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Reforming the EU Emissions Trading System: An Alternative to the Market Stability Reserve

Prices for emission allowances in Europe's Emissions Trading System (ETS) have remained low for many years. This has given rise to controversies on whether there is a need for a fundamental reform of the ETS. Potential reform proposals include the introduction of a price floor for certificates and a market stability reserve, which is a rule-based mechanism for steering the market volume of allowances and is the preferred approach of the European Commission. In this article, we instead recommend retaining the ETS and suggest correcting past mistakes by a single intervention.

The number of emissions trading systems has been steadily increasing globally. Ten years after the emissions trading scheme in the European Union was launched in 2005, the International Carbon Action Partnership (ICAP) currently counts 17 such systems on four continents.[1] These regions account for 40% of global GDP. Just recently, at the beginning of 2015, South Korea implemented a nationwide Emissions Trading System (ETS), while China foresees the introduction of a nationwide system for 2016.

The EU ETS is seen as the central instrument to reduce greenhouse gas (GHG) emissions in Europe. About 45% of the EU's GHG emissions are covered by this scheme.[2] With the help of the ETS, the European Commission aims at reducing carbon dioxide (CO_2) emissions by 20% by 2020 and by 40% by 2030 relative to the 1990 level.[3] To this end, the EU-wide maximum level of emissions covered by the ETS, the so-called cap, is annually reduced by 1.74% between 2013 and 2020;[4] from 2021 onwards, the cap shall be decreased by 2.2% per year.[5]

While the price of a permit to emit a tonne of CO_2 peaked at about €30 in April 2006, it remained low from January 2012 to January 2015, ranging between €3 and €9 (see Figure 1). This sparked contentious discussions about the efficacy of the ETS as a climate protection instrument. Some argue that the design of the ETS is not effective in mitigating climate change when allowance prices are low, and it therefore needs reforming. Yet, while price volatility and low prices are no indications of malfunctioning markets and may reflect changes in the underlying fundamentals,[6] the low CO_2 prices are the consequence of large amounts of excess allowances, gauged at about two billion at the beginning of the third trading phase in 2013.[7] Hence, the Commission resolved to intervene in

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1 In addition to the European Emissions Trading System, there are 16 other trading schemes that have been implemented in the following countries: Canada (Québec Cap-and-Trade System), China (Beijing, Chongqing, Guangdong, Hubei, Shanghai, Shenzhen and Tianjin), Japan (Saitama Target Setting Emissions Trading System and Tokyo Cap-and-Trade Program), Kazakhstan (KAZ ETS), Korea (Korea Trading Scheme), New Zealand (NZ ETS), Switzerland (Swiss ETS), and the USA (California Cap-and-Trade Program and RGGI). See International Carbon Action Partnership: Emissions Trading Worldwide: ICAP Status Report 2015, Berlin.

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2 European Commission: The EU Emissions Trading System, EU Factsheet, 2013.

3 European Commission: Proposal for a Decision of the European Parliament and of the Council Concerning the Establishment and Operation of a Market Stability Reserve for the Union Greenhouse Gas Emission Trading Scheme and Amending Directive 2003/87/EC, COM(2014) 20 /2, 2014.

4 European Commission: Commission Decision of 22 October 2010 adjusting the Union-wide quantity of allowances to be issued under the Union Scheme for 2013 and repealing Decision 2010/384/EU, in: Official Journal of the European Union, L 279/34, 2010.

5 European Commission: Structural reform of the European carbon market, 2015, available at http://ec.europa.eu/clima/policies/ets/reform/index_en.htm.

6 S. Frankhauser, C. Hepburn: Designing Carbon Markets. Part I: Carbon Markets in Time, in: Energy Policy, Vol. 38, No. 8, 2010, pp. 4363-4370.

