

THE FINANCIAL PERFORMANCE OF FIRMS PARTICIPATING IN THE EU EMISSIONS TRADING SCHEME (EU ETS)

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Overview

The European Union Emissions Trading Scheme (EU ETS), launched in 2005, is regarded as the cornerstone of the EU climate policy. The EU ETS is by far the largest environmental market in the world, covering over 12,000 plants from CO₂-emission intensive industrial sectors in the 28 EU Member States plus Iceland, Liechtenstein and Norway, as well as aviation activities in these countries. The EU ETS is widely considered to be successful in reducing emissions but at the same time firms participating in this scheme put themselves at risk of losing market share to non-participating firms and global competitors and thus affecting negatively their economic performance. This paper contributes to the literature by performing an ex-post research on the performance of the firms during the three phases of the EU ETS. The main question to be answered is what factors influence the profitability of the energy-intensive sectors covered by the EU ETS. We address the impact of the EU ETS on competitiveness by looking at the firm's profitability. Specifically, the profitability of firms under the EU ETS is analysed using regression techniques and aggregated country and firm level data. The paper is also focused on the effect of the EU ETS on firm profitability, caused by the trade of allowances and the amount of verified emissions.

Methods

The analysis is based on a large database consisted of a panel of European firms participating in the EU ETS during the period 2006–2014. The firms are classified into eight main industrial sectors based on the two-digit NACE Rev.2 code. The variables used in the analysis involve country, firm-and energy-related variables. The firm attributes comprise a set of six factors that cover different aspects of the firms' main characteristics, such as their size, profitability, debt burden, productivity and activity performance. As the dataset involves different countries, the economic condition in each country in which the EU ETS firms operate needs to be considered. Therefore, a country-level attribute such as the GDP growth is added in the analysis as indicator of the country's macroeconomic environment. In addition to the economic status, the country's energy policy framework may have also an impact on the energy firms' performance. It is well documented in the literature that energy policies (energy efficiency, security, sustainability, etc.) of the host country have a significant impact on the profitability of firms operating in that country (Cantore and Cali, 2011; Jaraite and Kazuokauskas, 2013; Doumpos et al., 2017). For the purposes of this study we consider two energy variables, the energy efficiency performance and the characteristics of the internal energy market both measured at the country level. Given that the analysis is focused on the performance of firms operating in the EU ETS, two environmental variables are used that enable the consideration of the effect that this scheme has on the firm's profitability. In accordance with similar studies that examine the impact of the EU ETS on firms' performance, we introduce the allocation factor defined as the ratio of free allocated allowances to the verified emissions (Anger and Oberndorfer, 2008). The ratio of verified emissions to the sales is the other environmental variable used as a proxy of the impact of the emissions emitted by the EU ETS firms in relation to the sales on firms' profitability. Using panel data on the emissions and performance of more than 4,100 European firms from 2006 to 2014, we use a random effects model to analyse the main drivers behind firm's profitability covered by the EU ETS. By using the regression analysis, we can control the examined variables and test how these influence the firms' profitability. In the analysis, we considered five different modelling specifications, thus leading to five models. The firm's profitability is the dependent variable whereas a combination of economic, environmental and energy-related factors are used as independent variables in the examined models.

Results

All variables except those that indicate the firm's liquidity and the degree of liberalisation in electricity market in terms of competitive are statistically significant at least at the 10% level. The currency ratio and the labour force as well as the two environmental variables of the allocation factor and ratio of verified emissions to sales contribute negatively to firm's profitability under all models whereas all the other variables have a continuous positive impact on that. When it comes to financial variables, the analysis results show that the increase in firm's profitability could come from an increase in their solvency ratio, their size and mainly in their operating revenue to total assets. The more that a firm earns for the same assets employed the higher its profitability should be. The increase in the country's GDP growth can also contribute significantly to firm's performance in regards to its profitability. With regard to the effects of energy and environmental-related variables, it is concluded that a larger ratio of allocation of allowances to verified emissions is associated with smaller profitability.

Conclusions

As it is expected profitable firms are those that are larger in size, experience economic growth and energy efficiency. Not surprisingly, it is evident that the profitability of EU ETS firms is not only affected by their internal characteristics but also by their energy performance and policies as well as country's economic environment. In particular, it was found that energy data related to the energy efficiency performance, the amount of verified emissions of CO₂ and the number of allowances can provide valuable additional information to the main firm and country-specific characteristics.

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