitative approach is built on one fundamental pillar: the efficiency of financial markets, meaning that every single economic event is incorporated into the price of financial assets. Hence, the effects of an economic event can be assessed by observing the company's price in a specific short time window.

3.1. Sample Construction

The first step of the analysis consists of choosing a sample of companies. More specifically, the choices made in this regard were made according to three main drivers: the size of the sample, the reference financial markets, and the sectors in which the companies operate. As for the sample size, the main constraint for this critical decision was the trade-off between the statistical significance of the analysis and the amount of data to be processed in the model. Indeed, the higher the number of companies forming the testing cluster, the higher the robustness of the analysis results. However, on the other hand, the volume of the data to be collected and managed also increases exponentially, requiring a higher processing effort. To strike a balance between the two constraints, we selected a group of 75 firms. In addition, the companies were chosen to maintain diversity at a global level. This included selecting businesses from major financial markets around the world. In this phase, the selection criteria for the list of firms was based on choosing those with the highest market capitalisation, ensuring, at the same time, a diverse mix of industries. Table 1 shows the names of the corporations selected for the study.

Table 1. The sample of companies.

Enel SpA, Rome, Italy	Tesla Inc., Austin, TX, USA	Royal Dutch Shell PLC (now Shell PLC), London, UK
Stellantis NV, Hoofddorp, The Netherlands	Berkshire Hathaway Inc., Omaha, NE, USA	Unilever PLC, London, UK
Intesa Sanpaolo SpA, Torno, Italy	Starbucks Corp, Seattle, WA, USA	HSBC Holdings PLC, London, UK
Eni SpA, San Donato Milanese, Italy	JPMorgan Chase & Co, New York, NY, USA	AstraZeneca PLC, Cambridge, UK
Ferrari NV, Maranello, Italy	Visa Inc., San Francisco, CA, USA	BP PLC, London, UK
Amplifon SpA, Milano, Italy	PepsiCo Inc., Harrison, AR, USA	GlaxoSmithKline PLC (now GSK PLC), London, UK
Assicurazioni Generali SpA	Taiwan Semiconductor CO LTD, New Taipei, Taiwan	British American Tobacco PLC, London, UK
UniCredit SpA, Milano, Italy	UnitedHealth Group Inc., Minnetonka, MN, USA	Rio Tinto Group, London, UK
FinecoBank Banca Fineco SpA, Milano, Italy	Johnson & Johnson, New Brunswick, NJ, USA	Barclays PLC, London, UK
Exor NV, Amsterdam, The Netherlands	The Home Depot Inc., Cobb County, GA, USA	Rolls-Royce Holdings PLC, London, UK
Nexi SpA, Milano, Italy	ExxonMobil Corp, Spring (Houston), TX, USA	Nestle SA, Vevey, Switzerland
Moncler SpA, Milano, Italy	The Coca-Cola Company, Atlanta, GA, USA	Novartis AG, Basel, Switzerland
Snam SpA, San Donato Milanese, Italy	Chevron Corp, San Ramon, CA, USA	Roche (F. Hoffmann-La Roche AG), Basel, Switzerland
Poste Italiane SpA, Rome, Italy	Abbott Laboratories, North Chicago, IL, USA	Zurich Insurance Group AG, Zurich, Switzerland
Davide Campari Milano SpA, Milano, Italy	AT&T Inc., Dallas, TX, USA	Credit Suisse Group AG, Zurich, Switzerland
Atlantia SpA, Rome, Italy (now Mundys SpA)	Keyence Corp, Osaka, Japan	PJSC Gazprom, Saint Petersburg, Russia
Terna Rete Elettrica Nazionale SpA, Rome, Italy	Toyota Motor Corp, Toyota City, Japan,	PJSC Rosneft Oil Company, Moscow, Russia
Tenaris SA, Luxembourg City, Luxembourg	SoftBank Corp, Minato (Tokyo), Japan	PJSC Lukoil Oil Company, Moscow, Russia

Table 1. *Cont.*

Recordati Industria Chimica e Farmaceutica SpA, Milano, Italy	Sony Group Corp, Minato (Tokyo), Japan	Norilsk Nickel, Moscow, Russia
DiaSorin SpA, Saluggia, Italy	Nippon Telegraph and Telephone Corp, Chiyoda (Tokyo), Japan	Novatek, Tarko-Sale, Russia
Microsoft Corp, Redmond, WA, USA	Nintendo Co Ltd., Kyoto, Japan	Industrial and Commercial Bank of China, Beijing, China Ltd. (ICBC)
Apple Inc., Cupertino, CA, USA	Recruit Holdings CO LTD, Tokyo, Japan	China Construction Bank Corp, Beijing, China
Amazon.com Inc., Seattle, WA, USA	Nidec Corp, Kyoto, Japan	Agricultural Bank of China, Beijing, China
Alphabet Inc., Mountain View, CA, USA	Shin-Etsu Chemical CO LTD, Tokyo, Japan	Ping An Insurance, Shenzhen, China
Meta Platforms Inc., Menlo Park, CA, USA	Denso Corp, Kariya (Aichi), Japan	Bank of China Ltd., Shenzhen, China

Table 2 shows the stock exchanges on which the selected companies are listed and the corresponding market indexes.

Table 2. The stock exchanges and the corresponding number of companies.