7 European Commission: Structural … , op. cit.

Figure 1
Allowance prices in the European Emissions Trading System, 2012-2015
in euros per tonne CO_2

Source: European Energy Exchange, EUA Primary Auction Spot, 2015.

the operation of the ETS and postponed the auction of 900 million allowances from 2014-2016 to 2019 and 2020, a process referred to as backloading.[8]

Since this intervention only temporarily limits the supply of allowances rather than solving the structural problem of both excess allowances and low prices, the Commission recently decided to establish a so-called market stability reserve (MSR), with its introduction stipulated for 2019. The core of the MSR is a rule-based mechanism that automatically steers the amount of circulating allowances by withdrawing and storing them in a reserve when the number of excess allowances exceeds an upper limit. Conversely, allowances are returned to the market when the number of excess allowances falls below a lower limit.

In addition to the MSR, further interventions have been discussed, such as integrating the transport sector, as well as other sectors, into the ETS and decreasing the emissions cap by more than 2.2% per year after 2020, as is currently foreseen by the European Commission.[9] Alternative reform proposals include the implementation of price floors, which is supported by the German Advisory Council on the Environment,[10] and a price corridor for allowances.[11] Specifically, limiting the price volatility at the lower end is expected to lead to a minimum level of security for investments in abatement technologies.[12]

Based on a theoretical discussion on the relative merits of alternative reform proposals, this article recommends retaining the ETS as it is rather than supplementing it by introducing a minimum price floor or the MSR. We argue elsewhere that the MSR is not sufficient to increase allowance prices markedly in the short run.[13] Although price floors and corridors are frequently asserted to be more effective alternatives, this paper sets out to demonstrate why the implementation of these instruments is not desirable either.

Reasons for the surplus of allowances

According to economic theory, certificate trading is a cost-efficient instrument to achieve a fixed environmental target in the short run.[14] Among other reasons, this is why the Commission established the ETS as a central instrument to impel climate protection in the EU. Along with the primary target of reducing GHG emissions cost-efficiently by pricing emissions, the ETS is supposed to provide incentives to invest in low-carbon technologies.

Holding allowances entitles those companies covered by the ETS to emit the respective number of tonnes of CO_2 or its equivalent for other greenhouse gases.[15] At the end of each year, participating companies have to hold at least the amount of allowances that equals their actual emissions, otherwise fines are imposed. In 2013 the fine for each missing certificate amounted to €100, but this level is adjusted yearly, taking the inflation rate into account.[16]

Companies base their climate protection effort on the market price for allowances: if the price exceeds their individual marginal abatement costs, companies will invest in technologies with lower emissions. Conversely, if the allowance price is below their marginal abatement costs, companies will forego investments in more efficient technologies and

8 European Commission: Regulation 176/2014 of 25 February 2014 amending Regulation No. 1031/2010 in particular to determine the volumes of greenhouse gas emission allowances to be auctioned in 2013-20.
9 European Commission: Structural …, op. cit.
10 German Advisory Council on the Environment: Wege zur 100% erneuerbaren Stromversorgung. Sondergutachten, Berlin 2011, Erich Schmidt Verlag, p. 255.
11 H. Fell, R. Morgenstern: Alternative Approaches to Cost Containment in a Cap-and-Trade System, in: Environmental and Resource Economics, Vol. 47, No. 2, 2010, pp. 275-297; P.J. Wood, F. Jotzo: Price Floor for Emissions Trading, in: Energy Policy, Vol. 39, No. 3, 2011, pp. 1746-1753.
12 Nationale Akademie der Wissenschaften Leopoldina, acatech, Union der deutschen Akademien der Wissenschaften: Die Energiewende europäisch integrieren, March 2015, p. 19; G. Grüll, L. Taschini: Cap-and-trade properties under different hybrid scheme designs, in: Journal of Environmental Economics and Management, Vol. 61, No.1, 2011, pp. 107-118.
13 M. Andor, M. Frondel, S. Sommer: Reform des EU-Emissionshandels: Eine Alternative zu Mindestpreisen für Zertifikate und der Marktstabilitätsreserve, in: Zeitschrift für Wirtschaftspolitik, Vol. 64, No. 2, 2015, pp. 171-188.
14 W.J. Baumol, W.E. Oates: The Theory of Environmental Policy, Cambridge 1988, Cambridge University Press; H. Bonus: Umweltzertifikate: Der steinige Weg zur Marktwirtschaft, in: Zeitschrift für Angewandte Umweltforschung, Vol. 10, No. 9, 1998, pp. 7-8.
15 In addition to CO_2, the ETS comprises nitrous oxide (N_2O) and perfluorocarbons (PFCs).
16 European Commission: The EU Emissions …, op. cit.

