The functioning of the EU-ETS and the flexible mechanisms

EU-ETS between textbook and reality

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European Parliament, Tuesday 22 March 2011

From textbook to reality

❑**Textbook :** ❑**Reality**

A cap & trade scheme :

- ↗ Gives a price to CO_2 ……**YES**
- ↗ Triggers abatement……**YES**
- ↗ Incites low carbon investments……**TBC**
- ↗ Affects competitiveness of capped entities….**TBC**
- ↗ Works independently of allocation rules……**NO**
- ↗ Doesn't need specific regulation……**NO**

Carbon has now a price in the EU

- **The European carbon market has developed rapidly**

(See annex II to IV for more information)

  - From 5 bill€ traded in 2005 to over 70 bill€/year since 2008
  - CO_2 has became a commodity traded on a liquid market with medium or low volatility (except during the 1st period) ;
  - The CO_2 price reflects a new scarcity of the right to emit CO2

- **The EU-ETS is an international reference :**

  - It covers more than 80 % of carbon traded worldwide
  - So far, the main source of demand of international Kyoto offsets credits
  - A reference for low carbon project developers worldwide

The presence of an EU carbon price has resulted in abatement

- **Ex-post evaluation (1st period 2005-2007) :**

(Source : Ellerman, Convery, De Perthuis)

- ↗ Estimated reductions of 120-300 Mt (2-6%) over three years
- ↗ Primarily from fuel switching in the electric sector
- ↗ Primarily in EU-15
- ↗ No reliable ex-post evaluation on the second period as yet

- **Ex ante evaluation (period 2008-2012) :**

(Source : ZEPHYR Model)

- ↗ A CO_2 price of 20 €/T reduces emission by 35-50 Mt/Year
- ↗ A CO_2 price of 30 €/T reduces emissions by 60-75 MT/Year

CO_2 price and low carbon investments

- **Most of the potential abatement results from :**
  - ↗ Energy efficiency gains
  - ↗ Fuel switching or biomass co-firing in existing plants
- **Specific incentives exist for low carbon investments :**
  - ↗ Feed-in tariffs for renewables
  - ↗ Subsidies for CCS (financed by allowances auctions)
- **Three conditions for triggering low carbon investments :**
  - ↗ Anticipation by market players of higher CO_2 prices in the long term
  - ↗ Long term credibility of the carbon constraint
  - ↗ Increased confidence in market regulations

External competitiveness of capped industries

- **Empirical observation during the 1st period :**
  - No empirical evidence of “carbon leakage” in : cement, steel & oil refining industries
  - No empirical evidence of “carbon leakage” in aluminum industry (big industrial electricity buyer)
- **Drawing general conclusions would be premature :**
  - The observation period was too short and at the height of the business cycle for very cyclical industries
  - Capped industries got generous free allowances which incited to locate production in the EU (including the so-called “New Entrants Reserve”).

Why allocation rules matter

- **Pricing carbon has two major economic impacts**
  - ↗ The creation of a new “price signal” which incites emissions reductions independently of allocation rules
  - ↗ The creation of a new value or “Carbon Rent”
- **Definition, measure and impact of the “Carbon Rent”**
  - ↗ The right to emit 2 bill tCO_2 has a value of 30-50 bill€ depending on the CO_2 price on the market. This value is a new artificial scarcity rent : the carbon rent
  - ↗ So far the carbon rent has been freely allocated to companies, with major distributional and wealth impacts
  - ↗ With auctioning, the carbon rent will be captured by public authorities providing them with additional resources

The need of stronger market regulation

- **In textbooks, the public authority has to set up the cap => trading will spontaneously emerge**
- **In reality a much stronger regulation of the carbon market is needed :**
  - The carbon market is an instrument of public policy
  - The Carbon Rent, several billions of Euros, has to be protected against fraudsters : security of registries
  - Existing energy and financial European regulations can help but aren't sufficient.
  - The carbon market needs a specific regulatory framework.

