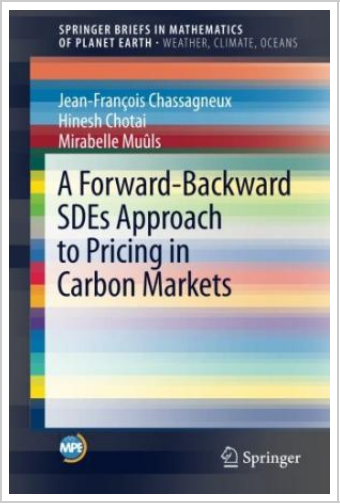

A Forward-Backward SDEs Approach to Pricing in Carbon Markets (Mathematics of Planet Earth)

By Jean-FranÃ§ois Chassagneux

Springer. Paperback. Condition: New. In this Brief, the authors consider a mathematical model for the pricing of emissions permits. The model has particular applicability to the European Union Emissions Trading System (EU ETS) but could also be used to consider the modeling of other cap-and-trade schemes. As a response to the risk of Climate Change, carbon markets are currently being implemented in regions worldwide and already represent more than 30 billion. However, scientific, and particularly mathematical, studies of these carbon markets are needed in order to expose their advantages and shortcomings, as well as allow their most efficient implementation. This Brief reviews mathematical properties such as the existence and uniqueness of solutions for the pricing problem, stability of solutions and their behavior. These fit into the theory of fully coupled forward-backward stochastic differential equations (FBSDEs) with irregular coefficients. The authors present a numerical algorithm to compute the solution to these non-standard FBSDEs. They also carry out a case study of the UK energy market. This involves estimating the parameters to be used in the model using historical data and then solving a pricing problem using the aforementioned numerical algorithm. The Brief is of interest to researchers in stochastic processes and...

Reviews

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