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Working Paper

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SAFE Working Paper, No. 410

Provided in Cooperation with:
Leibniz Institute for Financial Research SAFE

Suggested Citation: Latino, Carmelo (2023) : Surfing the green wave: What's in a "green" name change?, SAFE Working Paper, No. 410, Leibniz Institute for Financial Research SAFE, Frankfurt a. M.,
https://doi.org/10.2139/ssrn.4670504

This Version is available at:
https://hdl.handle.net/10419/280965

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SAFE Working Paper No. 410 | December 2023

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Surfing the Green Wave: What's in a "green" name change? *

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December 19, 2023

Abstract

This paper investigates stock market reaction to greenwashing by analyzing a new channel whereby companies change their names to green-related ones (i.e., names that evoke green and sustainable sentiments) to persuade the public that their activities are green. The findings reveal a striking positive stock price reaction to the announcement of corporate name changes to green-related names only for companies not involved in green activities at the time of the announcement. However, over an extended period of time, companies unrelated to green activities experience substantial negative abnormal returns if they fail to align their operational focus with the new name after the change.

Keywords: Corporate Social Responsibility, Sustainable Investments, Greenwashing, Corporate Name Change.

JEL Classification: M14, G24, G11

*The author gratefully acknowledge research and financial support from the Leibniz Institute for Financial Research SAFE, Frankfurt. The author is grateful for fruitful discussions with Loriana Pelizzon, Roberto Rigobon, Steven Ongena, Alexander Hillert, Sergey Sarkisyan (discussant), and Max Riedel, as well as to seminar and conference participants at NOVA Finance PhD Pitch Perfect 2022, International Conference on Computational and Financial Econometrics 2022, Central Bank Research Association (CEBRA) 2023, and the Yunus Social Business Centre Conference in Sustainable and Socially Responsible Finance 2023 . The usual disclaimer applies.

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1 Introduction

During the past few years, the wave of popularity of environmental, social, and governance (ESG) investments has been growing dramatically. As a consequence, many companies have begun to market themselves and their products as more environmentally friendly or more ecological. Some of these companies are indeed changing their core business to embrace a more sustainable way of production, while others are just surfing this green wave.

The intersection of two firm behaviors: poor environmental performance and positive communication about environmental performance is known as *greenwashing* (Delmas and Burbano, 2011). As sales shares of ecological products continue to increase, green marketing is now a widespread phenomenon supported by evidence on the positive and significant impact of customer's perception of eco-brand and their actual purchase behavior (see e.g., Rahbar and Wahid (2011) and Kim and Cha (2021)).

In this paper, I investigate a new channel whereby companies communicate their involvement in green activities through their most visible asset; the company name.

There exist multiple valid reasons for the enthusiasm of companies and investors alike to be associated with green and sustainable activities. According to a study by dentsu international and Microsoft Advertising[1], 88% of consumers globally say they will make sustainable purchases whenever possible and, as early as 2009, more than 75 percent of S&P 500 companies had website sections dedicated to disclosing their environmental and social policies and performance (Alves, 2009). However, the primary issue lies in the fact that many companies have minimal or nonexistent plans to incorporate sustainability, instead harnessing its influence to attract investors for their own benefit. The objective of this study is to understand the impact of a green-related name change and the potential effect of greenwashing through the corporate name change on stock prices. More specifically, I address three fundamental questions: (i) Do green-related name changes generate positive abnormal returns around the announcement day? (ii) Is this effect the same for companies not involved in green activities? (iii) Do non-green companies

[1]See: https://about.ads.microsoft.com/en-us/insights/g/the-rise-of-sustainable-mediag

engaging in green-related name changes experience negative abnormal returns in the absence of a corresponding adjustment in their operational activities?

I address these questions by first developing a list of terms that are associated with sustainable sentiments to identify green-related name changes. Conducting textual analysis on a dataset of 548 sustainability reports, I created a green dictionary comprising 22 words. Consequently, I study a set of 95 companies that, from January 2000 to December 2022, have announced the incorporation of a green-related term in their corporate name. Leveraging the text extracted from the business description section of SEC (US Securities and Exchange Commission) documents, I demonstrate that name-change announcements generate diverse effects depending on the involvement of these companies in green activities. Specifically, I contrast the effect of name changes in two groups: companies that were related to green activities prior to the announcement (Green sample), and companies that were not related to green activities prior to the announcement (non-Green sample). Within the non-green sample, two subgroups were identified for further analysis. The first subgroup, designated as the "Change" group, encompassed companies that after the name change implemented substantial adjustments to their business practices to align with their newly adopted green image. The second subgroup, referred to as the "Greenwashing" group, consists of companies that underwent a name change but whose involvement in sustainable activities remains blurred or minimal, thereby raising the potential concern of merely employing the name change as a superficial marketing tactic without a genuine commitment to environmental sustainability. In the first stage of the analysis, I test the effect of the name change in a short period of time using traditional event study methodology and a set of robustness tests. In the second stage, I study the effect of the rebranding over an extended period of time.

The paper contributes to the existing literature in two main ways. First, to the best of my knowledge, this is the first study that compares the valuation gains observed around green-related name changes. Some earlier studies document abnormal stock price increase around cryptocurrency-related name changes (Sharma and Paul (2021), Akyildirim et al.

(2020),Jain and Jain (2019)) and Internet-related name changes (Lee (2001) and Cooper et al. (2001)). The results of the present paper show that the effect of the announcement of green-related name changes alone produced substantial cumulative abnormal returns only for companies not associated with green activities prior to the announcement. These results are explained through the lens of signaling theory. As emphasized by Kot (2011), if a corporate name change does not signal any meaningful alterations in a company's future cash flows, investors will not react to such news.

While secondly, this paper contributes to the growing literature on green preferences and green indicators (Pástor et al. (2021), Berg et al. (2019), Cornell (2021)), greenwashing (Santos et al. (2023), Mateo-Márquez et al. (2022)) as well as the ongoing debates surrounding information asymmetry (Bajo and Raimondo (2017), Boulton and Campbell (2016)). The results show that investors interpret the name change of companies not primarily involved in green activities as a signal that they are about to enter a preferable market. It is worth noting that only the primary decision-makers within the organization possess accurate insights regarding the degree of the potential future integration of green activities or whether they will be integrated at all. The adoption of such behavior has given rise to significant information asymmetry and obscured the transparency of these corporations. Consequently, it becomes essential to conduct timely investigations into the genuine motives behind the decision to employ such behaviors.

When addressing greenwashing, it is crucial to recognize its inherent dual temporal dimension. The initial phase involves the implementation of greenwashing practices, while the subsequent phase focuses on the detection and recognition of such practices as greenwashing. This paper is the first to analyze both dimensions, offering several novel findings that are of significant interest to both investors and financial regulators. The results indicate that greenwashing is associated with high cumulative abnormal returns during the first phase. However, in the long run, the market is efficient in identifying greenwashing behaviors and promptly responds with negative reactions.

The paper is organized as follows. Section 2 reviews the past academic literature. Section 3 describes the data and the methodological approaches used for the empirical study. Section 4 presents a complete overview of the results. Finally, Section 5 concludes.

2 Literature Review

Previous studies have already examined the impact of a name change on stock returns. For instance, Karpoff and Rankine (1994) and Kashmiri and Mahajan (2009) analyze the effect of the announcement of a name change on stock prices and find that companies changing their names earn a statistically insignificant excess return around the announcement date. Josev et al. (2004), using a dataset of corporate name changes from 1995 to 1999 in Australia, find evidence of negative abnormal returns around the date of the announcement. On the other side, Kot (2011), using a sample of Hong Kong listed firms, spanning from 1999 to 2008, finds evidence of price reactions around the announcement date associated with changes motivated by a merger or acquisition, a restructuring, or a change in business type. The existing literature seems to be mixed. However, prior research suggests a consensus in cases where a new name incorporates a trending topic or captures market mania. The ".com" (Cooper et al., 2001) and the "blockchain" (Akyildirim et al., 2020) effect provides the best example for this study. In particular, Cooper et al. (2001) found that companies that changed their names to ".com" names over the period from 1999 and 2001 earned a significant cumulative abnormal return of the order of 74 percent for the 10 days surrounding the announcement day. Lee (2001) uses a market signaling perspective to link name changes to shareholder reactions and show that when name changes are accompanied by other strategies, the signaling value is greater, and corresponds to greater increases in stock price and trading volume. Accordingly, firms that change their names to proactively communicate a change in their scope of business (i.e., a future change in their product portfolio or geographical markets), are also rewarded more than firms that change their names to retroactively align their names with a new scope (Kashmiri and Mahajan, 2015). The present paper contributes to

this strand of literature by finding evidence that a green-related name is not associated with a market mania. Companies engaging in a green-related name earn positive and significant cumulative abnormal returns only if they were not involved in green activities prior to the announcement date.

While the literature on name changes is mature, literature on the effect of greenwashing on corporate value is instead in its infancy. This is because greenwashing is not easy to spot and most of the time it goes unnoticed. Delmas and Burbano (2011) examine the drivers of greenwashing and identify the limited and imperfect information about firm environmental performance, as well as the uncertainty about regulatory punishment, as the main contributors to greenwashing. Previous studies focus mainly on the particularities of greenwashing without deepening the financial implications and effects on stock returns (see e.g., Gregory (2021), Chen (2008), and Lyon and Maxwell (2011)). An interesting empirical result is provided by Du (2015). By using the list of firms with greenwashing provided by a famous Chinese newspaper, the author documents market reactions to the exposure of greenwashing. In particular, the author finds that greenwashing is significantly negatively associated with cumulative abnormal returns (CAR) around the exposure of greenwashing. Testa et al. (2018) use a large sample of publicly traded companies from 58 countries and 19 industries and show that it does not pay to be a greenwasher. Similarly, De Jong et al. (2018) support the understanding that greenwashing offers limited benefits in terms of perceived environmental performance while posing a significant threat in terms of perceived integrity. All previous studies examine corporate communication strategies in order to uncover cases of greenwashing. To solve the problem of data, the present paper adds to the literature around greenwashing by using a unique experiment whereby companies adopt green names to deceptively persuade the public that their main activities are environmentally friendly. This approach is more convenient in detecting and studying greenwashing for two primary reasons: (i) the company's name, unlike its communication strategy, cannot go unnoticed, thus ensuring that all stakeholders are aware of the practice, and (ii) it enables the analysis of greenwashing within the framework of its dual temporal dimensions. I am not aware

of any studies relating corporate name changes and greenwashing activities whereby the first dimension is tested through the market response to a corporate name change (greenwashing implementation) and the second one on a longer-term market response (greenwashing detection).

