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Does the stock market value the inclusion in a sustainability stock index? An event study analysis for German firms ☆

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ABSTRACT

This paper empirically analyzes the effect of the inclusion of German corporations in the Dow Jones STOXX Sustainability Index (DJSI STOXX) and the Dow Jones Sustainability World Index (DJSI World) on stock performance. In order to receive robust estimation results, we apply an (short-term) event study approach that is based on both a modern asset pricing model, namely the three-factor model according to Fama and French [24], and additionally a t-GARCH(1,1) model. Our empirical results suggest that stock markets may penalize the inclusion of a firm in sustainability stock indexes. This finding is mainly driven by a strongly negative effect of the inclusion in the DJSI World. In contrast, we do not find significant average cumulative abnormal returns for the inclusion in the DJSI STOXX. This suggests that the inclusion in a more visible sustainability stock index may have larger negative impacts.

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1. Introduction

The question whether voluntary activities of a firm to protect the natural environment or to comply with social and ethical norms are financially beneficial has been of vital interest for corporate management for a long time. Knowledge about the relationship between corporate sustainability (i.e. environmental or social) performance and financial performance is also important for public policy. If corporate environmental or social activities are privately rewarded, while bad sustainability performance is penalized, it can be argued that the main goal of public policy would be to ensure publication and spreading of information about corporate sustainability performance. This approach can be thought to be more cost-efficient than traditional (e.g., command and control) regulation. Finally, for investors the question is whether socially responsible investing (SRI), also called ethical or sustainable investing (e.g., [54]), which refers to the practice of choosing stocks on the basis of environmental, social, and ethical screens, is rewarded or penalized by the stock market.

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Against this background, several portfolio analyses compare the risk-adjusted stock returns of socially responsible and conventional mutual funds (e.g., [6,5]). Other portfolio analyses focus on specific corporate sustainability performance assessments, such as those by Innovest (e.g., [19]) or KLD Research & Analytics (e.g., [36]). Such assessments are the basis for some sustainability stock indexes, such as the Domini 400 Social Index, which is constructed with the ratings from KLD. Another strand of economic SRI studies directly examines the financial performance of sustainability stock indexes (e.g., [58,6,59]), which are the basis for several socially responsible funds. However, a strong methodological drawback of portfolio analyses is that only the relationship between corporate sustainability and financial performance can be examined, whereas the causal effect of environmental or social activities cannot be identified.

Such an identification is in principle possible with common micro-econometric analyses which regress corporate financial performance on specific indicators for corporate sustainability performance and several control variables. While a few studies (e.g., [27,72]) consider stock returns as an indicator for corporate financial performance, most other studies apply accounting data based indicators.[1] While many of these analyses only use narrow indicators for corporate sustainability performance, such as emissions of pollutants, some studies consider more general indicators that refer to the environmental dimension or even incorporate both corporate environmental and social activities. Finally, a few studies examine the impact of the inclusion in a sustainability stock index on corporate financial performance, as measured with indicators based on accounting data (e.g., [49,8,70]).

Although micro-econometric approaches seem to be more appropriate to examine the effect of corporate sustainability performance on financial performance than portfolio analyses, the identification of the causality of this relationship in such studies can also be problematic since it is possible that corporate financial performance has an impact on environmental or social activities. If such a reverse effect exists, the corresponding parameter estimates could be biased. This problem is evident in micro-econometric analyses with cross-sectional data. But even in modern panel data models, the reliability of the estimations is ambiguous since appropriate instrumental variables are often not available. This shortcoming is a significant starting point for a third methodological approach, namely event studies. Event studies generally examine the mean stock returns for corporations experiencing a specific event (i.e. new information) and therefore aim to measure the effect of this event on the value of a corporation (e.g., [11,48,45]).

Short-term event studies[2] have been developed and particularly applied in financial economics and accounting to examine, for example, the effect of mergers and acquisitions, earnings announcements, or issues of new debt or equity. However, such event studies are also increasingly used to analyze the reactions of mean stock prices due to new information about corporate sustainability performance. Former event studies in this field often refer to relatively specific corporate environmentally, socially, or ethically relevant information (e.g., [33,43,53,48,37,18,32,12,13,28]). The corresponding events can have the character of negative news, such as information about environmental accidents or toxic emissions, as well as positive news, such as information about firms winning environmental awards, membership in voluntary environmental programs, or withdrawal from South Africa during the apartheid regime (as a reaction to human rights abuses).

Another small group of event studies recently analyzes the impact of the inclusion in a sustainability stock index on stock performance. For example, Curran and Moran [17] examine British firms with respect to their inclusion in the specific FTSE4Good UK 50 Index, i.e. an index that is based on corporate sustainability performance assessments by the FTSE Group. Furthermore, Doh et al. [21] analyze US firms with respect to the inclusion in the specific Calvert Social Index, i.e. an index created by Calvert Investments, an investment management firm which is one of the largest SRI firms in the US. Finally, Cheung [15] examines US firms with respect to their specific inclusion in the Dow Jones Sustainability World Index (DJSI World), i.e. an index that is based on corporate sustainability performance assessments by the SAM (Sustainable Asset Management) Group together with Dow Jones Indexes.

The crucial assumption for the reliability of event studies is that the timing of the event is exogenous and thus cannot be influenced by the firm. The announcement of some environmental or social activities by a firm would therefore not be appropriate for an event study. Another substantial assumption is that capital markets are sufficiently efficient to react to events. This implies that the information of the event is not anticipated and the new information is relevant for the stock returns. If these conditions for the application of event studies are given, the essential feature of this approach is that the causality of the relationship between corporate sustainability performance and stock performance is clear (e.g., [34]). As a consequence, if the stock prices (as in many of the aforementioned studies) decrease subsequent to negative news or increase subsequent to positive news and if possible confounding effects in the analyzed time period are excluded, it can be reliably concluded that this is due to the corresponding release of environmentally, socially, or ethically relevant information. Therefore, it can also be concluded in these cases that there is a negative or positive causal effect of corporate sustainability performance on stock and thus financial performance.

As a consequence, our paper adopts this short-term event study approach. Specifically, we consider the impact of the inclusion of German corporations in two sustainability stock indexes, namely the Dow Jones STOXX Sustainability Index

[1] They thus examine the impact of corporate environmental or social activities on, for example, Tobin's Q, return on assets, return on sales, or return on equity (e.g., [68,56,44,38,39,66,31]).

[2] We focus on short-term event studies since they are generally considered as more reliable and robust than long-term approaches. Besides the existence of several sources for potential biases due to specific characteristics in stock market returns in long-term event studies (e.g., Lyon et al. [47]), these approaches can also increase the probability of selection due to sample attrition, which makes reliable results difficult. Furthermore, long-term event studies are more prone to complications due to a higher probability of multiple events (e.g., [57]).

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