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Thank you for your attention!

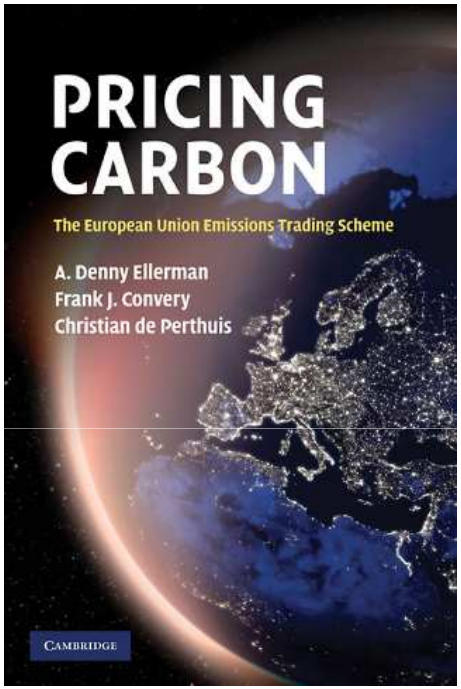
For further information please visit our website :

www.chaireeconomieduclimat.org

ANNEX

- **Annex I : Two textbooks on carbon economics**
- **Annex II : Main data on EU-ETS trading**
- **Annex III : CO_2 and energy price volatility**
- **Annex IV : CO_2 price on the EU-ETS**

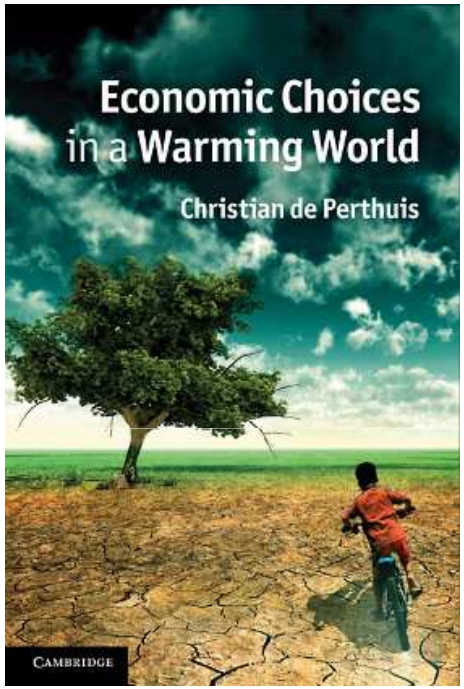
Two texbooks on carbon markets



Pricing Carbon: The European Union Emissions Trading Scheme

Denny Ellerman
Frank J. Convery
Christian de Perthuis

Cambridge University Press



Economic Choices in a Warming World

Christian de Perthuis

Cambridge University Press

Trades on the EU-ETS

EUA transaction volumes and values

	Volumes exchanged (millions of EUAs)	Value exchanged (millions of euros)	Average EUA price, period 1 (spot price, €/t)	Average EUA price, period 2 (Dec. 2012 contract, €/t)
2005	262	5,659	22.5	21.6
2006	809	18,283	17.3	22.6
2007	1,455	31,574	0.7	21.7
2008	2,713	69,724	-	25.7
2009	4,952	75,766	-	15.3
2010	4,834	74,444	-	15.4

Source : Author's calculations using data from Point Carbon, BlueNext and ECX.