3 Data & Methodology

Green-related names To develop the database to test the research propositions, I began by searching for all possible words that can be associated with sustainability feelings. Previous research has already studied and developed green dictionaries. For instance, Loughran et al. (2009) search for ethics-related terms applying only some keywords. Verbeeten et al. (2016) develop a list of 32 keywords based on Global Reporting Initiative (GRI) framework. More recently, Baier et al. (2020) create a word list by actively judging the words of a sample. However, existing dictionaries are not appropriate for this study due to bigrams and complex words. Hence, to identify an appropriate list of green words, I first obtained all sustainability reports published by the constituents of the S&P500 index from 2014 through 2022. This resulted in a sample of 548 Sustainability reports from 366 companies. Words included in my green dictionary were chosen by actively judging the 1000 most used words cited at least by 2 companies belonging to different industries[2]. The final green dictionary includes 22 words and is illustrated in Figure 1. In this figure, the size of each word depends on the frequency of times it appears in sustainability reports. Examples of green-related names encompass terms such as "sustainability," "water," "green," "climate," and "environmental".

Corporate name changes My sample consists of all publicly traded companies that changed their names into green-related ones between January 2000 and June 2022 in the US. I first used Bloomberg to obtain the list of all corporate name changes that occurred during the time frame under analysis. Therefore, I searched for company name changes

[2]A more detailed illustration of the procedure used to identify the green words dictionary is available in the Appendix A

incorporating terms from the green dictionary.

Table 1 shows some examples of green-related name changes. The change can occur by either altering a company's name entirely, as in the case of *Nanosensors* which became *Green Zebra International* in 2019, or by adding a green word to the previous name, as in the case of *Whitewing Labs* which, in 2002, changed its name in *Whitewing Environmental*. To avoid confusion and misinterpretations, companies that changed their name from green to another green name, as in the case of *Modern Renewable Technologies*, which changed its name to *Eco Ventures Group* in 2011, were excluded from the final sample. Finally, I also excluded all those cases when the new name incorporates a green word but it is not related to sustainability[3], or it is used to denote the cannabis industry. This resulted in an initial sample of 287 companies. Figure 2a illustrates the number of companies that changed their names divided by green-related words. As the figure shows, from 2000 to 2022, 73 US companies changed their name to incorporate the word "green". Other popular green-related words for name change are "water", "solar", "environment" and "clean". Only a few companies adopted words like "recycle", "emissions", "impact" and "transition" in the new name. In Figure 2b, the number of firms engaging in a green-related name change is divided by the year of the announcement. Interestingly, the majority of green-related name changes happened in 2010, while only 4 green-related name changes happened in 2022. Except for the period from 2008 to 2010, the number of green-related name changes exhibits a uniform distribution across the years.

I use Refinitiv and Factset[4] to identify contaminating events that may have occurred near the event window period. The screening of the initial sample is illustrated in Table 2. As illustrated in the table, from an initial sample of 287 companies, 58 companies were first eliminated because underwent a recent merger and acquisition. Furthermore, 85 companies were deleted from the final sample because experienced other contaminating news such as earning announcements, new stock issuance, stock splits, and so forth. Finally, I excluded 49 companies because of scarce or no market data available. The

[3]For example in 2017, Discount Coupons included the word "eco" into its name becoming Ecom Products Group. However, the term "eco" is used to denote "e-commerce" rather than "ecology."

[4]The FactSet News application features real-time news headlines from all news sources with options to customize the results and search historical news.

final sample includes 95 companies and is reported in Appendix B.

The Green and non-Green Samples US companies are required to describe the activities they are involved in their SEC documentation, specifically in their annual reports (Form 10-K) and quarterly reports (Form 10-Q). More precisely, in the "Business" section (Part I, Item 1) of Form 10-K, companies provide detailed information about the company's business operations, including its products or services, markets, and strategic initiatives. Companies may also discuss their research and development activities, intellectual property, regulatory environment, and any significant risks or uncertainties they face (SEC, Office of Investor Education & Advocacy, 2011). I use this documentation because is legally binding and companies cannot provide false information about their core operations.

The SEC Edgar Downloader was employed to obtain the 10-K filings of all companies during the year preceding their name change. This tool is a Python package designed to retrieve various types of company filings from the SEC Edgar database. By specifying the timeframe surrounding the name change and utilizing a list of ISINs of companies in the final sample, the tool enables the retrieval of the desired filings[5]. Through this process, I downloaded 10-K statements to subfolders based on the originating company. Hence, I executed a Python script to loop through each 10-K file to extract sentences from Part I, Item 1 of the selected documents[6].

Subsequently, I inspected these sentences of the documents to check if the buzzword to be included in the new name is consistent with the business activities and product offerings before the name change. Surprisingly, I found that only 31 companies changed their name to really reflect their business activities while the remaining 64 companies had nothing to do with green activities before the name change. Subsequently, as reported in Table 2, companies in the final sample are categorized into two distinct samples: "Green" and "non-Green".

[5]Sec-Edgar-Downloader, https://sec-edgar-downloader.readthedocs.io/

[6]In cases in which the 10-K Form was not available in Edgar, I relied either on the 10-Q Form or alternative sources such as Factset News.

Finally, to test whether the non-Green companies, changed their core business after the name change, I use the 10-K forms issued by companies in the non-Green sample the first and second year after the name change and carefully examine the business description part[7]. Therefore, I further divided the sample into two subgroups. If the documentation released after the name change reports any amendment in the business activities or product offering that reflects the new name adopted, it will be included in the "Change" sample.

Consequently, out of a total of 64 companies, 29 companies were found to have changed their name to better align with the new business area they entered into. A remaining set of 35 firms was identified as lacking any new information in the form pertaining to their business activities or how their operations had been altered following the name change. These companies are therefore classified as engaging in *greenwashing* practices and constitute the "Greenwashing" sample. This process is illustrated in Figure 3. As the figure shows, firms are firstly categorized as either Green or non-Green companies using information obtained from the 10-K forms released prior to the name change announcement. In the second step, non-Green companies are further categorized into "Change" and "Greenwashing" based on business description information retrieved from 10-K forms released the year after the name change.

For instance, in 2006, Radiant Technology, a company specializing in the development, manufacturing, and servicing of precise thermal processing systems primarily used by electronic component manufacturers, allegedly changed its name to Greenbridge Technology. This name change occurred despite the fact that environmental initiatives were not their main focus or primary business area. A better illustration is offered by American Lorain Corp which in 2018 changed its name to Planet Green Holdings Corp. When comparing the 10k-Form issued by the company before the announcement [8] and the documentation released after the name change[9] it is clear that the primary business, the product or service offered has not changed. This company will be therefore included

[7]In cases where the 10-K documents were not accessible for companies following the name change, 10-Q documents and publicly available information obtained from the Internet was utilized instead.

[8]see: https://www.sec.gov/Archives/edgar/data/1117057/000106299318001699/form10k.htm

[9]see: https://www.sec.gov/Archives/edgar/data/1117057/000106299319001730/form10k.htm

in the greenwashing sample.

Stock prices adjusted for dividends and stock splits are collected from DATASTREAM. The announcement date is retrieved from Bloomberg. For 15 companies, I have found news about the name change on the Internet that is dated before the announcement date in Bloomberg. In these cases, I have used the first available information that has been made available to the market.

Event-study Methodology In order to examine the reaction of investors to the name change, I use the event-study methodology. The assumption behind this methodology is that capital markets are sufficiently efficient to evaluate the impact of the name changes. Abnormal returns are an unbiased estimate of firm value change as they provide a measure of the abnormal or unexpected movement in the stock price that can be attributed to the name change, after accounting for the normal market factors that affect the stock price. Abnormal returns are equal to the difference between the stock's actual return and its expected return ($AR_{it} = R_{it} - \mathbf{E}(R_{it})$). I estimate $\mathbf{E}(R_{it})$ using three prominent methodologies: the Fama–French three-factor model (Fama and French, 1992), the Carhart model (Carhart, 1997) and the constant mean model. The use of multiple expected returns models provides some assurance that the averaged cumulative abnormal return (CAAR) estimates are not the result of standard asset pricing anomalies.

The Fama and French model assumes a linear relationship between three risk factors: the excess return on the market, the size of firms, and the book-to-market values, while the Carhart model adds a fourth factor to take into account the momentum effect described in Jegadeesh and Titman (1993). All factors have been downloaded from Kenneth French's website[10]. The constant mean model assumes that historical patterns repeat themselves and therefore the expected return for a stock could be calculated as the average return over a previous period of time (examples of studies that have used the constant mean model include Mann and Dowen (1997), and Thomsen and McKenzie (2001)).

[10] $https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html$

Abnormal returns for firm i at time t are therefore calculated as follows:

$$AR_{3FF_{it}} = R_{it} - \hat{\beta}_0 - \hat{\beta}_1 R_{Mt} - \hat{\beta}_2 SMB_t - \hat{\beta}_3 HML_t \tag{1}$$

$$AR_{CARHART_{it}} = R_{it} - \hat{\beta}_0 - \hat{\beta}_1 R_{Mt} - \hat{\beta}_2 SMB_t - \hat{\beta}_3 HML_t - \hat{\beta}_4 MoM_t \tag{2}$$

$$AR_{HMM_{it}} = R_{it} - \overline{R_{i_{(-280,-30)}}} \tag{3}$$

where R_{Mt} is the market risk, SMB is the outperformance of small versus big companies, HML is the outperformance of high book/market versus small book/market companies, and MoM is the momentum factor.

The estimation window goes from 280 to 30 days prior to the announcement date of the name change. The same period is used to calculate the average returns for the constant mean model ($\overline{R_{i_{(-280,-30)}}}$).

