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ENVIRONMENTALLY ORIENTED ENERGY POLICY AND STOCK RETURNS: AN EMPIRICAL ANALYSIS

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Overview

This paper examines the effect of environmental regulation on stock returns (as a measure of economic performance) for German energy corporations. We consider the last minute victory of the acting government in the 2002 German federal elections to the Lower House of Parliament (Bundestag). Previous to the elections, the so-called "red-green" government coalition consisting of Social Democrats and the Green party was considered to have about the same chance to win the majority in the Bundestag as the "black-yellow" opposition consisting of Christian Democrats and the Liberal party. Concerning German environmental and particularly energy policy, the result of the elections was crucial: While the "red-green" coalition was generally associated with a paradigm shift towards the promotion of renewable energies and a phasing out of nuclear energy, the "black-yellow" opposition signaled different priorities in line with traditional energy policy. According to this, we examine the hypotheses of negative abnormal returns for stocks of traditional utilities involved in nuclear energy and of positive abnormal returns for stocks of corporations exclusively engaged in renewable energies.

Methods

Methodologically, we use an event study approach. In this framework, we include insights from modern empirical finance and therefore also apply the Fama-French three-factor model to estimate the abnormal daily and monthly stock returns besides the one-factor model based on the CAPM (Capital Asset Pricing Model) and the market model. According to the CAPM, stock market portfolio returns or the differences between stock market portfolio returns and risk-free interest rates is the only factor to explain the cross-section of stock returns. Due to the finding that also other factors matter, Fama and French extended this asset pricing model and showed the superiority of the corresponding three-factor model in the explanation of stock (portfolio) returns. Notwithstanding, so far event studies in energy and environmental economics nearly exclusively use the CAPM and particularly the market model. We analyze, on the one hand, daily return data as this is common in (energy and environmental) event studies. However, it should be noted that stock return models do not work very well with daily returns. Therefore, we also analyze, on the other hand, monthly returns particularly to check the robustness of the estimation results. These data permit more precise measurement of abnormal returns.

Results and Conclusions

The main estimation results of the empirical analysis imply (1) no evidence of a general negative impact of the 2002 Bundestag elections on stock returns for traditional utilities and (2) a positive albeit transitory short-run effect for the entire group of renewable energy corporations. We conclude that the 2002 Bundestag elections and therefore stringent environmental regulation had at least no general negative effect on the economic performance of energy corporations. One reason for the insignificant abnormal stock returns could be that the environmentally oriented energy policy of the acting government was anticipated by the capital markets before the 2002 Bundestag elections even though the

result of the elections was fully unpredictable. In this respect, it should be noted that Social Democrats and the Green party already formulated their environmental policy at the beginning of the legislation period in 1998 in the contract stating the political agenda of the coalition and in the following passed some corresponding laws. Therefore, it could be presumed that the traditional utilities reacted to comply with this environmental regulation by investing in new sustainable energies and technologies between 1998 and 2002. Another reason could be that the compliance costs of this energy policy were lower than expected or even negligible since the traditional utilities could excuse increases in electricity prices by the “green” policy of the government coalition. In this case, compliance costs could have been entirely borne by the final consumers of electricity also due to their low price elasticity of demand.