Financial Market	Market Index	N. of Companies
Milano Stock Exchange	FTSE MIB	20
NASDAQ/NYSE	S&P 500	20
London Stock Exchange	FTSE 100	10
Tokyo Stock Exchange	TOPIX	10
SIX Swiss Exchange	SMI	5
Moscow Interbank Currency Exchange	MOEX	5
Shanghai Stock Exchange	CSI300	5

Lastly, Table 3 shows the companies' classification according to their industry sector. The denominations of the different sectors have been obtained from Refinitiv Eikon (see next section).

Table 3. The distribution of companies by industrial sector.

Industry Sector	N. of Companies
Aerospace & Defense	1
Apparel and Accessories	1
Auto, Truck and Motorcycle Manufacturers	7
Banks	11
Business Support Services	1
Consumer Goods Conglomerates	1
Courier, Postal, Air Freight & Land-based Logistics	1
Department Stores	1
Diversified Chemicals	1
Electric Utilities	2
Electrical Components & Equipment	2
Employment Services	1
Food and Beverage	4
Highway & Rail Tracks	1
Home Improvement Products & Household Electronics	2
Life & Health Insurance	2
Managed Healthcare	1
Medical Equipment Supplies & Distribution	3
Insurance & Brokers	1

Table 3. *Cont.*

Industry Sector	N. of Companies
Oil & Gas	11
Online Services	3
Pharmaceuticals	6
Phones & Handheld Devices	1
Restaurants & Bars	1
Semiconductors	1
Software	1
Mining & Metals	2
Telecommunications Services	3
Tobacco	1
Toys & Children's Products	1

3.2. Research Methodology

The methodology used to analyse the data was the “Event Study”. To implement the analysis, the present work refers to the typical Event Studies phases illustrated by [Campbell et al. \(1997\)](#):

- (1) Event definition: the first phase consists of the definition of the event of interest and of the event window's length. The focal event of the present work was represented by the sustainability ratings updates released by ESG rating providers. In particular, we utilised data from Refinitiv and MSCI, as they are two of the most significant rating agencies globally.

Refinitiv, in particular, is a global financial market data and infrastructure provider serving customers in the financial industry, including banks, hedge funds, asset managers, and other financial professionals. The company was known for offering a wide range of data and analytics solutions to help financial professionals make informed decisions and manage risk. It must be underlined that Refinitiv was acquired by the London Stock Exchange Group in 2019.

MSCI Inc., instead, is a US company and a leading provider of investment decision support tools and services. It is mainly known for its global equity indexes, risk management analytics, and ESG (Environmental, Social, and Governance) research. Generally, a rating update can result in three possible outcomes: an upgrade, downgrade, or confirmation of the existing rating. Three separate and independent studies were conducted to investigate these potential events. Consequently, the total number of event typologies was equal to six (three for each rating agency).

Since the diffusion of ESG ratings is a relatively recent phenomenon, we have decided to focus on the period from 2016 to 2021. Table 4 reports the number of events for each ESG rating agency.

Table 4. Number of events for each rating agency.

Rating Agency	Type of Update	Number of Events
MSCI	Upgrade	96
	Confirmation	365
	Downgrade	32
Refinitiv	Upgrade	114
	Confirmation	130
	Downgrade	107

To study these events, a 12-market-day time horizon represented the event window, and it started two days before the emergence of the focal event to avoid possible insider trading behaviours.

- (2) Computation of normal and abnormal returns: to evaluate the effect of an event, the Event Study methodology recurs to the measurement of the abnormal returns. The abnormal return is defined as the actual ex-post return experienced by the company over the event window minus the normal return of the security over the same period. The normal return, instead, is the return expected in a normal condition without the occurrence of a specific economic event. The Market Model was selected to compute the normal returns. This statistical model derives the returns of a particular stock from the return of its belonging market according to the following equation:

$$R_{i,t} = \alpha_1 + \beta_1 * R_{m,t} + \epsilon_{it}$$

The coefficients α and β are computed through a regression analysis conducted in an appropriate “estimation window”. Once the values of the parameters are known, it is possible to calculate the abnormal returns by subtracting the expected returns (i.e., the ones provided by the application of the above formula) from the actual returns of each stock in the “event window”:

$$AR_{i,t} = R_{i,t} - (\alpha_1 + \beta_1 * R_{m,t})$$

These two steps (computation of the Market Model parameters and abnormal returns) are illustrated as follows:

(a) Estimation procedure: this phase led to quantifying the Market Model’s parameters. To implement this step, it was necessary to define the estimation window, i.e., the period before the event arose, which was considered to assess the value of the parameters characterising the Market Model’s equation. Even for this decision, as in the case of the event window, there was a trade-off; in particular, as the length of the estimation window increases, so does the amount of effort needed to manage the available data, but on the other hand, the robustness of the estimated model will increase too. In this case, the estimation window’s length was equal to 30 market days (i.e., from 32 to 2 market days before the focal event). However, we conducted other analyses changing with different estimation windows, but the results were not significantly different.

(b) Computation of abnormal returns: having estimated the coefficients’ alpha and beta values, it was possible to proceed to quantify the abnormal returns for each ESG rating update event. Since there were multiple observations (i.e., multiple events) for each security, it was necessary to perform the aggregation of the abnormal return observations across time (to get to the cumulative abnormal returns for each security). Then, it was possible to proceed with the aggregation across securities. This led to the computation of the Cumulated Average Abnormal Returns (CAARs) associated with each event typology, which were necessary to test the impact of the rating agencies’ announcements on the stocks’ prices.

