

The EU ETS Market Stability Reserve: A Responsiveness Mechanism

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the Environment

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What is the problem?

- ▶ By choosing a specific mode for implementing an intended policy (carbon tax or permits quota), the planners are at least temporarily locking themselves into certain consequences.
- ▶ The supply of permits is current inflexible and does not allow the system to respond to changes in the permits demand.
- ▶ In particular, the economic recession (a large-scale unforeseen economic shock) fundamentally changed the demand for permits, ultimately depressing prices.

Central control under certainty – first best

- ▶ An ideal instrument of central control would be a contingency message whose instructions depend on which state of the world is revealed (economic shock, technology advancement and new policies, for instance).
- ▶ By employing the ideal signal, the *ex ante* uncertainty has in effect been eliminated *ex post*, and we are back to the optimal solution - the first best.

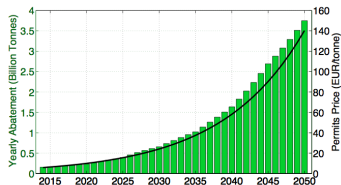
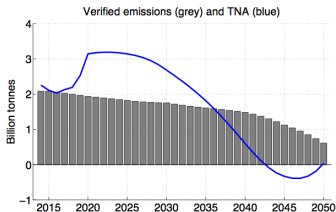
Central control under uncertainty – second best

- ▶ In an infinitely flexible control environment where the planners can continually adjust instruments to reflect current contingencies, considerations about uncertainty are irrelevant.
- ▶ In any less hypothetical world the consequences of a single order (tax or permits) have to be lived with for at least the time until revisions are made.

Indexing: By indexing the instrument to changes of a specific target dimension (economic, volume or price indicator), the cost-effectiveness is improved.

The inter-temporal problem under certainty

- ▶ Under complete knowledge and perfect information, firms solve their inter-temporal decision problem spreading their abatement efforts optimally across the regulated phase.



Central control

Inter-temporal problem

Uncertainty

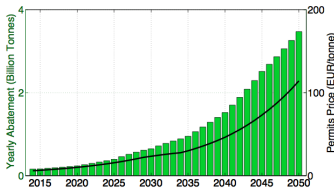
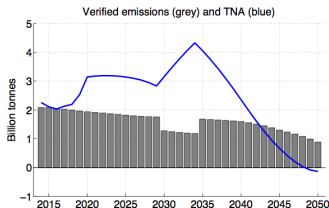
MSR

MSR parameters

Contact details

The impact of uncertainty

- ▶ In reality businesses operate under uncertainty.



- ▶ Large-scale events may lead the market to deviate significantly from the original cost-optimal solution.

Central control

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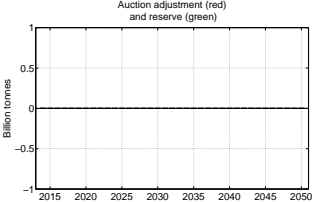
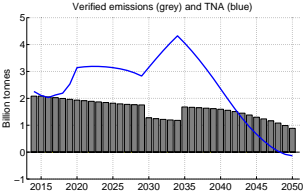
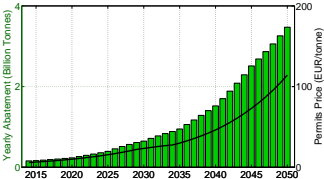
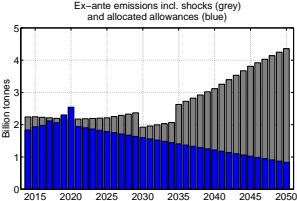
The EU ETS and the role of the MSR

- ▶ Allowance demand-supply imbalances – as measured by excessive over- or under-supply – can be the result of unforeseen, large-scale events:
 - ▶ economic shocks - economic recession that changes the fundamentals of permits demand;
 - ▶ technology advancements - penetration of new or cheaper technologies;
 - ▶ policy shocks - overlapping policies.
- ▶ The MSR aims at making the EU ETS responsive to shocks (post-shock supply adjustments) and thereby minimise the possible deviations from the cost-optimal pathway.

Assessing the MSR – the KT model

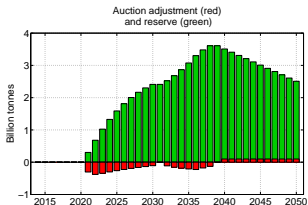
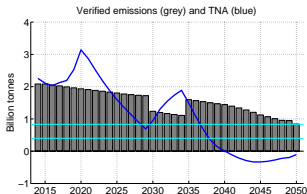
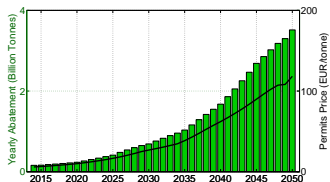
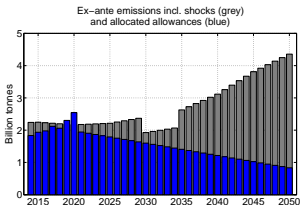
- ▶ Kollenberg and Taschini (2014) model allows to test different mechanisms (different types of MSRs), checking their *correcting* effect.
- ▶ The KT (2014) model allows us to test the impact of different MSRs (in particular volume-based and price-based) e.g. by varying:
 - ▶ threshold levels (bandwidth);
 - ▶ the size of the MSR intervention (withholding/injection quantities); and
 - ▶ the MSR implementation year.

