Pricing emission permits in the absence of abatement

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Author(s) Hintermann, Beat
Author(s) at UniBasel Hintermann, Beat ;
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If emissions are stochastic and firms are unable to control them through abatement, the cap in a permit market may be exceeded, or not be reached.ă I derive a binary options pricing formula that expresses the permit price as a function of the penalty for noncompliance and the probability of an exceeded cap under the assumption of no abatement.ă I apply my model to the EU ETS, where the rapid introduction of the market made it difficult for firms to adjust their production technology in time for phase 1.ă The model fits the data well, implying that the permit price was at least partly driven by firms hedging against stochastic emissions.
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