4. Results

This section is devoted to the illustration of the results of the empirical analysis. Before explaining the results, it is essential to explain the criterion applied to interpret the output. The particularity of the applied model (based on Gretl) is that the interpretation of its results can be visualised through a graphical representation. Indeed, the outcome of the model is a graph composed of two fundamental elements:

- Two boundaries (the lower bound and the upper bound), which delimit the confidence region in which the event can be considered as not impacting;
- The CAAR, which, as previously explained in the previous section, represents the cumulated value of the abnormal returns through time and across securities.

To understand if an event can be considered relevant or not from a statistical viewpoint, the following rule is applied:

- An event is defined as impactful for the value of the companies if the CAAR exceeds one of the two confidence boundaries;

- On the contrary, an event is classified as irrelevant to the companies' values if the CAAR remains between the two confidence boundaries.

Now that we know how to interpret the graphs, we can move on to analysing the findings of the Event Study. In the following paragraphs, we will discuss the results for each hypothesis formulated at the end of paragraph 2.

4.1. The Upgrade Case

As depicted in Figure 1, both for MSCI and Refinitiv, the CAAR line in the 12-day interval remains well within the boundaries represented by the upper and lower bound lines. The only noticeable difference is that Refinitiv's CAAR tends to remain stable over time, while MSCI's upgrade response appears negative in the first few observation days. However, even in this case, the CAAR line does not exceed the lower confidence boundary. So, we can conclude that hypothesis I must be rejected.

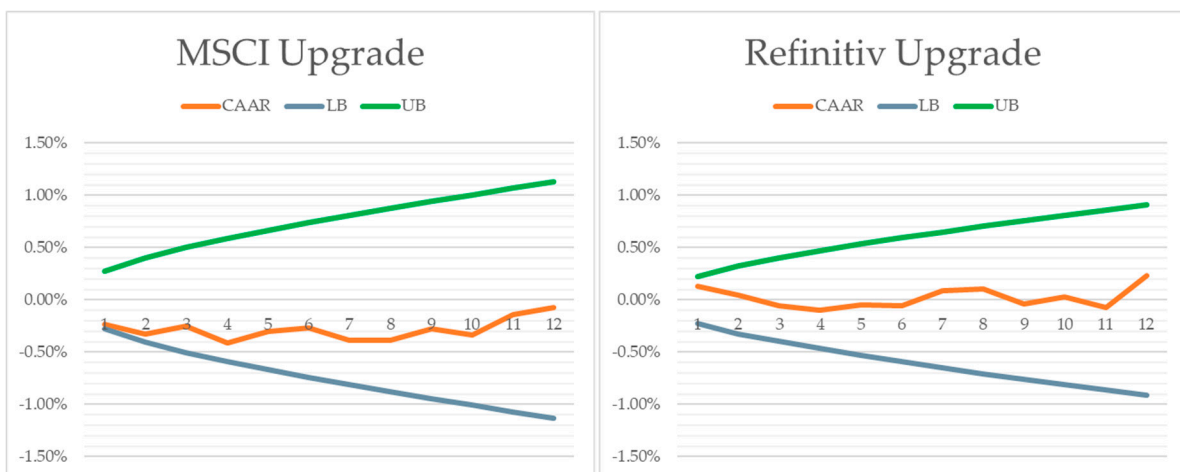


Figure 1. CAAR of companies for MSCI and Refinitiv upgrade.

4.2. The Downgrade Case

The analysis of the downgrade event shows that in both cases, the CAAR tends to remain stable over time for both rating providers (see Figure 2). However, the market's reaction to the MSCI announcement is slightly positive, unlike the observed trend in the upgrade case. It is worth noting that this correlation is not statistically significant. As for Refinitiv, the CAAR is more stable over time, with no specific trend observed, similar to the upgrade case. So, hypothesis II is also not confirmed by the empirical evidence.



Figure 2. CAAR of companies for MSCI and Refinitiv downgrade.

4.3. The Confirmation Case

Lastly, in the case of the confirmation of the ESG grade, it can be observed that there are no specific patterns in the fluctuation of the CAAR, as shown in Figure 3. The CAAR remains consistently within the confident region for both rating providers and does not even get close to the two boundaries. This result was predictable since, in this case, there is no perturbing event. So, hypothesis III is confirmed.

