

Chapter 17

Carbon Financial Market: The Case of the EU Trading Scheme

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ABSTRACT

This chapter explains the drivers for carbon prices related to institutional decisions, energy prices, and weather events. The study focuses on price changes in the EU as being the most liquid carbon asset. In this regard, the daily spot price of the EU is highlighted to demonstrate the daily changes, given the high volatility in this carbon financial market. The CO₂ prices depend on several determinants. This chapter constitutes an introduction to emission trading and an overview of the regulations of carbon financial markets. First, the price changes in the EU and primary energy prices are discussed. Second, the characteristics of emissions trading are introduced in terms of spatial and temporal limits, clean dark spread, and switch price. Third, a global analysis of atmospheric variables, structural variations, the subprime crisis, and the COVID-19 crisis is presented.

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INTRODUCTION

Managers have recently been highly interested and engaged in issues of renewable finance from the perspective of an effective style of management. Yet, among the many studies concerned with this field (Rafay, 2022), only few works have particularly investigated the performance of the adoption of Sustainable Finance (El Amri, Boutti & Rodhain, 2020).

Since the seventies of the last century, when the scientific community has shown tremendous interest in Climate Change (CC), there has emerged a global agreement on the responsibility for producing greenhouse gas emissions (GHG) (Bunyamminu & Yakubu, 2022). As such, there is now a global consensus on taking immediate measures to help reduce these emissions to curb the scale of future consequences on climate change, bearing in mind that the global average temperature could reach higher levels ranging from 1.1 C to 6.4 C° towards the end of the 21st century.

It is deemed very decisive at this stage to bring about a significant reorientation of these methodologies and approaches in order to better face up to the challenges posed by climate change. One important aspect is that these strategies effect a reallocation of CO₂ emissions- a fact, which tends to drive industrial companies to evaluate the intensity and rate of their emissions, and which also gives paramount importance to the resultant priorities (taking into consideration the recommendations for limiting carbon). In this context, the EU ETS deeply consider the hazards related to Climate Change (CC) and define the financial development prospects as regards GHG emissions (Alberola, Chevallier and Cheze, 2008); this in turn helps demonstrate existing CO₂ pricing practices (EUA) through the econometric analysis of the two phases of the EU ETS. Given this, it makes sense then to state that the real objectives of EU ETS are to offer financial opportunities to manufacturing companies so that they can limit their CO₂ emissions and thus help foster the adoption of technologies, which produce less carbon and develop Efficiency Energy (EE) and Renewable Energies (RE).

Of the most significant objectives that characterize management research are the attempts at describing, understanding, explaining, or predicting various phenomena pertaining to organizations. Similarly, complexity is what characterizes the world of organizations to the extent that it becomes impossible for researchers to delineate all the details of the phenomena he or she is studying. Modeling represents an effective way to represent these complex phenomena in an understandable and conceivable manner.

To better account for this statement, the objective in this chapter is to examine and study the impact of the explanatory variables (primary energy, atmospheric, fuel modification, structural movement, CO₂ emissions information and the Sanitary Covid-19 crisis variables) on EUA price variable so that the researchers can detect and better explain the practices of the Responsible Management of companies involved in the European Union Emissions Trading Scheme (EU ETS).

Chevallier (2012), following the seminal work of Christiansen *et al.* (2005), came up with the first literature review on carbon price development, which was later developed by Lebat and White (2007). Given the economic analysis (particularly demand and supply fundamentals), Christiansen *et al.* (2005) and Alberola *et al.* (2008) did a pioneering work in terms of laying bare economically the relationship between energy markets and the price of CO₂. Taking into consideration Phase I spot and future data, these researchers have stressed that these relations vary depending on the period of time in concern and the institutional events taking place (Phase I, Phase II, Phase III). Furthermore, Bunn and Fezzi (2007) have investigated the close ties between CO₂ and electricity variables such as Clean Dark, Clean Spark Spreads, and the switch price during the first phases of EU ETS. As such, Christiansen *et al.* (2005)

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