For N being the number of companies in each sample, the average abnormal returns (AAR_t) at each instant t within the event window is computed as:

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it}$$

Finally, I calculate cumulated abnormal returns (CAR) and averaged cumulated abnormal returns ($CAAR$) for different time windows j. CAR and $CAAR$ are therefore calculated as follows:

$$CAR_i(T_1, T_2) = \sum_{j=T_1}^{T_2} AR_{it} \qquad CAAR(T_1, T_2) = \sum_{j=T_1}^{T_2} AAR_t$$

Parametric and non-parametric event study methodology Unlike parametric event study methodology which assumes a normal distribution of the data, a

non-parametric event study methodology does not require any specific distribution assumptions. As noted by Lee (2001), companies changing their names are often thinly traded and, therefore, characterized by numerous zero and large non-zero returns. Hence, the normal distribution assumption is violated and traditional test statistics are not well specified (Cowan and Sergeant, 1996). Therefore, as a robustness test, I challenge the results obtained from the parametric T-test by utilizing a non-parametric test. This approach aims to assess the consistency and reliability of the findings using alternative statistical methods that do not rely on specific distributional assumptions. The non-parametric test implemented is the generalized sign test (Cowan, 1992). This test examines whether the number of stocks with positive CARs exceeds the number expected in the absence of abnormal performance (Lee, 2001).

4 Results

4.1 Green-relate name changes and market reaction

In this section, I analyze the effect of green-related name changes, investigating whether they generate positive abnormal returns around the announcement day. The analysis aims to compare and contrast the results based on the level of environmental involvement exhibited by companies prior to the announcement.

The main results are presented in Table 3. CAARs are reported for the three methodologies implemented and for 7 different event windows. The event windows considered are [-10;10], [-3;-3], [-2;2], [-1;1], [0;2], [0;10] and [-5;30], where 0 represents the day of the announcement of the name change. The results are divided into Green and non-Green samples. For illustrative purposes, the CAARs computed considering the entire sample are also included. CAARs in bold signal statistical significance determined by the generalized sign test at least at 10% level.

First, there is consistency across the three different methodologies involved. The green name effect is positive and significant for small event windows around the announcement day. However, the results for the green and non-green companies, reveal that the effect of

the green-related name change strongly varies across firms depending on their involvement in green activities on the day of the announcement.

Over the three-day period from the day before to the day after the announcement, companies having green activities as core business earned an insignificant CAAR, while companies not involved in green activities earned a significant CAAR of 20%, which is significant both to a parametric and non-parametric test. The same pattern is also observed for the event windows [-2,2] and [0,2], while CAARs of larger event windows ([-10;10], [-3;-3], [0;10] and [-5;30]) are marginally or not statistically significant, suggesting that the effect is transitory and centered around the announcement.

INSERT TABLE 3 HERE

Compared to previous event studies, the magnitude of the returns earned from companies not related to green activities during the announcement is higher and is similar to the one observed by Cooper et al. (2001) during the dot-com bubble. These results, however, may be driven by the high variability in the data. Indeed, the presence of outliers can have a disproportionate impact on the results of parametric statistical tests and may obscure the different reactions of the market to the name change of the two firms' categories. To address this issue, I create an outlier-adjusted sample, as a robustness test, including all sample firms except those that fall in the top 10% or bottom 10% in terms of the cumulative abnormal return generated over the period of 1 day surrounding the announcement date, similarly to Sharma and Paul (2021). Results are reported in Table 4 and confirm that overall the market reacted positively to the announcement of the green name change only for non-Green companies. Over the three-day event window $[-1, 1]$, non-Green companies earn a strongly statistically significant cumulative abnormal return of 12% percent. Again, the significance of the results is confirmed by conducting both a t-test and a generalized sign test. The analysis clearly emphasizes how companies in the green sample did not exhibit any significant reaction to the announcement.

INSERT TABLE 4 HERE

Because differences in market response could be driven by other firms' characteristics, it is important to test if these results hold when controlling for other firms' characteristics. For instance, when comparing the valuation effects of name change announcements, the presence of a substantial disparity in market capitalization between the two samples could potentially complicate the analysis. That is, new information can have a significant positive impact on the stock prices of tiny firms with limited investor interest (Cooper et al., 2001). To test if the overreaction of non-Green companies is not driven by other motives, the following cross-section regression is implemented:

$$CAR_i[-2,2] = \beta_0 + \beta_1 D_{nonGreen_i} + \beta_n X_{n,i} + \epsilon \tag{4}$$

The dependent variable is the cumulative abnormal return (CAR) of both the entire and the outlier-adjusted sample estimated by the Carhart model over the 5-day event period encompassing the announcement date (-2,2). The variable of interest is the dummy $D_{nonGreen_{it}}$, which is equal to 1 if the company i belongs to the non-Green sample and zero otherwise. The control variables used in the analysis include the natural logarithm of the average company market value denominated in dollars and the natural logarithm of the years a company has been trading (on the day of the announcement day). This may be an important factor as older companies may have established reputations and customer bases that could influence their performance.

The findings presented in Table 5 demonstrate that non-green companies exhibited statistically significant CARs, with a notable difference of about 25% compared to the green companies. The results remain marginally significant using the outlier-adjusted sample. Overall, both the market value and the seniority of the companies do not have a significant effect on the CARs.

INSERT TABLE 5 HERE

To assess the evolution of the CARs for green and non-green companies over time, in Figure 4 I report the estimated CARs of the Green sample (green line) and non-Green

sample (in red) for the event period $[-10, 30]$. Abnormal returns are calculated using the Carhart model and are outlier-adjusted.

INSERT FIGURE 4 HERE

Notably, the corporate name change had a positive impact on stock prices only for companies not involved in green activities and this effect remains permanent at least for the next 30 days after the announcement date. Overall, the market overreaction for non-Green companies aligns with the principles of signaling theory, offering an explanation for the observed patterns. In fact, name changes are a costly signaling mechanism that entails tangible costs, such as expenses related to advertising and publicity, along with intangible costs associated with relinquishing an established name that has already garnered reputation and goodwill among customers' perceptions (Kashmiri and Mahajan, 2015). Investors interpreted the name change of companies unrelated to green activities as a signal that these firms were poised to enter a new, desirable market.

4.2 Greenwashing and short-term reaction

In this section, I delve into the examination of the stock price response following the name change of non-Green companies. The objective is to investigate whether these companies genuinely alter their activities or product offerings subsequent to the name change. In doing so, I study the first temporal dimension of greenwashing, that is when it is implemented. Hence, after dividing the non-Green sample into the two subsamples "Change" and "Greenwashing", as described in Section 3 and illustrated in Figure 3, I proceed with conducting the analysis specifically for these subsamples. I focus on the same event windows used in Section 4.1 and apply the same methodology. The results of this analysis are shown in Table 6. For small event windows ([-3,3], [-2,2], [-1,1] and [0,2]), CAARs of companies undertaking a genuine green-name change are not different from CAARs earned by companies that deceptively try to persuade the public that their main activities are environmentally friendly. Specifically, during the three-day period

surrounding the name change ($CAAR[-1,1]$), greenwashing and genuine companies earn a statistically significant CAAR of 18% and 22%, respectively. Results are consistent regardless of the model used.

INSERT TABLE 6 HERE

This suggests that market participants may have not grasped the significance of the signal communicated by these companies' actions. Although the robustness test reported in Table 7 and performed using the outlier-adjusting sample (built by excluding those companies of both samples that fall in the top 90% or bottom 10%) suggests that the CAAR earned in the [-1,1] event window are extremely higher for greenwashing companies, the results for the other small event window remain very similar.

INSERT TABLE 7 HERE

Interestingly, it seems that the effect of the name change on abnormal returns is less persistent for greenwashing companies. This pattern is clear when considering event windows ranging from 5 days before to 30 days after and from 0 to 10 days after the announcement date. In this case, the CAARs of the Change sample exhibit positive and remarkably high values, although never significant. In contrast, the greenwashing sample demonstrates negative CAARs, albeit not statistically significant.

Figure 5a plots the cumulative average abnormal returns of the outlier-adjusted sample calculated using the Carhart model for the -10 to +30 days period. Companies not involved in green activities that engage in a green-related name change earn statistically significant CARs on the first days of the announcement, irrespective of whether the change is genuinely motivated by a future change or is merely a form of greenwashing.

INSERT FIGURE 5 HERE

To further investigate the evolution of CARs of the three categories (green, change, and greenwashing) over time, in Figure 5b I plot the estimated CAARs over an extended event window spanning from 35 trading days preceding the name change announcement to 100 days following it.

The figure clearly depicts that after the announcement, companies in the greenwashing sample observed positive CARs during the initial days. However, over time, they persistently encounter negative CARs values. This indicates that the initial enthusiastic and positive market response to their announcement gradually diminishes, leading to negative CARs in the subsequent period. On the other hand, on average, CARs of green companies and non-Green companies signaling a real change converge towards zero after the 100-day period.

4.3 Greenwashing and long-term reaction

In this section, I switch the focus to the effect of the green-related name change over an extended period of time. The underlying purpose of this analysis is to examine the notion that investors, interpreting a company's announcement of a name change as a signal that the company is about to enter into a more desirable business, would subsequently divest their investments upon realizing that the company's actions did not align with the expected changes. In doing so, I examine the second time dimension of greenwashing, which refers to the period when it is uncovered.

A control group is used for a more comprehensive assessment of the sustained effects of the green-related name change beyond immediate outcomes. Unlike Sharma and Paul (2021) and Akyildirim et al. (2020), who measured the treatment effect by comparing the impact of the name change on a sample of companies that also changed their names, I use a different approach to find a proper control sample. First, using a sample of companies that changed their names limits the matching power. This is due to the difficulty of finding a properly matched firm for any company in the sample that changed the name in the same period to a non-green-related name. Indeed, two companies may have a similar market value but operate in different sectors, making the comparison inappropriate. Moreover, the meaning of the name being adopted by the control group could produce problematic results. Second, I ultimately focus on the implications of the corporate decision to be associated with green activities, which makes my control

group a better fit. Hence, I match each of the 95 firms that changed their name with a control group of companies that share similar characteristics but did not change the name during the period considered. In doing so, I obtain the full list of companies trading in the US from Refinitiv and for each company with a green-related name, I identify all other companies in the same industry that do not have a green-related name. The closest peer is found using the 1:1 nearest neighbor matching (Szekér and Vathy-Fogarassy, 2020) based on revenue, age, market value, and financial leverage (calculated as the ratio between total debt and total equity). By using these variables in the NN algorithm, the control group is selected based on how closely their characteristics match those of the treatment group, thus reducing the potential for confounding variables that could affect the results of the study and assuring that the matched firm is involved in the same business activity of the treated. The matching results are shown in Figure 6. The box plots clearly depict the average and distribution of market capitalization (in millions of USD), seniority (number of years a company has been trading), revenue (in millions of USD), and financial leverage of companies involved in a green-related name (in green) and their respective matches (in red). This figure ensures that the two samples are similar enough that any differences in outcomes are not driven by underlying firm characteristics.