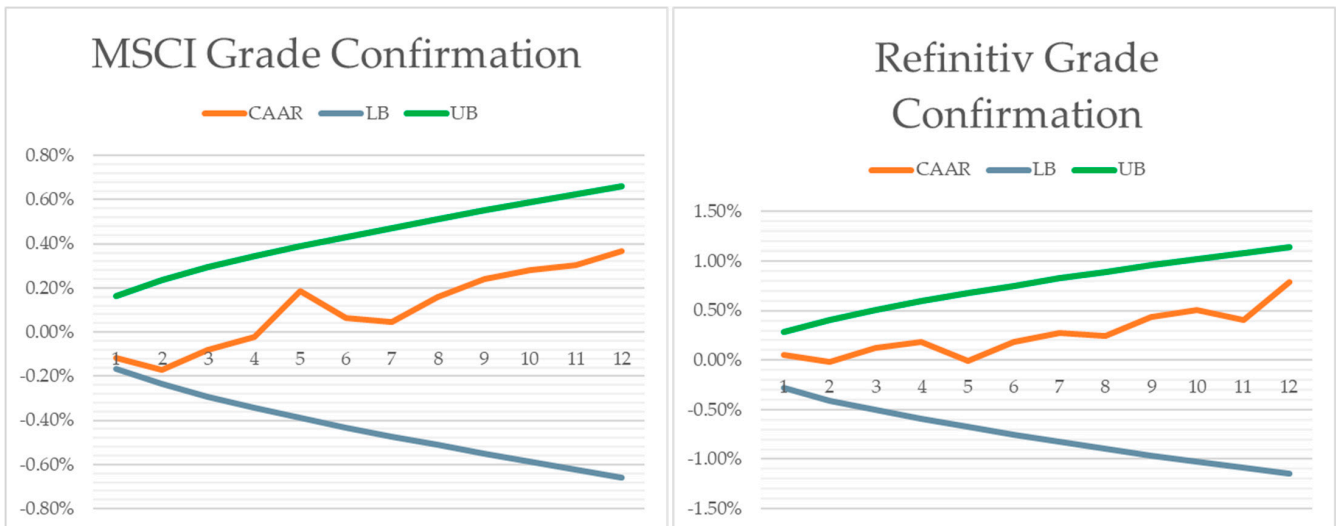


Figure 3. CAAR of companies in case MSCI and Refinitiv grade confirmation.

Since investors’ attention towards ESG investments has grown considerably in the last 5–7 years (as demonstrated by the significant growth of assets managed by institutional funds, for example—see Figure 4), we decided to analyse whether the reaction of financial markets to the assessments expressed by rating agencies had increased over time. For this reason, we separated the overall time interval into two sub-periods of 3 years, and we tested the three hypotheses on the two sub-periods. The results will be presented in the remaining part of this section: for better clarity, the analysis results for each rating agency will be shown separately.

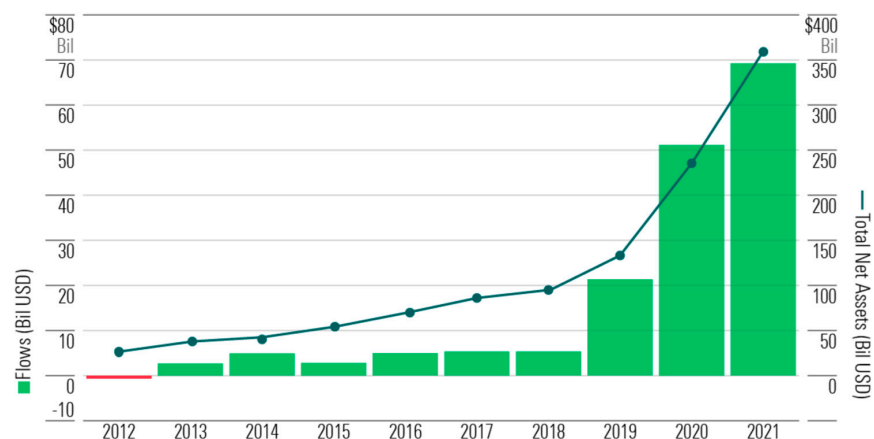


Figure 4. US sustainable funds annual flows and assets. Source: Morningstar.

Starting from MSCI, it can be observed that the CAAR does not exceed the upper or lower boundary both in the upgrade and downgrade cases. This indicates that a positive or negative change in the ESG rating does not significantly impact the market value of the analysed firms, as shown in Figures 4 and 5. It is important to note that the MSCI

downgrade case cannot be considered highly statistically relevant due to the limited number of events. A closer examination of the different events reveals that the CAAR for the upgrade case exhibits a similar trend in both periods, as illustrated in Figure 5.

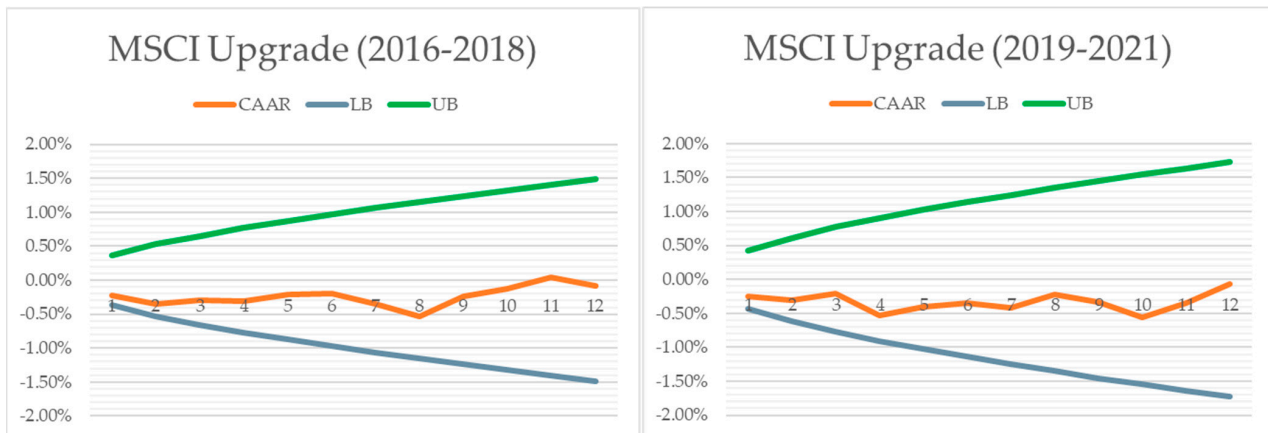


Figure 5. CAAR for MSCI upgrade, 2016–2018 vs. 2019–2021.