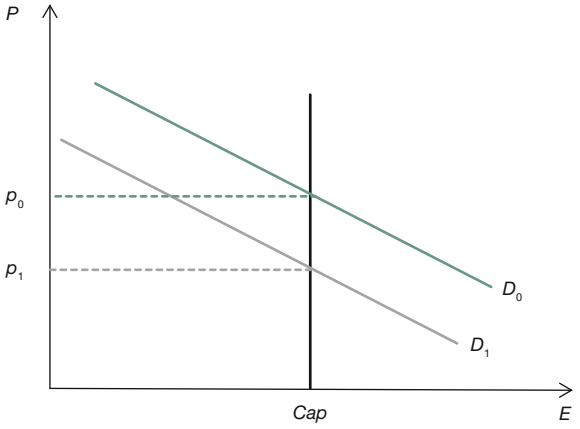
instead purchase allowances. In the past years, the allowance price ranged between €6 and €9. This relatively low price is mainly attributed to a huge surplus of allowances in the market. A surplus emerges if the cumulated number of allowances exceeds the (verified) actual emissions.

There are manifold reasons for the huge surplus of excess allowances. One reason is the unexpected low emission levels as a consequence of the longstanding and severe economic crisis that erupted in 2008. Most notably, Southern European countries have been strongly afflicted by the crisis and have not yet recovered economically. Another reason is the generation of green electricity in Europe. Both the Commission and individual member states defined targets for the shares of green electricity in consumption and established promotion schemes that overlap with the ETS. In Germany, for instance, the generation of CO_2-free electricity, which is promoted by fixed feed-in-tariffs for renewable energy sources (RES), leads to a decreased demand for emission allowances in the German power sector. This is illustrated in Figure 2 by a shift of the demand curve from D_0 to D_1.

Consequently, the allowance price drops from p_0 to p_1, so that market participants of other sectors and countries can purchase allowances at lower prices. For instance, in their empirical analysis, Koch et al. find certificate price elasticity estimates of wind and solar electricity production to fall between -0.11 and -0.15.[17] As a result, more CO_2 will be emitted outside the German power sector than without promoting RES in Germany, as companies refrain from investing in abatement technologies due to reduced allowance prices.[18] In effect, owing to the coexistence with the ETS, the promotion of RES leads to a shift in emissions within the EU rather than to a reduction of emissions.[19]

Admittedly, the Commission was quite successful in anticipating the emissions-reducing effect of green electricity promotion and in taking it into account for setting the emissions cap for 2020. The massive deployment of RES in some countries, however, could not have been foreseen, particularly in Germany.[20] In the end, the total

Figure 2
Impact of national promotion schemes for renewables on the allowance prices in the ETS



Source: Authors' own elaboration.

amount of green electricity produced in the EU exceeded the amount that entered the calculations for the emissions cap, exerting downward pressure on allowance prices.[21]

A downward pressure on prices also results from offsets that are issued for international climate projects. The Kyoto Protocol explicitly allows offsets from the so-called Clean Development Mechanism (CDM) and Joint Implementation (JI) measures to be used in the ETS. By means of implementing and financing CDM measures in developing countries, such as electrification projects with solar panels, companies receive offsets (Certified Emission Reductions, CERs). The primary aim of CDM measures is to help developed countries to achieve their emission targets in a more flexible and cost-effective way, while the resulting investments in abatement measures may also stimulate growth in those countries.