As treatment events in my panel data are staggered throughout the sample period, the implementation of the canonical 2×2 difference-in-differences approach with two time periods and two groups cannot be implemented. Therefore, I rely on the procedure proposed by Baker et al. (2022). For each treatment date – that is, the date on which a company announces a green-related name change, I define an event window with a length of ± 10 months around the event. This event window is sufficient to capture the impact of the name change over an extended period while being concise enough to exclude unrelated and contaminating events that may affect stock returns [11]. Thus, each event window can be regarded as an individual, event-specific 2×2 data set, encompassing companies that either are treated or can serve as potential controls (Pelizzon et al., 2023). All matched

[11] This confidence in the event period is rooted in the nature of the analysis, where greenwashing occurs through the company's most publicly visible asset, i.e. its name, making it an appropriate and practical window for detection

companies linked to the relevant treatment period are labeled as a cohort. This cohort variable acts as an identifier for the event-specific 2×2 data sets. Finally, these matched companies cohorts are *stacked* to create the final dataset for analysis.

To examine the effect of the adoption of a green-related name, I start with computing abnormal returns. I use monthly stock excess returns in order to estimate loadings on risk factors from 24-month rolling-window regressions. Then, I obtain abnormal returns using the Carhart (1997) four-factor model in the following month by applying the estimated beta coefficients from the first step. Information on monthly risk factors is downloaded from Kenneth French's website.

Next, I proceed with the analysis by estimating the following panel regressions for each sample group (greenwashing, green and change):

$$AR_{i,t} = \alpha_{ic} + \alpha_{tc} + \gamma_1 NC_{ic} \cdot Post_{itc} + \gamma_2 X_{itc} + \epsilon_{i,t} \tag{5}$$

where $AR_{i,t}$ is the stock i's rolling four-factor abnormal return in month t that belongs to cohort c. $Treat$ is a dummy equal to 1 if stock i belongs to the treatment group and $Post$ is a dummy that denotes the period after the name change. To control for thinly traded stocks, the natural logarithms of the volume of trades and market value are included in the regression as control variables. α_{ic} and α_{tc} are firm-cohort and day-cohort fixed effects, respectively. To reduce the effect of outliers, each month I winsor the dependent and independent variables (except for the dummies) at the 1st and 99th percentiles. The results are reported in Table 8. In the first column, the findings for the greenwashing sample indicate that companies that adopt a green name without altering their activities experience a monthly highly significant negative abnormal return of approximately 10% compared to companies that do not change their names. Conversely, in the second column, companies already engaged in green activities and, in the third column, companies that modify their business activities following the name change do not exhibit abnormal returns statistically different from zero in the 10-month period after the announcement date. Moreover, it seems the volume has a higher impact on the abnormal returns of companies in the *greenwashing* group, suggesting that thinly

traded stocks earned lower abnormal returns. In summary, this result suggests that over an extended time period, the adoption of a green name by a company can lead to negative abnormal returns if the new name does not accurately reflect the company's genuine green credentials. This implies that investors and the market are efficient in perceiving inconsistencies or greenwashing practices when there is a discrepancy between the company's name and its actual environmentally friendly practices.

To further explore the preposition above, building on Equation 5, the following panel regression is implemented to compare the changes in abnormal returns following the announcement of the name change for the three different categories:

$$AR_{i,t} = \alpha_{ic} + \alpha_{tc} + \gamma_1 NC_{ic} \cdot Post_{itc} + \gamma_2 Greenwashing_{ic} \cdot NC_{ic} \cdot Post_{itc} + \gamma_3 X_{itc} + \epsilon_{i,t} \tag{6}$$

Where $Greenwashing$ is a dummy used to identify companies belonging to the greenwashing group. The inclusion of the variable $Greenwashing_{ic} \cdot NC_{ic} \cdot Post_{itc}$ allows to differentiate the effect of the introduction of a green-related name for genuine and greenwashing purposes. Results are reported in the last column of Table 8. This analysis confirms a significant negative treatment effect of the order of 7.8% associated with greenwashing. Conversely, the coefficient γ_1, representing the treatment effects without greenwashing, is negligible and statistically insignificant, suggesting that the observed treatment effect is specific to firms involved in greenwashing.

Upon a company's name change without concurrent changes in behavior or practices, the market initially exhibits a fleeting enthusiasm, but it promptly and efficiently responds with negative reactions.

4.3.1 Further Evidence and Robustness

In the following, I summarize the findings of additional analyses and robustness exercises. First, I affirm the robustness of the main findings with respect to different event windows. Therefore I implement Equation 5 for 9 additional windows. Specifically, I consider shorter window length (±6, ±7, ±8, ±9 months) and larger window length

(±11, ±12, ±13, ±14 and ±15) compared to the benchmark specification. Regression results, summarized in Table 9, remain both qualitatively and quantitatively similar to the benchmark specification. Abnormal returns of the greenwashing sample are negative and highly significant across all examined event periods (Panel A). In contrast, companies within the green and change samples show no statistically significant deviation from zero in their abnormal returns across all time frames studied (Panels B and C).

Finally, I address the potential concern that the observed treatment's negative effect on greenwashing may be affected by the choice of the control group. In doing so, for each firm in the *greenwashing* sample, I match a firm that is involved in a green-related name change for genuine reasons, either from the *change* or the *green* sample. In this way, I am able to estimate the effect of greenwashing after getting rid of the effect of the green-related name change. To ensure the robustness of this analysis I require that the green-related name change announcement for the control firms must occur within a three-month period prior to or after the announcement made by the treated companies. As a result, there are 20 greenwashing companies and 13 matched control firms in this study. This analysis is close in spirit to the approach of Akyildirim et al. (2020), who matched firms engaging in blockchain-related name changes with companies involved in other types of name changes. Hence, the following panel regression is implemented:

$$AR_{i,t} = \alpha_{ic} + \alpha_{tc} + \gamma_1 Greenwashing \cdot NC_{ic} \cdot Post_{itc} + \gamma_2 X_{itc} + \epsilon_{i,t} \tag{7}$$

Again, α_{ic} and α_{tc} are respectively firm-cohort and day-cohort fixed effects. The coefficient of interest is γ_1 which encompasses the impact of engaging in a green-related name change for greenwashing purposes. As for the benchmark specification, the event window is defined as the period of ±10 months around the announcement. In column (i) of Table 10, I implemented Equation 7. Here results suggest that greenwashing companies earn a monthly negative abnormal return of 5.65% after the name change, which is significant at 5%. However, because treatment and control groups have been matched solely on the date of their announcement, it is important to control for further stock characteristics. In column (ii) I therefore included the logarithms of market

value and trading volume along with the financial leverage as controls. Results remain quantitatively the same, as companies engaged in greenwashing continue to show monthly negative abnormal returns, which remain significant at the 10% level.

5 Conclusion

This paper examines a novel avenue through which the adoption of a green name can impact investor behavior, offering empirical evidence on the financial implications of greenwashing practices manifested through corporate name changes. The findings indicate that companies including a green word in their names earn statistically significant cumulative abnormal returns of approximately 15% during the one-day period surrounding the announcement. However, this holds true only for companies that were not previously engaged in any green activities prior to the announcement. Indeed, the announcement of the corporate name change does not affect the prices of companies already engaged in green activities. The results demonstrate robustness against the presence of outliers, cross-sectional characteristics, and standard asset pricing factors. These findings can be interpreted through the lens of signaling theory. For companies not involved in green activities, the inclusion of sustainability-related words can signal a new commitment toward the environment while for green companies the name change does not add further information. In addition, I show that non-green companies that went through a real change in their business activities and product offerings following the announcement of the name change experienced similar cumulative abnormal returns during the announcement of the name change than companies engaging in greenwashing. This proves that investors were unable to spot the deceptive practice in the immediate period of the name announcement.

However, when considering an extended period of time, it is shown that companies that adopted a green name without changing their core business earn monthly abnormal returns that are around 10% lower after the name change, compared to a control group. This effect could be driven by the loss of trust of shareholders in the true "greenness"

of the firm. Results imply that greenwashing provides a non-permanent positive effect on stock prices which vanishes as soon as greenwashing is spotted, highlighting its high-risk, low-return nature, as it may generate short-term gains but ultimately erodes trust and credibility. The findings of this study have practical implications for market participants and regulators. The results indicate that investors should approach with caution when considering investments in companies that announce a green-related name change, especially in the case of companies that are not related to green activities. There is a compelling rationale for equity market regulators to establish a formal policy aimed at curbing the use of deceptive or misleading corporate names. Such a policy would help protect investors from potential misrepresentation and ensure transparency and integrity in the marketplace.

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List of Figures

Figure 1: Green dictionary. This dictionary contains words that, included in a corporate name, are likely to evoke sustainable feelings in investors. The list has been obtained by actively judging the most cited words of sustainability reports issued by the constituents of the S&P500 from 2014 to 2022. The size of each word depends on the frequency of times it appears in sustainability reports.