In the case of downgrades, the Cumulative Average Abnormal Returns (CAAR) line appears to be more “neutral” in the 2019–2021 time frame compared to the previous period. In the earlier period, we observed an unexpected increase in abnormal returns in the first few days, as shown in Figure 6.

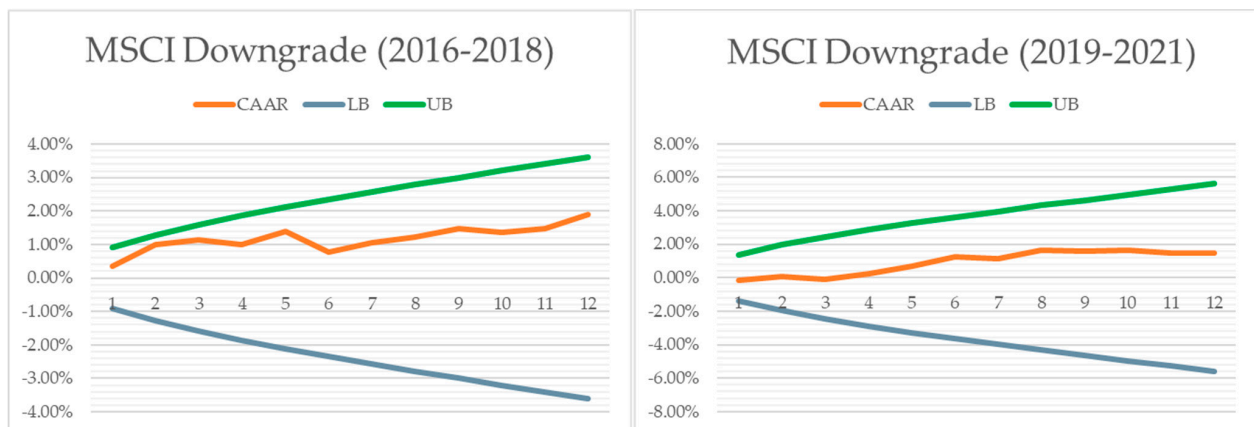


Figure 6. CAAR for MSCI downgrade, 2016–2018 vs. 2019–2021.

The grade confirmation case produces some unusual results compared to the other two types of events. Initially, the CAAR (Cumulative Average Abnormal Return) remains close to zero in the first interval (see Figure 7). However, after 2019, the CAAR is near the lower boundary in the first few market days, but then significantly increases in the following days, approaching the upper bound. It is challenging to explain this behaviour, since grade confirmation is a neutral event, and a more stable trend would be expected. However, also in this case, the CAAR does not exceed either the lower or the upper bound line, thus confirming the results obtained for the whole 2016–2021 period.

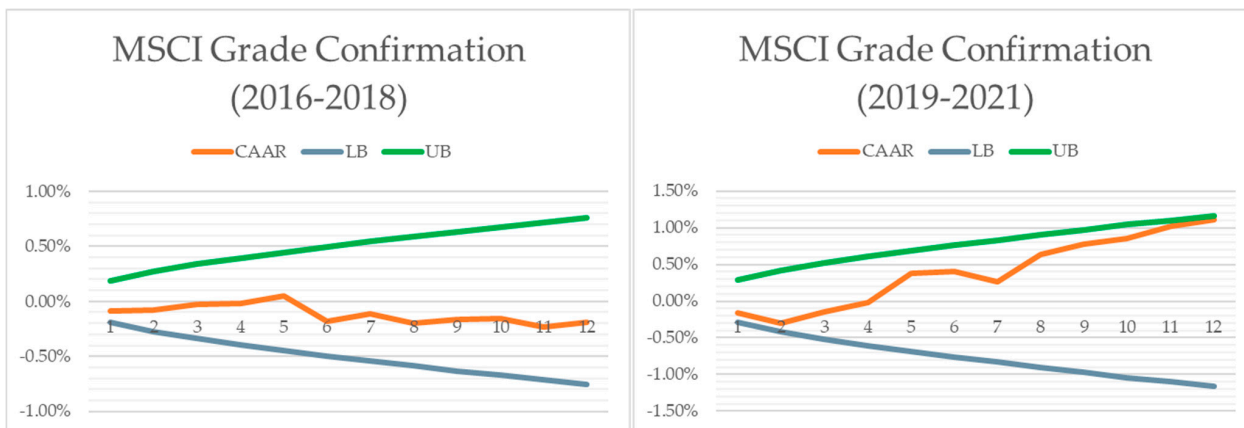


Figure 7. CAAR for MSCI grade confirmations, 2016–2018 vs. 2019–2021.

The analysis of Refinitiv data leads to the same conclusions as the analysis of MSCI data. In both the upgrade and downgrade cases, the CAAR remains within the boundaries for both time frames, confirming the results obtained for the entire time series. The same can be said about the confirmation case, although there are some differences when analysing the two periods. Specifically, in the 2019–2021 period, the upgrade case shows a more pronounced market reaction to the ESG grade updates. In Figure 8, while the CAAR remains consistently stable (around zero) in the first period, it shows a positive (although not statistically significant) trend in the second time frame.