Furthermore, offsets from JI measures (Emission Reduction Units, ERUs) are granted for companies that conduct emission reducing projects in other countries that signed the Kyoto Protocol. Both kinds of offsets are equivalent to the right to emit one tonne of GHG emissions in the EU. After all, for the global climate it is irrelevant whether emissions are avoided in or outside the EU. By now, about 7,600 CDM projects have been registered and 1.5 billion CERs have been issued. In addition, about 872 million ERUs have been granted for JI measures.[22]

17 N. Koch, S. Fuss, G. Grosjean, O. Edenhofer: Causes of the EU ETS price drop: Recession, CDM, renewable policies or a bit of everything? – New evidence, in: Energy Policy, Vol. 73, 2014, pp. 676-685, here p. 681.

18 T. Traber, C. Kemfert: Impacts of the German Support for Renewable Energy on Electricity Prices, Emissions, and Firms, in: The Energy Journal, Vol. 30, No. 3, 2009, pp. 155-178.

19 Bundesministerium für Wirtschaft und Arbeit: Zur Förderung erneuerbarer Energien. Gutachten des Wissenschaftlichen Beirats beim Bundesministerium für Wirtschaft und Arbeit, BMWA-Dokumentation Nr. 534, 2004.

20 M. Frondel, S. Sommer, C. Vance: The Burden of Germany's Energy Transition: An Empirical Analysis of Distributional Effects, in: Economic Analysis and Policy, Vol. 45, 2015, pp. 89-99.

21 Agora Energiewende: Die Rolle des Emissionshandels in der Energiewende. Perspektiven und Grenzen der aktuellen Reformvorschläge, 2015.

22 United Nations Framework Convention on Climate Change: Clean Development Mechanism, 2015; United Nations Framework Convention on Climate Change: Joint Implementation, 2015.

The huge number of such offsets is deemed to be mainly responsible for the surplus of allowances in the ETS.[23] According to the Öko-Institut, CERs and ERUs are responsible for 1.5 billion excess allowances;[24] the remaining surplus may be attributed to the aftermath of the recent economic crisis. As a consequence of this excess supply, regulations were tightened in the third trading phase starting in 2013. Actually, the number of ERUs and CERs to be employed in the ETS was limited to half of the emissions to be reduced between 2008 and 2020 – that is, to 1.6 billion allowances.

The Market Stability Reserve

According to critics, the massive surplus of allowances and the resulting lack of scarcity signals lead to insufficient investments in non-carbon-intensive technologies. To spur abatement and maintain such incentives even in times of economic downturns, several reform proposals have been suggested, among others the introduction of an MSR.[25] With this rule-based mechanism that automatically steers the annual amount of allowances to be auctioned, the Commission pursues two main objectives: first, reducing the high amount of excess allowances in the short term, and second, stabilising the trading scheme in the long term, particularly in times of economic slowdowns when demand for allowances is low.[26] Implicitly, therefore, the MSR aims at stabilising allowance prices.[27]

This instrument, however, could prove effective only with a time lag of up to one year. If at the end of year *t* the number of allowances exceeds the upper limit of 833 million, the volume of auctioned allowances will be reduced in January of year *t*+2 by 12%, but at least by 100 million, and will be transferred to the reserve. If, on the other hand, the accumulated surplus is below the lower limit of 400 million, an amount of 100 million allowances will be taken from the reserve and additionally auctioned at the market.[28] Given both the limits in modifying the annual allowance volume and the time lag of several years for the introduction of the MSR, which is stipulated for 2019, the surplus of allowances will be reduced only gradually by this instrument. Agora Energiewende estimates that it may take until 2030 before the surplus eventually ranges within the defined interval of 400 to 833 million allowances.[29] As a consequence, it is concerned that a significant price increase is not expected before 2025.