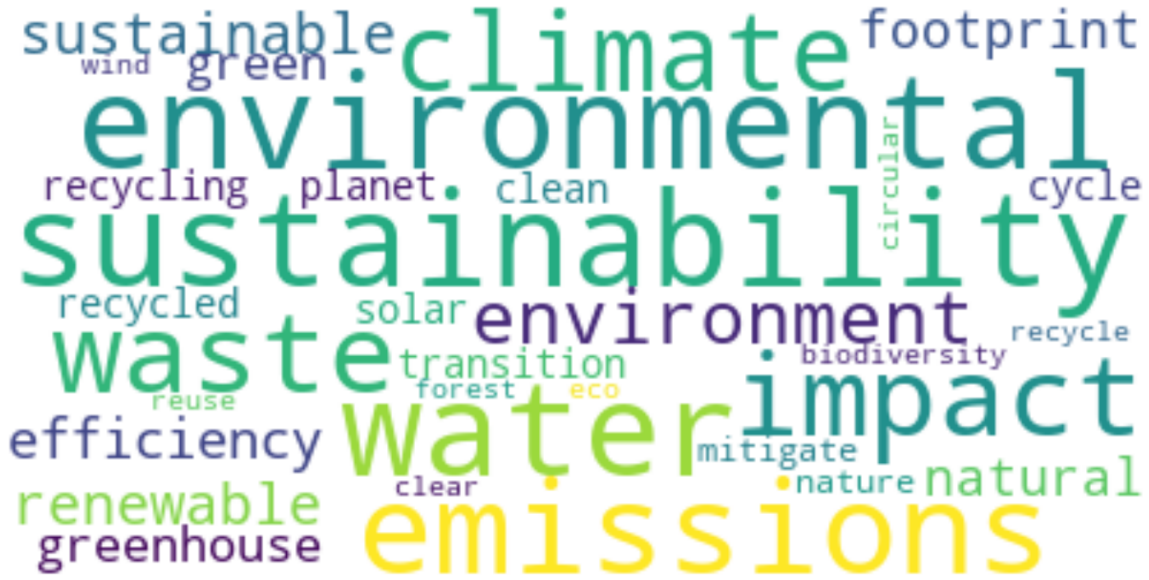
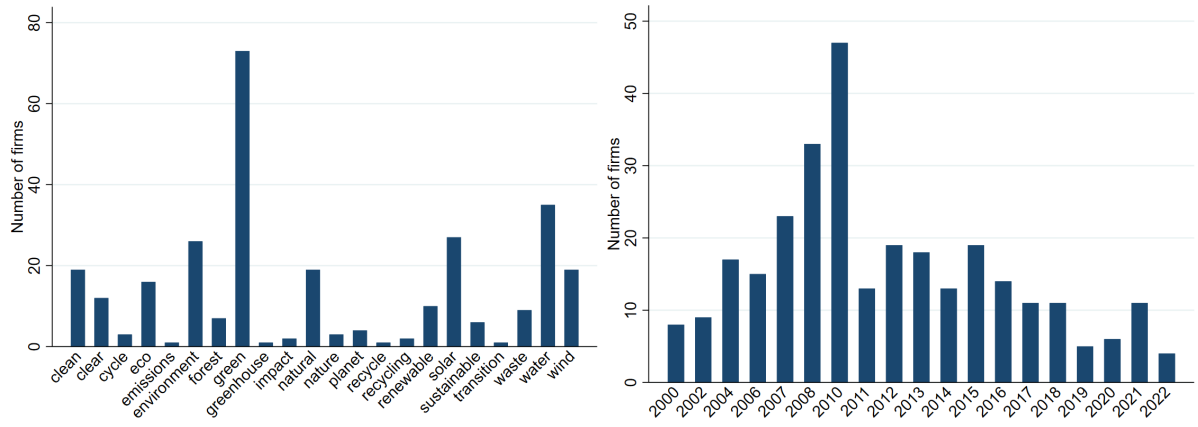


Figure 2: Adoption of a green name. Panel A illustrates the number of firms that changed their name to a green-related name from 2000 to 2022 in the US divided by the green word used. Panel B illustrates the number of firms that changed their name to a green-related name from 2000 to 2022 in the US divided by the year of the announcement date.



(a) Panel A

(b) Panel B

Figure 3: Categorization of firms pre- and post-name change announcement. The table presents the classification of firms within the sample, depicting their categorization before and after the announcement of name changes. In the initial step, the firms are classified into Green and non-Green companies based on the information obtained from the 10-K forms released prior to the name change announcement. Subsequently, in the second step, the 10-K forms released after the name change are scrutinized to identify variations in the level of involvement of these firms in environmentally sustainable activities.

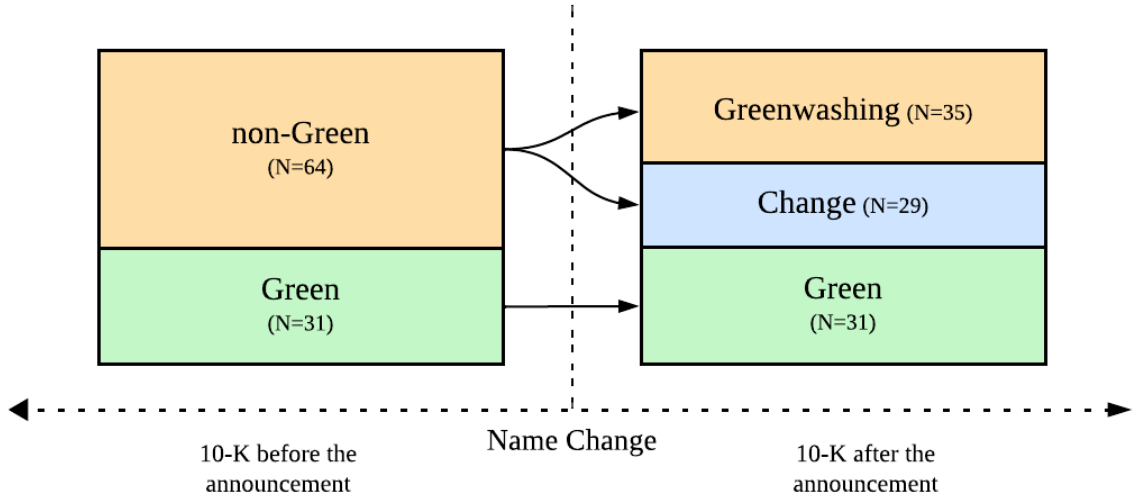


Figure 4: Cumulative Averaged Abnormal Returns (CAAR). This figure plots the averaged cumulative abnormal returns of the outlier-adjusted sample earned around the announcement date by firms involved in a green-related name change, dividing green companies (green line), and non-Green companies (red). The event window is defined as the period that goes from -10 to +30 days after the name change announcement. Abnormal Returns are calculated using the Carhart model.

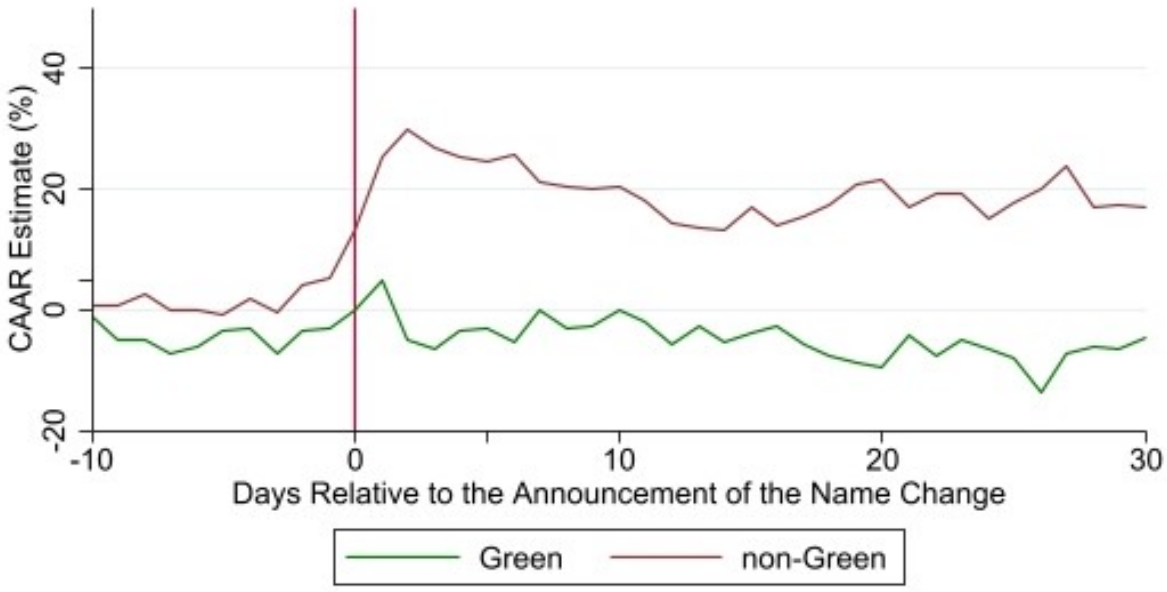
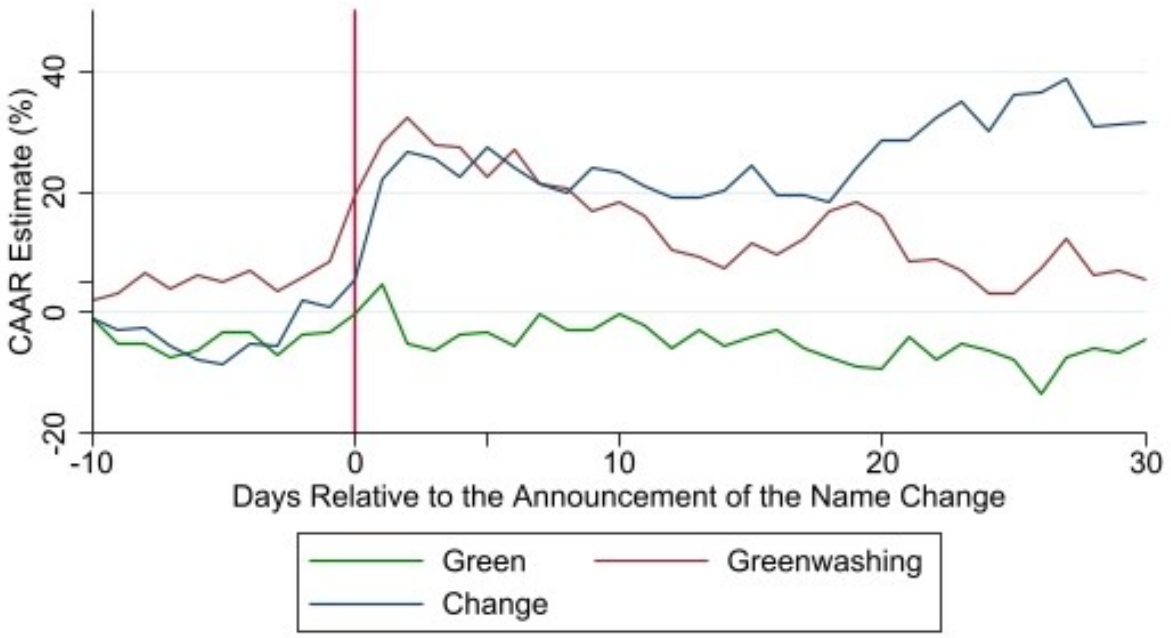
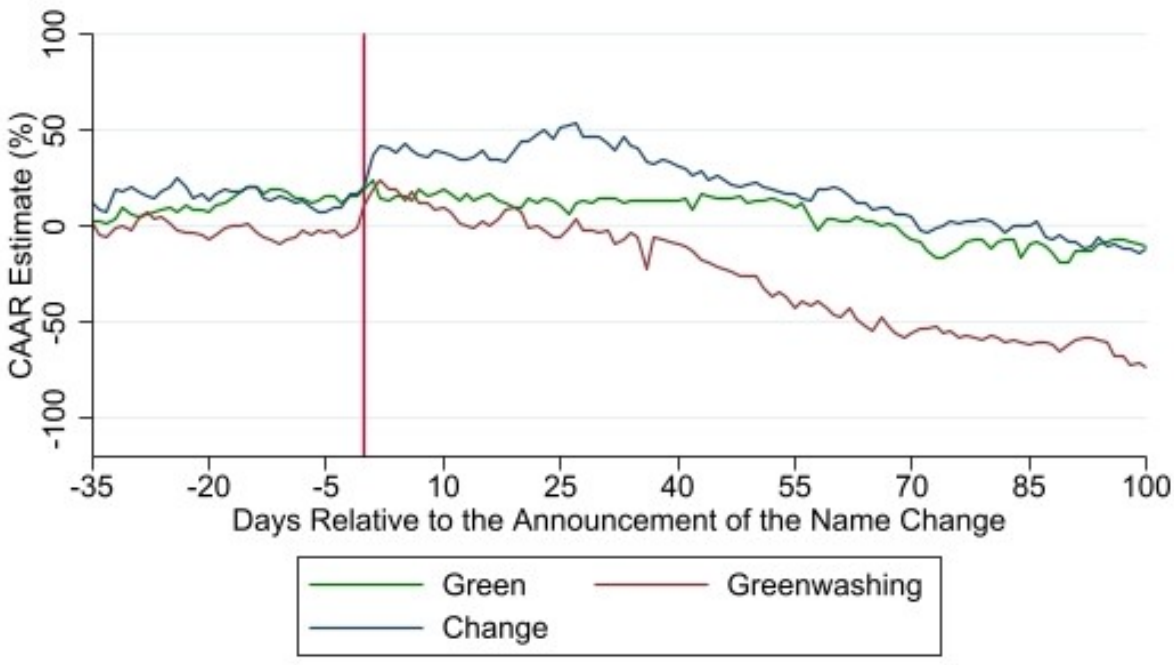