Economic shock and no MSR



- Central control
- Inter-temporal problem
- Uncertainty
- MSR**
- MSR parameters
- Contact details

Economic shock and MSR



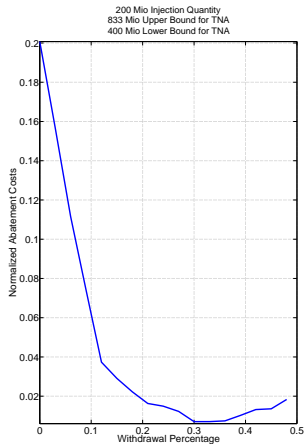
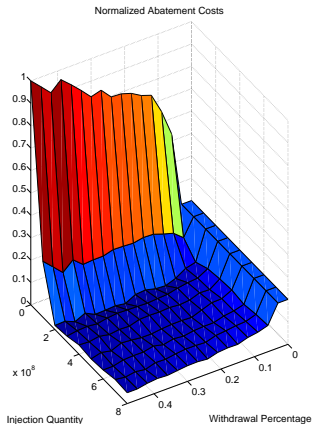
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MSR parameter considerations

- ▶ Uncertainty and incomplete information lead to sub-optimal outcomes and call for policy adjustments.
- ▶ The MSR could mitigate the impact of shocks and reduce sub-optimality.
- ▶ However, the MSR parameters matter:
 - ▶ withholding and injection thresholds (bandwidth) should be set properly (adjustable);
 - ▶ withholding and injection quantities should be set properly too.
- ▶ Built-in flexibility for the MSR parameters is needed.

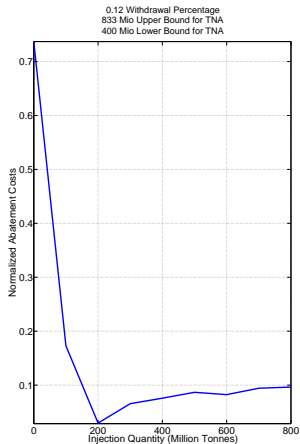
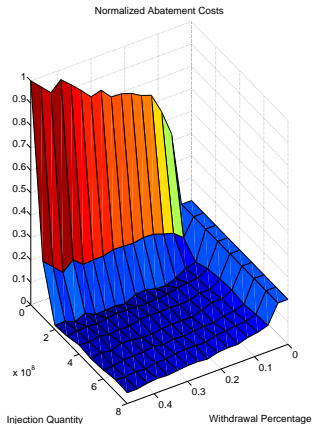
The change in abatement costs - no uncertainty

- ▶ Abatement costs change with changing withholding and injection quantities.



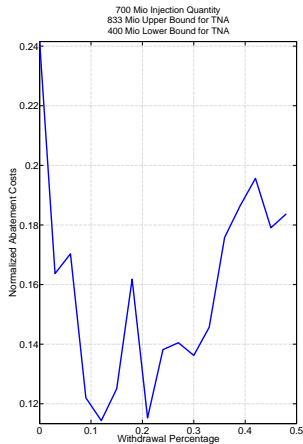
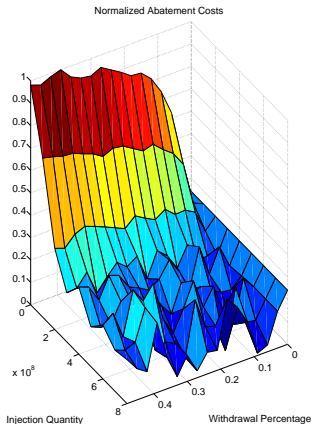
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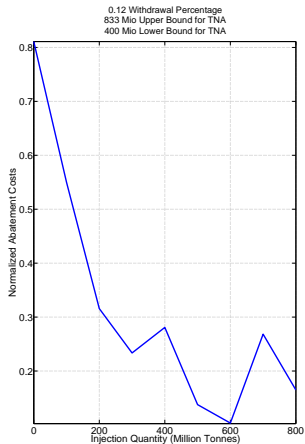
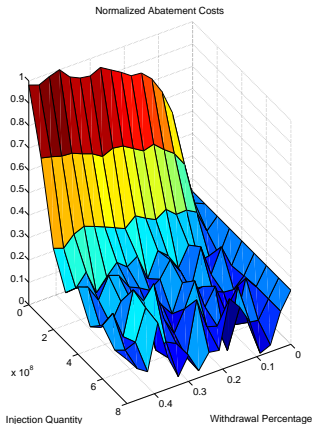
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The change in abatement costs - uncertainty

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Thank you very much for your attention.

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Talk based on the paper Kollenberg and Taschini (2014)