Expected Price Trends and Deviations in the Short- and Long-run

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Supply and demand of permits

Carbon permits can be considered as a *pseudo-commodity* whose price is, as any standard commodity, a function of supply and demand.

Supply: The supply side is determined by the amount of emission permits (EUAs) and carbon credits that are available in the market. The supply depends on

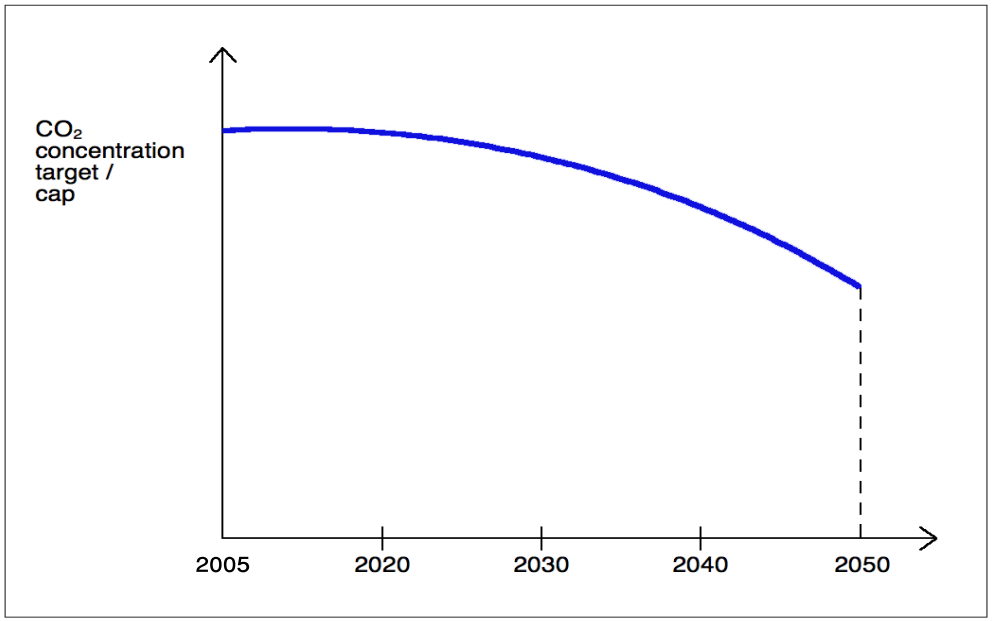
- the length of the regulated period and the allocation of permits;
- the presence of banking and borrowing provisions;
- the availability of extra permits and non-domestic offsets (i.e. CERs).

Demand: The demand side is primarily driven by projected (or actual) emissions. The demand depends on:

- the economic growth, energy-commodities prices, and the weather;
- the emission abatement options at disposal.

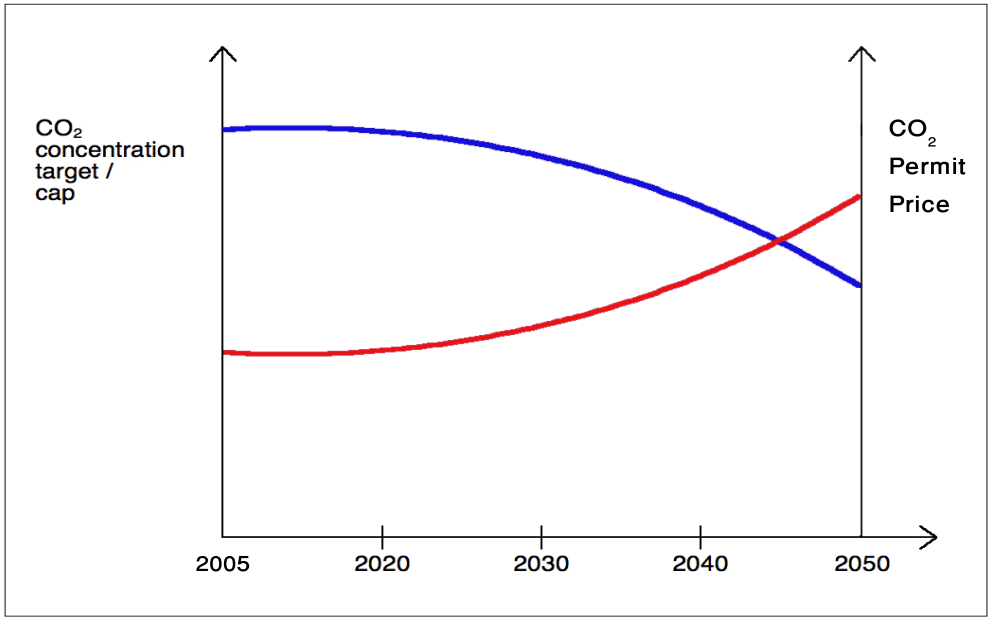
Expected trend trajectory and its deviations

The trajectory: A binding and constantly decreasing environmental target (that represent the future CO_2 concentration in the atmosphere) should set the correct trend of the permit price. Such a trajectory is the most relevant measure that is expected to deliver the appropriate signal to stimulate the investments in clean and low-emitting technologies.