Figure 5: Cumulative Averaged Abnormal Returns (CAAR). The two figures plot the estimated CAARs of the outlier-adjusted sample earned around the announcement date by firms involved in a green-related name change, dividing green companies (green line), companies underwent a real change in their business activities after the name change (blue line) and greenwashing companies (red line). Panel A shows the results for the event window of -20 to +50 days from the name change announcement, while Panel B illustrates the results for the event window of -50 to +120 days. The Abnormal Returns are calculated using the Carhart model.



(a) Panel A



(b) Panel B

Figure 6: Results of the matching. This figure compares the distribution and central tendency of market capitalization (in millions of dollars), age (expressed in years), revenues (in millions of dollars), and leverage of companies that adopted a green-related name ("Name-Change" - on the right of each box) with their respective matched peer that did not adopt a green-related name ("Matched" - on the left of each box).

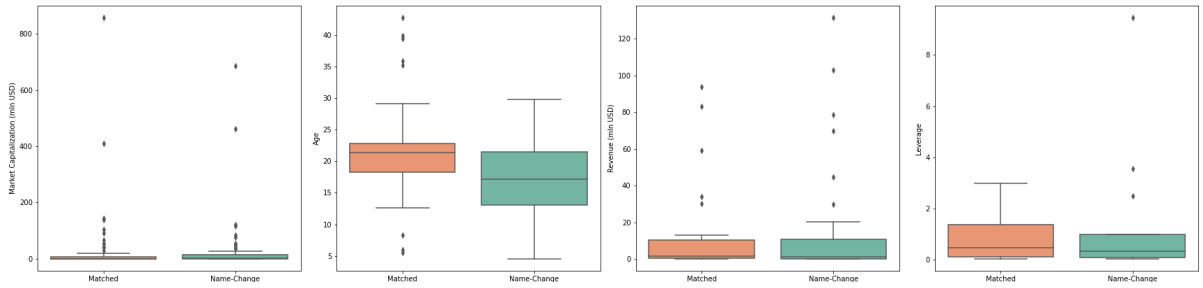


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Table 1: Example of name changes. The new name has to contain words that evoke sustainable feelings.

Announce Date	Old Company Name	New Company Name	Word
13/05/2002	Benton Oil And Gas	Harvest Natural Resources	Natural
09/05/2002	American Career Centers	American Water Star	Water
30/05/2002	Whitewing Labs	Whitewing Environmental	Environment
29/01/2019	Nanosensors	Green Zebra International	Green
11/04/2008	360 Interchange	Ecosolutions International	Eco

Table 2: Screening of the initial sample. This Table shows the screening performed in order to obtain an uncontaminated sample of companies. The final sample consists of 102 companies of which 25 are pure green companies, i.e. merely involved in green activities, and 77 are not.

Initial Number of Firms	287
Recent M&A	58
Contaminating news	85
Without trading data or delisted after the name change	49
Final sample	95
Green	31
non-Green	64

Table 3: Green-relate name changes and market reaction. This table reports the average cumulative abnormal returns (CAAR) expressed in percentages obtained using the Carhart model, the Fama-French 3 factors, and the constant mean model. For each model, the table reports the results divided by categories. The categories are: *All*: contains all the 95 companies that changed their name to a green-related name, *Green*: is a subsample of the previous and includes the 31 companies purely involved in green activities, and *non-Green* includes the 64 companies that have changed their name to a green-related name but do not have a green activity as core business. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Bolded CAAR values are statistically significant at a level of significance of at least 10%, as determined by the generalized sign test (Cowan, 1992).

		[-10;10]	[-3;-3]	[-2;2]	[-1;1]	[0;2]	[0;10]	[-5;30]
Carhart								
	All	14,03*	-3,11*	**19,17*** **	**15,08*** **	**14,44*** **	9,24	14,9
	Green	5,11	-4,97**	-2,17	3,86	-5,27	-0,6	15,22
	non-Geen	18,36	-2,21	**29,5*** **	**20,51*** **	**23,98*** **	14*	14,74
3-Factors								
	All	15,02*	-2,85	**19,61*** **	**15,42*** **	**14,62*** **	9,55	14,93
	Green	6,8	-4,7*	-1,84	**3,97**	-5,09	-0,13	16,06
	non-Geen	19	-1,95	**30*** **	**20,97*** **	**24,16*** **	14,25*	14,39
Const. Mean								
	All	14,82*	-1,17	**18,57*** **	**15,35*** **	**14,4*** **	9,43*	15,21
	Green	5,7	-3,91*	-0,38	4,02	-3,96	**-1,94**	14,39
	non-Geen	19,24*	0,15	**27,75*** **	**20,83*** **	**23,29*** **	14,94*	15,61

Table 4: Outlier adjusted sample. The outlier-adjusted sample comprises all sample firms except those that fall in the top 90% or bottom 10% in terms of the cumulative abnormal returns generated over the period from Day 1 to Day 1. The categories are: *All*: contains the 81 companies that changed their name to a green-related name, *Green*: is a subsample of the previous and includes the 23 companies purely involved in green activities, and *non-Green* includes the 56 companies that have changed their name to a green-related name but do not have a green activity as core business. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Bolded CAAR values are statistically significant at a level of significance of at least 10%, as determined by the generalized sign test (Cowan, 1992).

		[-10;10]	**[-3;-3]**	**[-2;2]**	**[-1;1]**	**[0;2]**	**[0;10]**	**[-5;30]**
Carhart								
	All	9,06	-1,86	**16,29*** **	**9,76*** **	**11,04*** **	4,61	7,1
	Green	-0,13	-3,69*	2,46	4,77	-0,84	2,92	15,17
	non-Geen	13,33	-1,14	**23,92*** **	**12,91*** **	**18,48*** **	7,32	6,69
3-Factors								
	All	10,43	-1,55	**16,7*** **	**9,97*** **	11,18***	5,11	6,75
	Green	1,97	-3,45*	2,81	**4,79**	-0,54	3,98	15,23
	non-Geen	14,25	-0,86	**24,27*** **	**13,09*** **	18,53***	7,69	5,56
Const. Mean								
	All	10,25	0,6	**14,87*** **	**9,81*** **	10,7***	5,05	8,91
	Green	0,04	-1,93	2,9	4,87	0,12	1,93	14,41
	non-Geen	14,53	1,58	**21,25*** **	**12,69*** **	**17,35*** **	8,39	8,41

Table 5: The overreaction of non-Green companies. This table reports estimate coefficients of the cross-section regression specified in equation 4.1 using both the entire sample and the outlier-adjusted cumulative abnormal returns (in percentage) estimated using the Carhart model over 2 days day around the announcement of the name change. The variable of interest is $non - Green$ which captures the name change market overreaction for the non-Green sample over the green sample. $MarketValue$ is the logarithm of the average daily market capitalization (dollar-denominated). Age is the logarithm of the years a company has been traded. Robust standard errors (HAC) are in parentheses. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively

	CAR[-2,2]	CAR[-2,2] outlier-adjusted
$nonGreen$	25.80**	19.72*
	(12.08)	(11.40)
Age	0.749	-3.581
	(6.870)	(7.057)
$MarketValue$	-3.495	-0.970
	(3.008)	(2.498)
$Constant$	1.431	28.80
	(52.77)	(53.32)
Observations	95	81
R-squared	0.041	0.026

Table 6: Short-term effect of Greenwashing. This table reports the average cumulative abnormal returns (CAAR) expressed in percentages obtained using the Carhart model, the Fama-French 3 factors, and the constant mean model. For each model, the table reports the results divided by categories. The categories are *Greenwashing* which includes the non-Green 35 companies that did not change their activities after the name change, and *Change* includes the 29 non-Green companies that have changed their business after the name change. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Bolded CAAR values are statistically significant at a level of significance of at least 10%, as determined by the generalized sign test (Cowan, 1992).