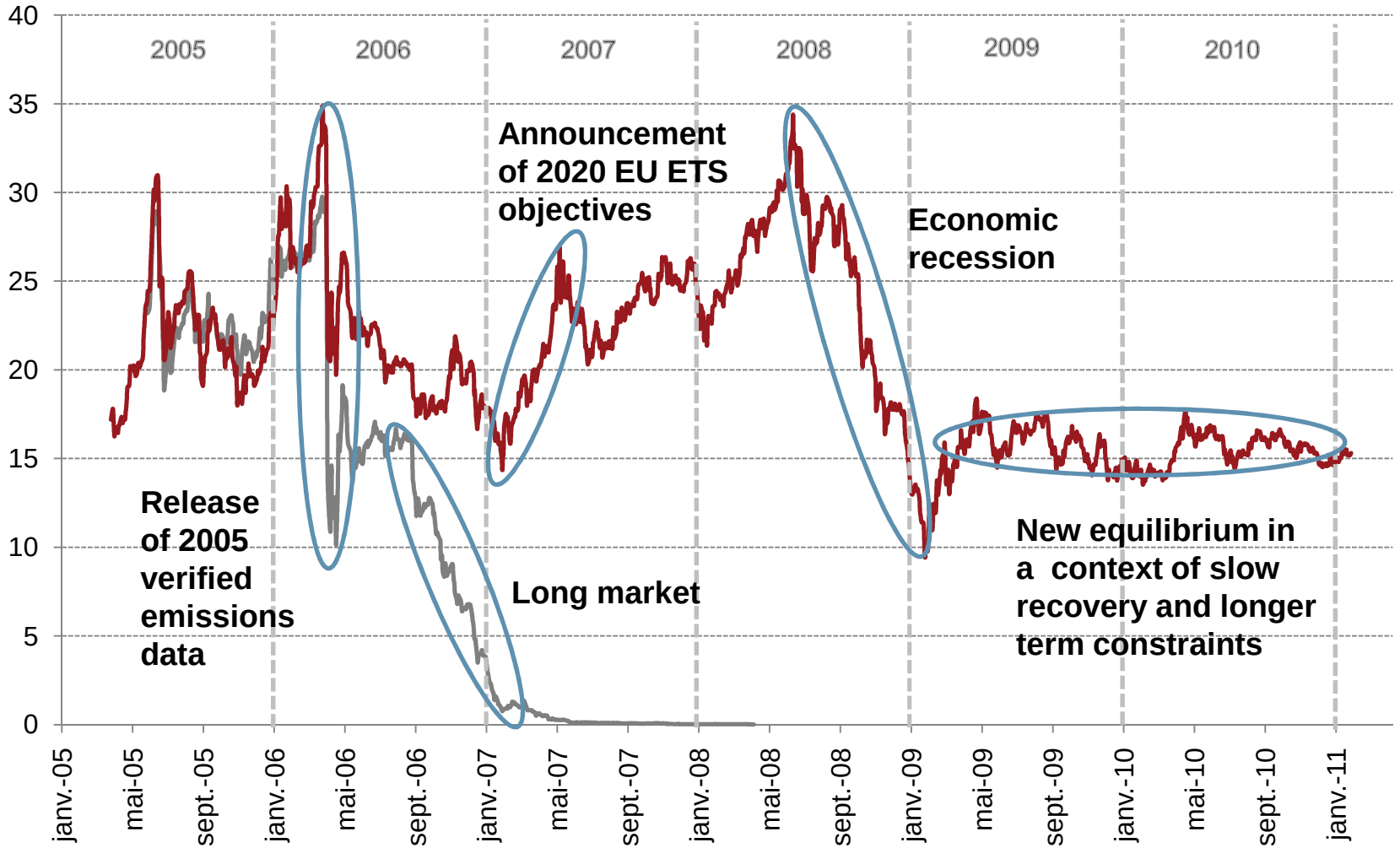
An unstable price?

Volatility of energy commodities (in %)

	EUA spot period 1	EUA Dec. 2012	Natural gas	Coal	Oil
2005	39	43	83	13	29
2006	57	44	102	16	25
2007	160	34	88	15	25
2008	-	33	51	34	49
2009	-	43	73	28	44
2010	-	26	50	23	25
Range	39-160	26-44	50-102	13-34	25-49

Source : Climate Economics Chair calculations

What does the allowance price reflect?



Source : Climate Economics Chair