EU ETS Allowance Pricing in the Absence of (Explicit) Banking

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EPRG Winter Research Seminar
Cambridge, United Kingdom
December 9, 2005

An EU ETS Anomaly

- No trading from 05-07 to 08-12
- Unrestricted inter-annual banking or borrowing(!) within each period
- What will be the effect of this discontinuity?

Factors

- Stochastic variation
- Abatement potential and lead times
- Expected 2nd period price
- Clean Development Mechanism credits (CERs)

Stochastic Variation

- Weather is the most obvious source, but also fuel prices, and to a lesser extent, the level of economic activity.
- The expected end-of-2007 price will shift as uncertainty is resolved and demand is shown to be higher or lower than the initial mean.
- Variance will also be reduced as end-of-2007 approaches.
- Some final uncertainty right up to Dec 31, 2007.
  - But the quantities involved then will be small

Abatement Potential

- Abatement varies in the lead times required and the degree of irreversibility
- The shorter the time period, the less the response to price variations
- Irreversible abatement shifts the short-term marginal abatement cost curve
- **Key Issue**: What is the correspondence between the quantities involved in stochastic variation and abatement?

Two Possibilities

- Abatement potential ≥ stochastic variation
  - Smooth approach to single-value outcome
  - Present price reflects past deviation from the mean and the remaining (reduced) cumulative uncertainty
- Abatement potential < stochastic variation
  - Binary outcome: € 0 or € 40 + 2008 allowance
  - Present price will reflect cumulative binary probability starting out at about € 20

The 2008-12 Price

- This price is largely independent of the 2005-07 price because of the absence of inter-temporal trading between 2007 & 2008
- But any large emerging discrepancy will incite arbitrage
- Such as, product swaps or inventory manipulation between late 2007 and early 2008
- This would shift demand/emissions one way or the other depending on the price relationship

CDM Credits (CERs)

- CERs are usable in 2005-07 and bankable
- Those available in 05-07 will be sold then or banked depending on the inter-period price relation
- The 07/08 discontinuity endows them with a new unique function of being end-of-period speculative inventory
- Critical issue will be size of this inventory relative to the remaining stochastic uncertainty in demand
- NB: Cumulative CER supply grows with time

The Upshot

- Surrogate banking will occur
- As the end of 2007 approaches, the effect of surrogate banking will be to expand abatement potential around the expected 2008-12 price
  - Remember, 5 years to make up compensating increase in demand in early 2008
- Accordingly, the likelihood of a binary outcome is slight
- And, the 2007 price will approach the expected 2008 price

Research Issues

- What is the magnitude of stochastic variation in emissions for varying time periods?
- What is the (normal) abatement potential as a function of lead/lag times?
- What will be the size of the CER stockpile at the end of 2007?
- What other forms of surrogate banking can occur and what quantities and prices are associated with them?