The literature shows mixed results with respect to the MSR's effectiveness in reducing surpluses. For instance, based on a stochastic partial equilibrium model, Kollenberg and Taschini conclude that shrinking allowance prices due to economic shocks can be countered by adjusting the MSR accordingly.[30] Furthermore, Fell suggests that the MSR, as well as price collars, can be more effective in reducing over-allocations and price volatility than simply curbing the amount of permits to be auctioned.[31] Yet, the results depend crucially on the underlying discount rates and policy parameters. In contrast, in a laboratory experiment, Holt and Shobe find that quantity collars – such as the MSR – may perform poorly in terms of welfare effects compared to price collars or no policy intervention.[32]

Apart from the specific criticism of the long-standing temporal delay, there are more general doubts as to the effectiveness of the MSR. Koch et al., for instance, criticise that the MSR might not be suited to substantially push up the price level due to the moderate effect of demand shocks on the allowance price.[33] These authors, as well as Grubb and Newberry, argue that supplementing the ETS with a price floor or a corridor for allowance prices would be more effective.[34] The following section discusses the welfare effects of such instruments, thereby accounting for the fact that, in reality, decisions have to be made under uncertainty, not least with respect to future economic growth.[35]

23 German Advisory Council on the Environment, op. cit, p. 249; K. Neuhoff, A. Schopp: Europäischer Emissionshandel: Durch Backloading Zeit für Strukturreform gewinnen, in: DIW Wochenbericht No. 11, 2013, pp. 3-11.

24 Öko-Institut: Europäisches Emissionshandelssystem – Bilanz und zukunftsfähige Ausgestaltung. Stellungnahme zur Anhörung des Ausschusses für Umwelt, Naturschutz und Reaktorsicherheit des 17. Deutschen Bundestages, 2013.

25 European Commission: Regulation 176/2014 …, op. cit.

26 German Emissions Trading Authority: Stärkung des Emissionshandels, Diskussionsbeitrag zur Ausgestaltung der Marktstabilitätsreserve (MSR), 2014.

27 H. Fell: Comparing Policies to Confront Permit Over-allocation, Resources for the Future Discussion Paper 15-17, 2015.

28 German Emissions Trading Authority, op. cit.

29 Agora Energiewende, op. cit.

30 S. Kollenberg, L. Taschini: The European Union Emissions Trading System and the Market Stability Reserve: Optimal Dynamic Supply Adjustment, Centre for Climate Change Economics and Policy Working Paper No. 219, 2015.

31 H. Fell, op. cit.

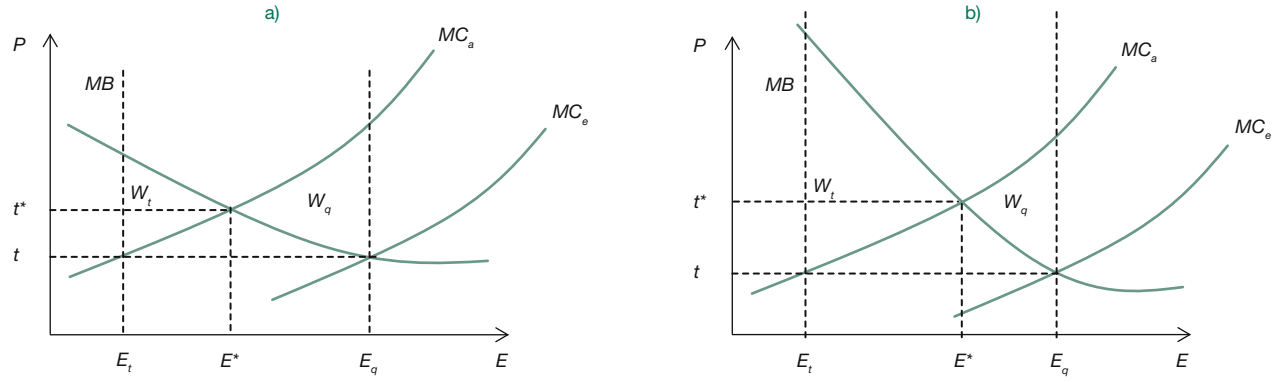
32 C.A. Holt, W. Shobe: Price and Quantity "Collars" for Stabilizing Emissions Allowance Prices. An Experimental Analysis of the EU ETS Market Stability Reserve, Resources for the Future Discussion Paper 15-29, 2015.