The regulator controls: length of the phase

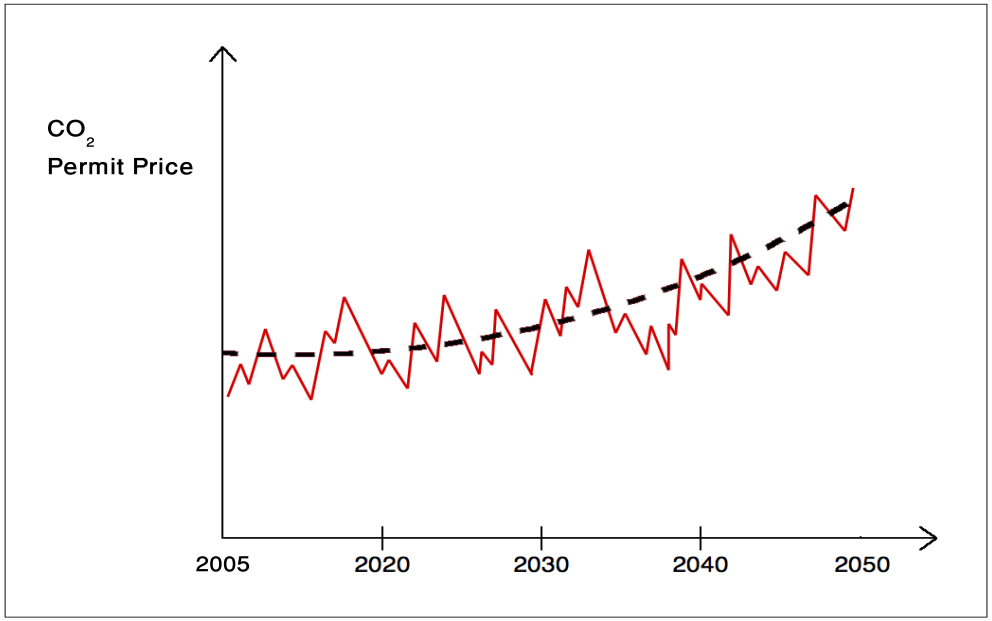
The Challenge: The task of the regulator is to appropriately determine the length of the regulated phase, the number of permits allocated to regulated companies, and the enforcement structure.



The length: A fixed, long term commitment -combined with banking and borrowing provisions- is one of the key factors that controls the move towards a low carbon economy.

The regulator controls: the initial cap

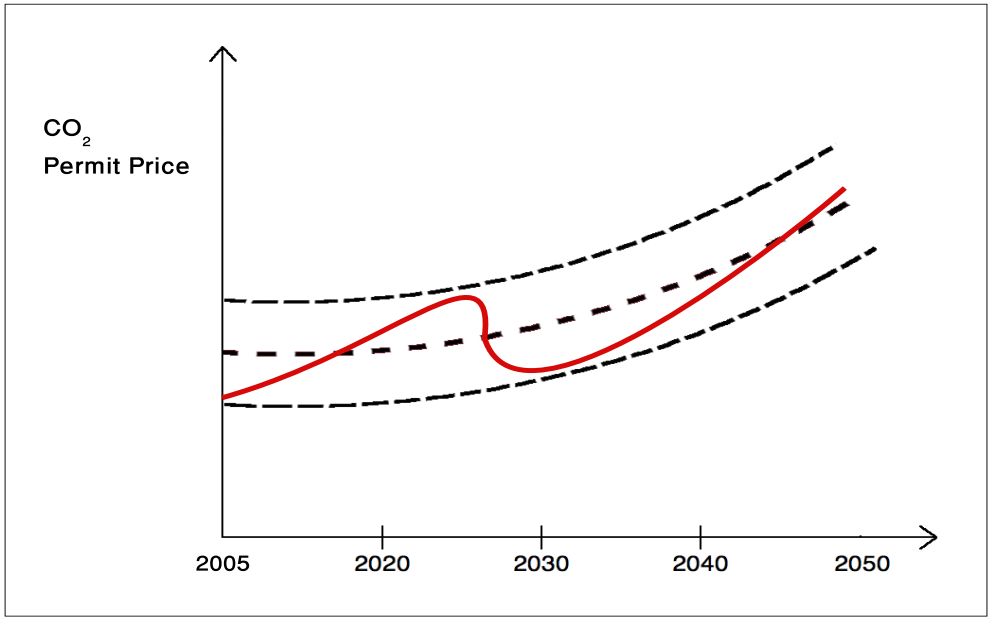
The Cap: A binding and ambitious environmental target is the major driver of the price trend.