		[-10;10]	[-3;-3]	[-2;2]	[-1;1]	[0;2]	[0;10]	[-5;30]
Carhart								
	Change	18,47	-0,56	30,08***	**18,5*** **	23,75***	18,92*	33,3
	Greenwashing	18,26	-3,57	**29,01*** **	**22,18*** **	**24,18*** **	9,92	-0,64
3-Factors								
	Change	20,69	-0,82	31,01***	**18,89*** **	23,99***	19,89*	32,07
	Greenwashing	17,6	-2,89	**29,17*** **	22,69***	**24,3*** **	9,57	-0,26*
Const. Mean								
	Change	23,89	0,29	30,49***	**19,53*** **	22,83***	21,69**	35,56
	Greenwashing	15,39	0,04	**25,48*** **	21,91***	**23,66*** **	9,36	-0,93

Table 7: Outlier adjusted sample. The outlier-adjusted sample comprises all sample firms except those that fall in the top 90% or bottom 10% in terms of the cumulative abnormal returns generated over the period from Day 1 to Day 1. The categories are *Greenwashing* which is a subsample of the previous and includes the 27 companies purely involved in green activities, and *Change* includes the 23 companies that have changed their name to a green-related name but do not have a green activity as core business. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively. Bolded CAAR values are statistically significant at a level of significance of at least 10%, as determined by the generalized sign test (Cowan, 1992).

		[-10;10]	[-3;-3]	[-2;2]	[-1;1]	[0;2]	[0;10]	[-5;30]
Carhart								
	Change	11,65	0,85	**25,65*** **	**9,08**	17,48***	7,55	29,79
	Greenwashing	27,56	-2,94	**29,25*** **	**21,02*** **	**24,14*** **	18,97	6,72
3-Factors								
	Change	16,35	0,6	26,73***	**9,35**	18,02***	9,59	30,11
	Greenwashing	24,15	-2,47	**28,68*** **	20,8***	23,63***	16,31	3,81
Const. Mean								
	Change	19,63	0,47	25,36***	**9,93**	16,02**	11,28	**33,25**
	Greenwashing	21,85	1,65	**23,1*** **	19,36***	22,47***	15,03	5,34

Table 8: Green-related name change in the long run. The first three columns report the results of the monthly panel regressions of the 10-month event study on the effect of adopting a green-related name for each subset (greenwashing, green and change), as formalized in Equation 5. The last column shows the result of Equation 6 using the entire sample. The dependent variable ($AR_{i,t}$) is the monthly four-factor abnormal return computed using 24-month rolling-window regressions. NC is a dummy that equals one if a company is involved in a green-related name and zero otherwise. Post is the 10-month post-treatment dummy. The variable greenwashing is a dummy that identifies greenwashing companies. Each month, both dependent and independent variables (except for the dummies) undergo winsorization at the 1% and 99% levels. Standard errors are clustered by cohort and month cohort. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively

	Abnormal Returns			
	Greenwashing	**Green**	**Change**	**All**
$NC \cdot Post$	-10.09***	1.24	-2.60	-1.03
	(2.99)	(2.59)	(4.96)	(2.51)
$NC \cdot Greenwashing \cdot Post$	–	–	–	-7.80**
	–	–	–	(3.89)
$MarketValue$	0.15	-0.60	-1.03	-0.64
	(0.82)	(0.67)	(1.03)	(0.50)
$Volume$	0.92***	-0.15	0.41	0.44*
	(0.32)	(0.44)	(0.50)	(0.23)
Observations	1,200	1,134	794	3,128
R-squared	0.56	0.71	0.58	0.61
F-Stat	6.841	0.293	1.436	4.647

Table 9: Greenwashing in the long run (robustness). This table reports the results of Equation 6 for different event windows. The dependent variable ($AR_{i,t}$) is the monthly four-factor abnormal return computed using 24-month rolling-window regressions. NC is a dummy that equals one if a company is involved in a green-related name and zero otherwise. $Post$ is the post-treatment dummy. Each month, both dependent and independent variables (except for the dummies) undergo winsorization at the 1% and 99% levels. Standard errors are clustered by cohort and month cohort. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively

Panel A: Greenwashing

	[-6,6]	[-7,7]	[-8,8]	[-9,9]	[-11,11]	[-12,12]	[-13,13]	[-14,14]	[-15,15]
$NC \cdot Post$	-11.84**	-11.91***	-10.34***	-11.31***	-9.52***	-8.52***	-7.78***	-7.59***	-8.31***
	(4.34)	(3.95)	(3.32)	(3.35)	(3.06)	(2.83)	(2.63)	(2.59)	(2.51)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	744	860	974	1,088	1,316	1,430	1,542	1,654	1,766
R-squared	0.55	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56

Panel B: Green

	[-6,6]	[-7,7]	[-8,8]	[-9,9]	[-11,11]	[-12,12]	[-13,13]	[-14,14]	[-15,15]
$NC \cdot Post$	-0.40	0.05	0.80	1.42	0.30	0.47	0.89	0.02	-0.14
	(3.16)	(3.16)	(3.06)	(2.57)	(2.31)	(1.94)	(1.45)	(1.55)	(1.63)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	706	812	918	1,026	1,242	1,350	1,456	1,562	1,668
R-squared	0.69	0.72	0.71	0.71	0.71	0.72	0.72	0.72	0.70

Panel C: Change

	[-6,6]	[-7,7]	[-8,8]	[-9,9]	[-11,11]	[-12,12]	[-13,13]	[-14,14]	[-15,15]
$NC \cdot Post$	-4.60	-5.28	-3.81	-2.16	-3.03	-0.00	-0.79	-0.75	-1.08
	(5.56)	(5.00)	(5.21)	(4.96)	(4.88)	(4.43)	(4.36)	(4.31)	(4.18)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	488	564	642	718	870	946	1,020	1,094	1,168
R-squared	0.58	0.59	0.59	0.59	0.57	0.58	0.57	0.57	0.57

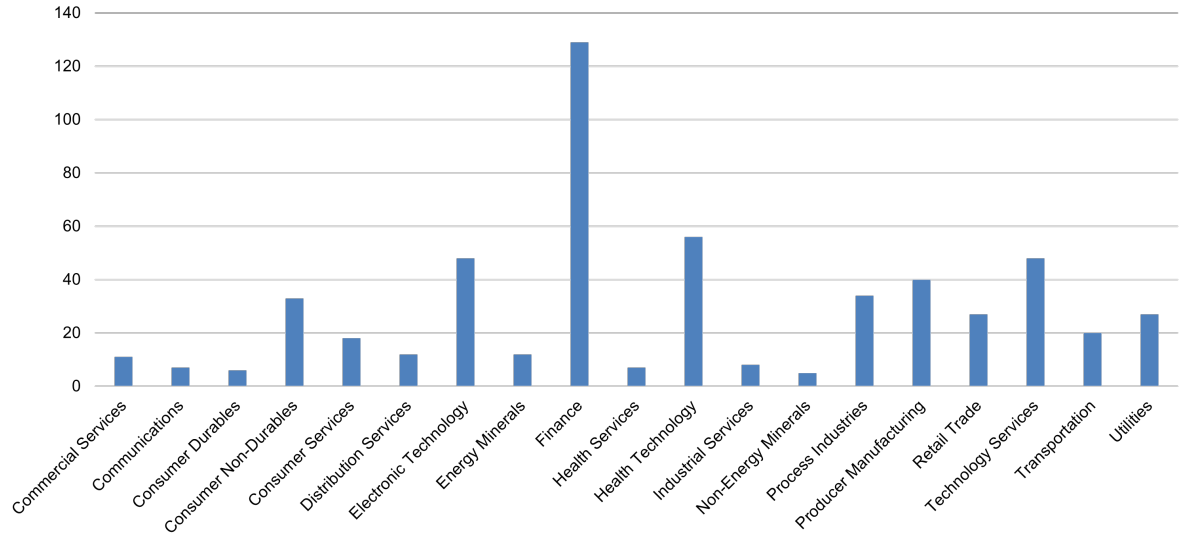
Table 10: Greenwashing in the long run (robustness). This table reports the results of the monthly panel regressions of the 10-month event study. Each firm involved in a green-related name change for greenwashing purposes is matched with a firm that was involved in a green-related name change in the same time period but for legitimate reasons. The dependent variable ($AR_{i,t}$) is the monthly four-factor abnormal return computed using 24-month rolling-window regressions. Greenwashing is a dummy that equals one if a company is involved in greenwashing and zero otherwise. Post is the 10-month post-treatment dummy. Control variables are the natural logarithms of the market value, trading volume and financial leverage. Each month, both dependent and independent variables (except for the dummies) undergo winsorization at the 1% and 99% levels. Standard errors are clustered by cohort and month-cohort. ***, ** and * denote significance at the 1%, 5% and 10% level, respectively.

	Abnormal Returns	
	(i)	**(ii)**
$Greenwashing \cdot NC \cdot Post$	-5.65**	-5.26*
	(2.45)	(2.95)
$MarketValue$		-0.63
		(0.67)
$Volume$		0.55*
		(0.30)
$Leverage$		0.01
		(0.34)
Observations	1,476	1,444
R-squared	0.36	0.36
F-Stat	5.325	5.096

Appendices

A Green Word Dictionary

To build a green words dictionary, I first downloaded all the Sustainability reports published by the constituents of the S&P500 index from 2014 to 2022. This search resulted in a database of 548 reports published by 366 different companies. Figure A illustrates the number of reports published divided by the sector of the reporting company.



As the figure suggests, the vast majority of sustainability reports obtained are published by financial companies. The second step includes collecting all the words cited by the 548 reports and ranking them based on their frequency. After excluding stop words and words with less than 3 letters, I focus on the 1,000 most common words which are cited at least by 2 companies belonging to different industries. The latter is to make sure that the green word selected is not specific to a particular industry. Finally, I actively judged and selected only those words that are relevant to my study. An example of the final screening is available at the following table.

Words	Green Dictionary
work	NOT included
environmental	included
risk	NOT included
board	NOT included
employee	NOT included

Table A.1 reports the final green dictionary. It includes 22 words. The most cited words are “sustainability”, “emissions”, “environmental” and “water”. Python scripts for the development of the dictionary are available upon request.

Table A.1: The final green dictionary. This dictionary contains words that, included in a corporate name, are likely to evoke sustainable feelings in investors. The list has been obtained by actively judging the most cited words of sustainability reports issued by the constituents of the S&P500 from 2014 to 2022.