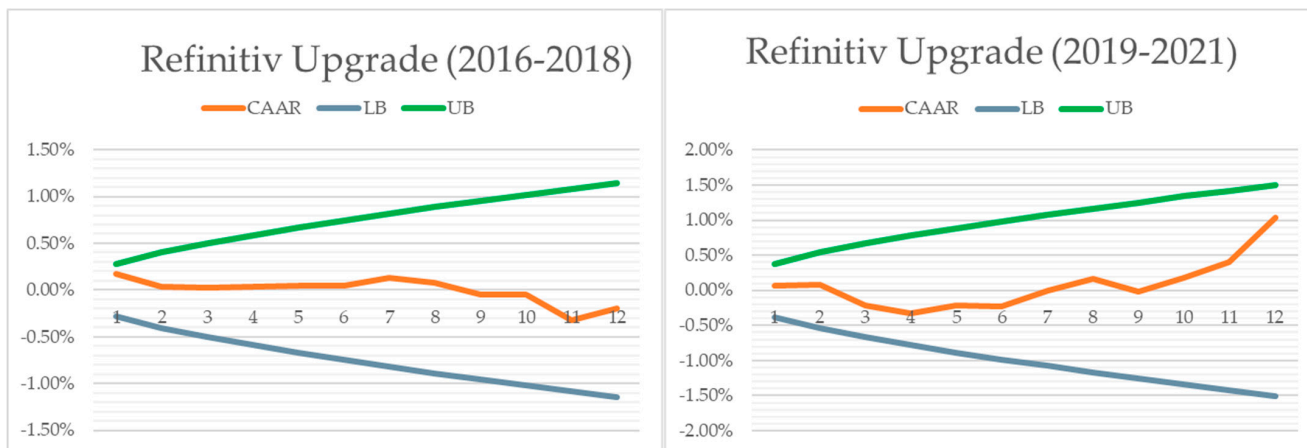


Figure 8. CAAR for Refinitiv upgrades, 2016–2018 vs. 2019–2021.

Unlike the upgrade case, the downgrade case presents contrasting results (see Figure 9). In the first time window, the CAAR was close to the lower bound, indicating a negative impact on the market value. This aligns with what one would expect intuitively. However, in the second time frame (2019–2021), this negative trend has not been confirmed as the CAAR remains in the central area of the confidence region throughout this period.

Finally, in the grade confirmation case (Figure 10), the results are similar to those obtained in the corresponding event in the MSCI analysis. The CAAR is characterised by a stable trend before 2019, but after this point, it shows an unexpected positive trend, moving in parallel to the upper bound.

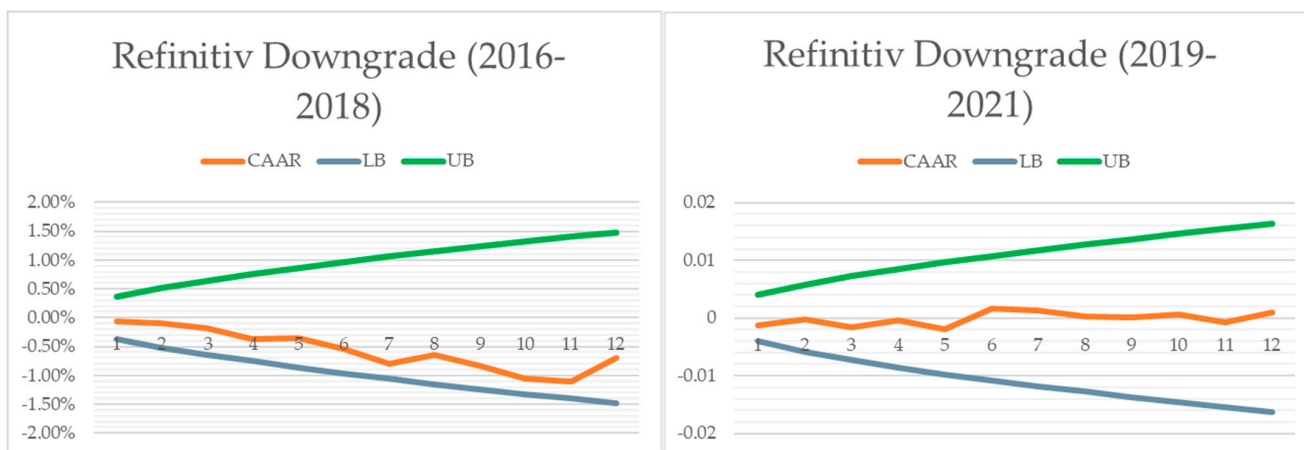


Figure 9. CAAR for Refinitiv downgrades, 2016–2018 vs. 2019–2021.