Short-run: Short-term volatility is unlikely to be a concern for the policy regulator, especially in the presence of a long term commitment and when banking and borrowing is allowed.

The regulator controls: the extra supply

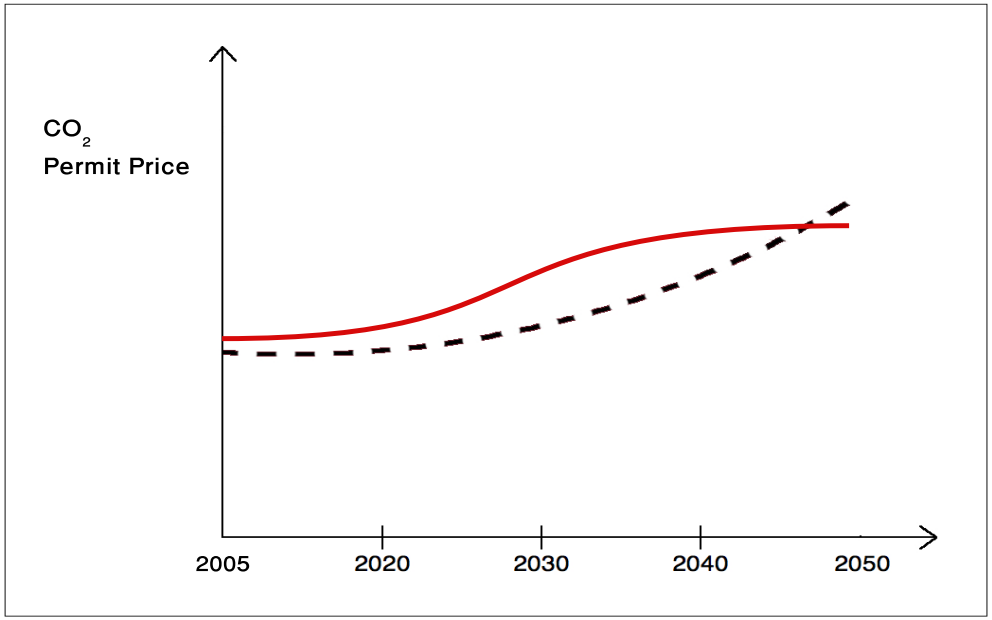
Safety valve: Cost-containment mechanisms can be introduced to prevent extremely low or high permit prices.



Medium-run: Some regulators proposed the introduction of price collars or the use of extra valid offsets in order to tackle temporary supply or demand shocks.

The regulator controls: future targets

Techology: The aggregate supply of permits, and indirectly the future technology investments, depends on the adoption of low-emitting technology in the future.



Long-run: A long-run price that turns out to be significantly above or below its *expected* level is certainly relevant to the regulator. However, such a permanent shift in the price trend calls for an adjustment of the original target.

The regulator controls: linking with other ETSs

- Linking means that one system's permit or other offset unit can be used, directly or indirectly, by a participant in another system for compliance.
- Linking enlarges the permit markets by connecting otherwise isolated regional emissions trading schemes.
- Because low-cost abatement opportunities are geographically spread over the globe, linking also would favor the depletion of these opportunities and ensure full cost-efficiency.
- However, linking poses also risks if the objectives addressed by the underlying schemes are not compatible.
- For instance, different environmental targets, restrictions on the use of non-domestic permits or offsets, and the mechanisms for price containment might preempt a correct convergence of the permits price.

Risks and trend driving factors

Companies regulated by cap-and-trade face risks that are specific to emissions trading. In particular, price risk and regulatory risk. The first type of risk is related to the short-run driving factors (market fundamentals), the second one to the long-run (regulatory) factors.

- Market fundamentals (economic growth, energy-commodities prices, etc.) directly concern the emissions and, in principle, govern the demand of permits in the short-run.
- The variables under the regulator's control directly affect the supply side of the permit market influencing the long-run price trend and, more importantly, the final policy achievements.

The challenge for companies regulated by cap-and-trade is to find the instruments that allow to mitigate both (short- and long-term) risks.

References I

G. Grüll and L. Taschini. Linking Emission Trading Schemes. The Grantham Research Institute on Climate Change and the Environment, London School of Economics. *Preprint.*, 2010a.

G. Grüll and L. Taschini. Cap-and-trade Properties under Different Hybrid Scheme Designs. *Journal of Environmental Economics and Management* - forthcoming, 2010b.

L. Taschini. Environmental Economics and Modeling Marketable Permits. *Asian Pacific Financial Markets - forthcoming*, 2009.