33 N. Koch et al., op. cit., p. 683.

34 Ibid., p. 684; M. Grubb, D. Newbery: Pricing Carbon for Electricity Generation: National and International Dimensions, in: M. Grubb, T. Jamasb, M.G. Pollitt (eds.): Delivering a Low Carbon Electricity System: Technologies, Economics and Policy, Cambridge 2008, Cambridge University Press.

35 C. Hepburn: Regulation by Prices, Quantities or Both: A Review of Instrument Choice, in: Oxford Review of Economic Policy, Vol. 22, No. 2, 2006, pp. 226-247; C. Philibert: Assessing the Value of Price Caps and Floors, in: Climate Policy, Vol. 9, 2009, pp. 612-633.

Figure 3
Illustration of Weitzman's theorem



Source: C. Hepburn: Regulation by Prices, Quantities or Both: A Review of Instrument Choice, in: Oxford Review of Economic Policy, Vol. 22, No. 2, 2006, pp. 226-247, here p. 232.

Quantity- versus price-based instruments

The debate on whether emissions should be abated by either price-based interventions (e.g. taxes) or quantity-based instruments (e.g. trading schemes) has been going on for decades. Martin Weitzman formalised this discussion in his seminal paper.[36] According to Weitzman's theorem, under perfect information, price- and quantity-based instruments yield the same optimum of emission abatement, regardless of whether the price or the quantity is fixed. Indeed, if the shapes of the marginal benefit curve (*MB*) and marginal cost curve (MC_a) were to be known, either the emissions cap E^* or the tax rate t^* could be set (Figure 3) and both alternatives would provide the same optimal price-quantity combination.

Yet, if the shapes of *MB* and MC_a are unknown – as is the case in reality – price- and quantity-based instruments generally yield divergent outcomes. If emission caps and tax rates are set on the basis of expected marginal costs, MC_e, rather than the actual marginal cost curve, MC_a, then the comparative advantage of either instrument, as well as the corresponding welfare losses, depend on the slopes of the curves at their intersection. This is the central insight of Weitzman's theorem.

If MC_a exceeds MC_e and its slope is steeper than that of *MB*, the welfare loss W_q resulting from the excessive cap E_q is higher than the welfare loss due to the conservative tax rate $t = W_q > W_t$ (Figure 3a). In this case, the tax solution would be preferable. Conversely, if the slope of *MB* is steeper than that of MC_a, the implementation of a trading scheme will be preferable, as $t = W_q < W_t$ (Figure 3b). In both cases, the quantity-based solution would abate more emissions than would be optimal: $E_t < E^* < E_q$. This result reverses if actual marginal abatement costs are lower than expected: $MC_a < MC_e$.

Due to the uncertainty about the actual shapes of the marginal cost and marginal benefit curves, there is a highly contentious debate in the literature on which instrument should be implemented in practice. Based on the argument that climate change is a gradual phenomenon and that damages depend on the stock of emissions rather than the current emissions level, Pizer assumes a flat marginal benefit curve resulting from avoiding the marginal damage caused by emissions, because additional emissions would not lead to a stark increase of damages.[37] In contrast, the marginal cost curve is assumed to be rather steep, as it seems plausible that it becomes more difficult to abate emissions after having picked the "low-hanging fruit".[38] In such a set-up, price-based solutions would be favourable. An additional advantage of a tax is that it would offer more planning security than quantitative controls, because a tax is less volatile.[39]

Moreover, Hoel and Karp argue that price-based solutions are more suited to achieve emission targets in the short term.[40] In contrast, quantity regulation would be the preferable option for long-term climate protection agreements that guarantee emission reductions over several decades. The reason for this claim is that limiting emissions would be particularly important if the world were close to a tipping point whose crossing would increase

36 M.L. Weitzman: Prices vs. Quantities, in: The Review of Economic Studies, Vol. 41, No. 4, 1974, pp. 477-491.

37 W.A. Pizer: Combining price and quantity controls to mitigate global climate change, in: Journal of Public Economics, Vol. 85, No. 3, 2002, pp. 409-434.