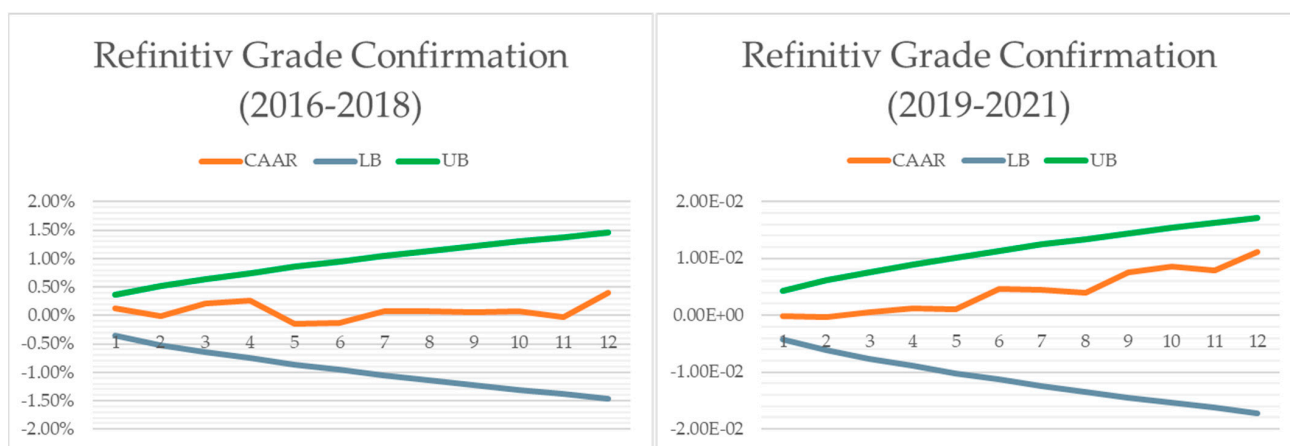


Figure 10. CAAR for Refinitiv grade confirmations, 2016–2018 vs. 2019–2021.

We are aware that the data from 2019–2021 may not be accurate due to the significant impact of COVID-19 on market values during 2020 and, to a lesser extent, in 2021. However, by splitting the time series into two sub-periods and analysing only the 2016–2018 period, we removed the distorting effects associated with COVID-19. Therefore, we can conclude that our findings remain valid even when excluding the COVID-19 period. For thoroughness, we also conducted the analysis for the 2016–2019 period (four years), and it led to the same conclusion (hypotheses I and II rejected, hypothesis III confirmed).

5. Discussion

The results of our study indicate that financial markets do not appear to give much weight to ESG ratings by MSCI and Refinitiv, at least in the short term. The regular reports released by these two major credit rating agencies do not significantly impact the stock prices of the analysed companies, regardless of whether they contain upgrades or downgrades. Additionally, there is no significant difference even when we divide the time frame into two sub-periods (2016–2018 and 2019–2021) and compare the market’s response. In both periods, there is no statistically significant correlation between changes in ESG performance and market price trends. This is somewhat unexpected given the increasing focus on sustainability issues, particularly ESG ratings, in recent years.

The results we have obtained seem to be in contrast with some of the most influential theories, such as the shareholder’s theory and the legitimacy theory. According to these theories, if sustainability is not appropriately managed, it is expected to create risks that will eventually negatively impact financial performance and sometimes put even the company’s

survival at risk. Therefore, we could expect that an improvement or deterioration in a company’s sustainability performance, as determined by ESG rating agencies, would affect its market value. Even if we assume that financial performance is not significantly affected, many scholars argue that effective management of ESG issues leads to a reduction in the cost of capital. This reduction in the cost of capital should, in turn, lead to an increase in market value, all else being equal.

The findings of our study are consistent with those found in part of the literature. One possible explanation may be the ESG divergence phenomenon highlighted by many scholars (Capizzi et al. 2021; Berg et al. 2022): the conflicting ratings given to a company by different agencies may disorient financial investors. The result may be that the evaluations provided by ESG rating agencies tend to be neglected. Or, at least, given this heterogeneity of approaches, financial investors (especially the largest ones) tend to base their decisions on multiple sources of information, thus being less “reactive” to this type of event (i.e., an upgrade/downgrade by one ESG rating agency). As a result, the market price of stocks is less “responsive” to upgrades/downgrades communicated by an ESG rating agency.

Another possible explanation is provided by Miyamoto (2016); in his study, the author found that the Japanese stock market sometimes reacted negatively to the upgrade of the credit rating of companies. In that case, the author explained this dynamic with the capacity of financial investors to anticipate the positive announcement of the change in the rating. According to the author, based on rumours on information gathered from other sources, financial investors purchased a quite relevant amount of shares of those companies in the days or weeks before the publication, selling them just after the occurrence of the event. This “massive” sale of shares led to a stock value depreciation. The same may also happen in the case of changes in the ESG grades: this may explain the slightly downward fluctuation of the CAAR in the first time buckets of the observation period (in case of an upgrade). Similarly, in case of an expected downgrading, financial investors may decide to short-sell stocks, causing a slight increase in the securities’ price after the event. To test the validity of the Miyamoto hypothesis, we replicated the empirical analysis, moving forward the time window by five and ten market days. Figure 11, for example, shows the results concerning MSCI in the second case (extension of five days of the time window: -7/+10). As can easily be noticed, there was no significant fluctuation in the CAAR in the days preceding the event (both for upgrade and downgrade cases).