- Clean
- Clear
- Cycle
- Eco-
- Emissions
- Environment
- Forest
- Green
- Renewable
- Solar
- Sustainable
- Transition
- Greenhouse
- Impact
- Natural
- Nature
- Planet
- Recycle
- Recycling
- Waste
- Water
- Wind

B Final Dataset

The table below lists the ISINs of companies that underwent name changes during the analyzed period, the dates when the name changes were officially announced, the former and the new corporate names, and the specific categories. The ”Category” column distinguishes companies that were already actively involved in sustainable practices (”Green”), adjusted their corporate identity to signify a forthcoming commitment to sustainability (”Change”), or adopted a name that suggests sustainability without necessarily demonstrating substantial environmental dedication in their operations (”Greenwashing”).

Table B.3: Company Name Change Details

ISIN	Announcement Date	Old Company Name	New Company Name	Category
US8536162097	28/06/2022	Standard Metals Processing Inc	American Clean Resources Group	Greenwashing
US16948W2098	22/03/2022	China Hgs Real Estate Inc	Green Giant Inc	Greenwashing
US57630J3041	25/02/2022	Massroots Inc	Greenwave Technology Solutions	Change
US1847911013	07/09/2021	Superconductor Technologies In	Clearday Inc	Greenwashing
US14067D5086	21/04/2021	Capstone Turbine Corp	Capstone Green Energy Corp	Green
US18452W1045	21/04/2021	Byzen Digital Inc	Clean Vision Corp	Change
US97349V1070	16/09/2020	Coal Creek Co/The	Windrock Ltd Co	Greenwashing
US86934B1052	20/07/2020	National Storm Recovery Inc	Sustainable Green Team Ltd	Greenwashing
US0963081015	19/06/2020	Bbx Capital Corp	Bluegreen Vacations Holding Co	Greenwashing
US27890J1043	30/01/2020	Falcon Technologies Inc	Eco-Growth Strategies Inc	Greenwashing
US72703U1025	26/09/2018	American Lorain Corp	Planet Green Holdings Corp	Greenwashing
US74016X1046	05/06/2018	Hip Cuisine Inc	Nature'S Best Brands Inc	Green
US39366L2088	31/05/2018	Asap Expo Inc	Greenbox Pos Llc	Greenwashing
US39679T1043	17/01/2018	Umed Holdings Inc	Greenway Technologies Inc	Green
US29278K1097	02/11/2017	Castle Holding Corp	Enerkon Solar International	Change
US3793411006	09/02/2017	Global Fashion Technologies In	Ecotek360 Inc	Greenwashing
US18452B2097	11/11/2016	Stratean Inc	Cleanspark Inc	Green
US2253011009	08/07/2016	Silverstar Resources Inc	Creative Waste Solutions Inc	Green
US97478A1060	19/01/2016	Baroma Inc	Gooogreen Inc	Greenwashing
US19189Y2072	08/09/2015	Jd Hutt Corp	Code Green Apparel Corp	Change
US74739E1029	19/08/2015	Z Holdings Group Inc	Ariel Clean Energy Inc	Greenwashing
US05758T1097	12/08/2015	Ccc Globalcom Corp	Bakken Water Transfer Services	Green
US98880P2020	02/07/2015	Baoshinn Corp	Green Standard Technologies In	Greenwashing
US0498362088	15/04/2015	Brooklyn Cheesecake & Desserts	Meridian Waste Solutions Inc	Green
US6862284048	15/04/2015	Originoil Inc	Originclear Inc	Green
US83417L1061	09/03/2015	New Energy Technologies Inc	Solarwindow Technologies Inc	Green
US78573J1016	24/02/2015	Nytex Energy Holdings Inc	Sable Natural Resources Corp	Greenwashing
US83417D2036	23/06/2014	Planktos Merger Co	Solar Gold Ltd	Green
US27888G1040	24/02/2014	Eaton Scientific Systems Inc	Eco Science Solutions Inc	Change
US07278X1072	06/02/2014	Toro Ventures Inc	Baying Ecological Holding Grou	Greenwashing
US0290984071	18/12/2013	Expert Group Inc	American Premium Water Corp	Green
US27888E1091	25/11/2013	Simplepons Inc	Eco-Shift Power Corp	Greenwashing
US3110641095	08/08/2013	Telava Networks Inc	Somerset Transition Corp	Greenwashing
US00770C1018	28/06/2013	Ada-Es Inc	Advanced Emissions Solutions I	Green
US90321C1062	17/01/2013	Tempco Inc	Esio Water And Beverage Develo	Green
KYG645181069	24/10/2012	China Technology Development G	Renewable Energy Trade Board C	Green
US0096172004	11/10/2012	Step Out Inc	Ids Solar Technologies Inc	Change
US3930572033	23/07/2012	Takedown Entertainment Inc	Green Hygienics Holdings Inc	Greenwashing
US3932291095	20/04/2012	Vault America Inc	Green Polkadot Box Inc	Greenwashing
US74837L1070	08/03/2012	Rpm Dental Inc	Quest Water Global Inc	Change
US68405E1073	10/01/2012	Remodel Auction Inc	North Carolina Natural Energy	Change
US14110Q2093	11/05/2011	St Lawrence Seaway Co	Carbon Natural Gas Co	Change
US18451W1053	03/02/2011	Xcelplus Global Holdings Inc	Clean Energy Pathways Inc	Green
US39468C3043	13/01/2011	Luke Entertainment Inc	Greene Concepts Inc	Change
US27917B1008	22/12/2010	Centracan Inc	Ecoready Corp	Greenwashing
US3934223088	18/11/2010	Sunrise Energy Resources Inc	Green Technology Solutions Inc	Change
US09623J1060	22/10/2010	Bluefire Ethanol Fuels Inc	Bluefire Renewables Inc	Green
US86803X2045	22/10/2010	Machinetalker Inc	Solar 3D Inc	Change
US86932X2080	23/08/2010	Rg Global Lifestyles Inc	Sustainable Environmental Tech	Change
US39303B3050	02/08/2010	Wolfe Creek Mining Inc	Green Envirotech Holdings Corp	Green
US34987E1055	29/07/2010	Gurata Gold Inc	Forza Environmental Building P	Change
US29269E1047	01/06/2010	C&G Dec Capital Inc	Energiz Renewable Inc	Greenwashing
US52989W1053	20/04/2010	Remediation Services Inc	Liandi Clean Technology Inc	Change
US38019R1095	15/04/2010	Fresca Worldwide Trading Corp	Go Solar Usa Inc	Greenwashing
US8713243074	13/04/2010	Adventure Energy Inc	Us Natural Gas Corp	Greenwashing
US16890L1026	24/03/2010	T.O.D. Taste On Demand Inc	China Environmental Protection	Change
US9732571081	16/03/2010	Inmedica Development Corp	Windgen Energy Inc	Change
US0375231075	24/02/2010	V2K International Inc	Agrisolar Solutions Inc	Greenwashing
US30732T1088	08/02/2010	Celestial Delights Usa Corp	Far East Wind Power Corp	Change
US90207B1070	14/01/2010	Navidec Financial Services Inc	Two Rivers Water Co	Change
US37950A1097	04/01/2010	Homeland Security Network Inc	Global Ecology Corp	Green
US03065P1003	14/04/2008	Charter Equities Inc	Global Recycle Energy Inc	Green
US11161T2078	03/03/2008	Tower Tech Holdings Inc	Broadwind Energy Inc	Green
US20824T1088	28/02/2008	Tiger Ethanol International In	Tiger Renewable Energy Ltd	Green
BMG4165P1187	22/01/2008	Venture International Investme	Green Global Resources Ltd	Greenwashing
US16953U1060	16/01/2008	Patriot Investment Corp	China Forestry Inc	Greenwashing
US82920N1046	15/01/2008	5Th Avenue Channel Corp	Simulated Environment Concepts	Greenwashing
GB00BYMSY631	15/01/2008	Microfuze International Plc	Watermark Global Plc	Change
US86271N1000	14/01/2008	Satellite Organizing Solutions	Strategic Environmental & Ener	Green
US16943T1025	11/01/2008	Ubrandit.Com	China Green Material Technolog	Change
US8195342071	02/01/2008	Malex Inc	China Wind Systems Inc	Green
US2921251011	02/01/2008	Cascade Coaching Corp	Empire Water Corp	Green
US8688481022	10/08/2007	Interactive Games Inc	China Nuvo Solar Energy Inc	Change
US3623691009	27/07/2007	C&D Production Inc	Planet Nutrition Holdings Inc	Greenwashing
CA92762L2075	09/07/2007	Sprout Development Inc	Viosolar Inc	Change
US9731461037	03/04/2007	Dotronix Inc	Wind Energy America Inc	Change
US1689133098	07/03/2007	China Digital Wireless Inc	China Recycling Energy Corp	Change
US34960C1009	16/02/2007	Internal Hydro International I	Renewable Energy Resources Inc	Green
US8693271061	15/02/2007	Offshore Creations Inc	Sustainable Power Corp	Change
US29405D1019	18/04/2006	Boss Minerals Inc	Environmental Control Corp	Greenwashing
US39365C1009	06/04/2006	Radiant Technology Corp	Greenbridge Technology Inc	Greenwashing
US37947A2042	23/03/2006	High Grade Mining Corp	Global Green Solutions Inc	Change
US1850661075	30/09/2004	Insci Corp	Clearstory Systems Inc	Greenwashing
BSP477251099	01/09/2004	Life Energy Technology Holding	Global Environmental Energy Co	Green
US6261373012	13/08/2004	New Thought Broadcasting Inc	Mundus Environmental Products	Greenwashing
US45821F1084	03/06/2004	Naturol Holdings Ltd	Integrated Environmental Techn	Greenwashing
US0957861091	21/04/2004	Vencap Holdings Inc	Blue Planet Research & Technol	Change
US41754V2025	13/05/2002	Benton Oil And Gas Co	Harvest Natural Resources Inc	Greenwashing
US74163K1034	09/05/2002	American Career Centers Inc	American Water Star Inc	Change
US8970671041	03/05/2002	Phon-Net.Com Inc.	Environmental Strategies&Techn	Green
US29976A1060	02/05/2002	Shaw International Inc	Everclear International Inc	Green
US82104Q1058	01/04/2002	Nu Electric Corp.	Clean Water Technologies Inc	Greenwashing
US04879A1079	22/02/2002	Aquatek Limited (Uk)	Environmental Technologies Int	Green
US71916P1084	29/09/2000	Compost America Holding Co	Phoenix Waste Services Co Inc	Green
US42210P1021	12/09/2000	Covol Technologies Inc	Headwaters Inc	Green

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