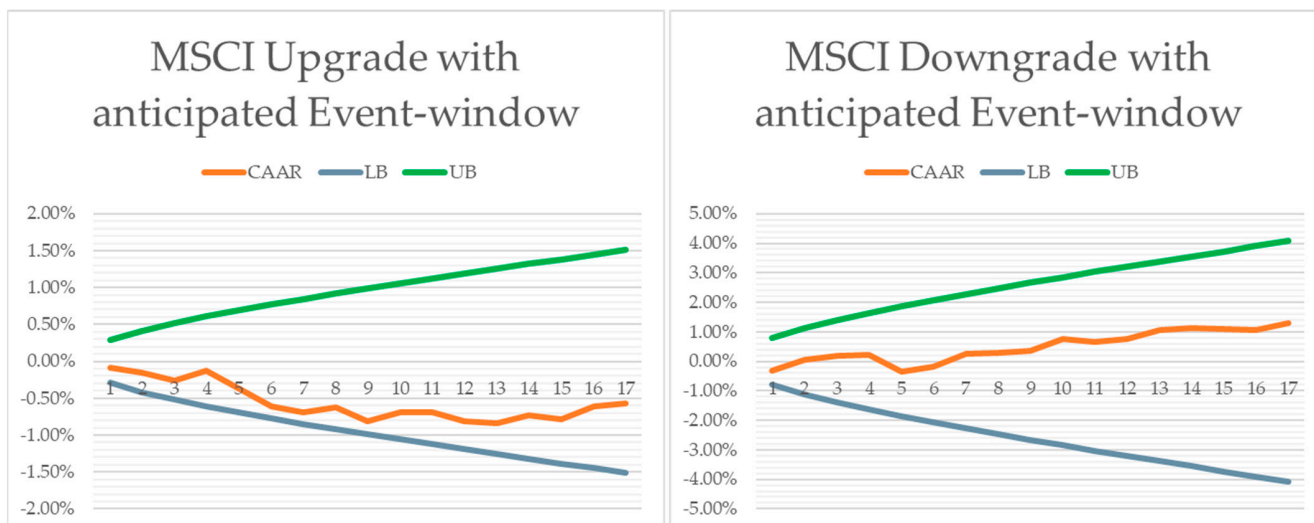


Figure 11. CAAR of MSCI upgrade and downgrade with anticipated event window.

So, Miyamoto’s explanation in this case seems invalid unless we assume that the rumours (about upgrading/downgrading) were already circulating in the financial environment even earlier.

A further explanation may be the low efficiency of financial markets; as stated in the “Materials and Methods” section, this is a fundamental assumption for this type of empirical study. In case of asymmetry of information or limitations to the free circulation of capital (as in case of entry or exit barriers), for example, the market price of a security may not be affected by this type of event (or, at least, not in a statistically relevant way).

Another possible explanation for this low responsiveness to ESG rating updates may be that ESG rating methodologies fail to capture the real strategic KPIs, i.e., those that drive superior financial performance in the long term, thus leading to higher shareholder value creation. As underlined by [Edmans \(2023\)](#), ESG factors can (or, better, should) be considered a particular category of intangible factors, which are of fundamental importance in determining a company’s success or failure (especially in the long term). However, intangible factors are complicated to measure (and then report), and often, there are different views on how to measure them (e.g., there is no standardised or common approach). This has two critical implications: firstly, there does not necessarily need to be an alignment between the various rating methodologies, as different subjects may have different views on which are the most relevant ESG factors in determining the long-term competitiveness of a business. But, in the same way, investors may also believe that the set of indicators used by rating agencies (or at least by some of them) to express a judgment on sustainability performance is not the most correct (and complete) from the perspective of value creation in the long term.

6. Conclusions

The main outcomes of this work are the following:

- The change in the ESG ratings issued by two major ESG rating agencies does not have a statistically significant impact on the market value of the analysed companies;
- There is no statistically significant change in the behavioural patterns of financial markets over time when comparing the results of the first three years of the time series with those of the last three.

These results pose some relevant questions about the value attributed by financial markets to the information provided by rating agencies. As analysed in the previous section, there might be different explanations for this empirical evidence. It is, therefore, worth delving deeper into the topic to see if the results of this empirical study are confirmed and, if so, to understand the underlying reasons.

In conclusion, it is important to highlight the main limitations and potential areas for improvement of this work. The first limitation is that the study only focused on two rating providers, MSCI and Refinitiv. It would be valuable to conduct a similar analysis using data from other significant rating agencies, such as Sustainalytics, Dow Jones Sustainability Index, or Bloomberg, to see if comparable results are achieved. Another potential area for further analysis would be determining whether financial market reactions become more statistically significant when ESG ratings from multiple agencies are aligned. This would help to gain a better understanding of the impact of the “ESG divergence” phenomenon.

Another limitation of this study is the relatively small sample size. Furthermore, a larger sample size may also allow for a breakdown by industries: it would be interesting to investigate if there are significant differences in the financial market behavioural patterns according to the industry in which the companies operate. Collecting a larger sample size would also allow for analysis across different countries or regions, to identify potential differences in patterns between (for example) North America, Europe, and Asia, as well as between emerging and developed countries (similarly to the study conducted by [Garcia and Orsato \(2020\)](#)).

A further limitation of this study is the relatively short time interval of six years. Extending the time series would lead to more reliable results. However, it is worth noting that financial markets have shown increasing interest in ESG ratings over the last decade, along with the growth of the “ESG finance” phenomenon.

Lastly, it is important to note that the results of the empirical analysis may have been affected by the impact of COVID-19 in 2020, and, to a lesser extent, in 2021. However, it is worth mentioning that when we conducted the empirical analysis using data only from the 2016–2019 period (excluding the pandemic period), the results we obtained were consistent with those obtained using the entire time series.

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