38 C. Hepburn, op. cit., here p. 231.

39 S. Frankhauser, C. Hepburn, op. cit.

40 M. Hoel, L. Karp: Taxes versus quotas for a stock pollutant, in: Resource and Energy Economics, Vol. 24, No. 4, 2002, pp. 367-384.

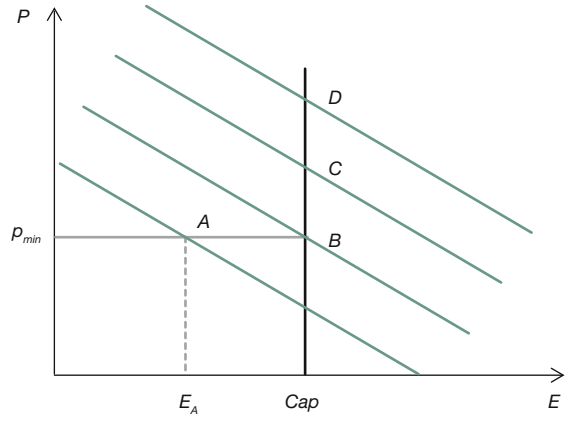
the likelihood of a climatic catastrophe.[41] Crossing the tipping point becomes more likely as the time horizon of the climate protection agreement increases.[42]

The high degree of uncertainty with respect to the shapes of the marginal cost and benefit curves also gives rise to combining both price- and quantity-based approaches into so-called hybrid instruments, such as a trading system with a floor for certificate prices. Price floors would only prove effective in cases of low demand, as they would prevent market prices from falling below a lower bound (Figure 4). A price floor then functions like a tax, the rate of which equals the difference between the price floor and the hypothetical market price that would be observed in the absence of the price floor. In situations where the price floor is binding, companies would invest in additional abatement measures rather than purchasing more expensive allowances, leading to an excess supply (*Cap* - E_A) of allowances (Figure 4). Then an independent institution, e.g. a European Allowance Bank, would have to buy the excess supply (*Cap* - E_A) to stabilise the trading scheme. In essence, a price floor thus causes a reduction of the emissions cap, something that could also be achieved by other measures, however, such as the permanent deletion of excess allowances.[43]

Another hybrid instrument with which the uncertainty about allowance prices among market participants could be reduced is a price corridor.[44] A key property of price corridors is the definition of a ceiling price, which becomes relevant in situations characterised by high demand and high scarcity (demand curve *D* in Figure 4). In such situations, companies would not invest in additional abatement measures when the ceiling price is reached, but would instead purchase allowances. Because the originally fixed supply cannot meet demand, more allowances must be made available, e.g. by a European Allowance Bank. As a consequence, defining a ceiling price in trading schemes is equivalent to raising the emissions cap. The tighter the price corridor in the trading scheme is defined, that is, the smaller the difference between the ceiling price and the price floor, the more it resembles a tax. Conversely, a trading scheme with a broad price corridor resembles a pure trading system, as the allowance price can fluctuate almost freely.

It has been demonstrated in the literature that, compared to pure instruments, hybrid instruments for emission abatement can lead to welfare gains.[45] For instance, in a simulation analysis with rather steep marginal cost curves, Pizer finds that a trading scheme with a trigger price, at which additional allowances are offered to the market, exhibits slightly better welfare effects than a pure tax system.[46] Yet, since empirical evidence on the shapes of the marginal cost and benefit curves is hardly available, this section's theoretical discussion does not provide ultimate guidance on the issue of which instrument may be more suited for emissions reduction.

Figure 4
The effect of a price floor for allowances in trading schemes



Source: Authors' own elaboration.

In practice, a major advantage of retaining the pure trading system without price restrictions is its stabilising effect on economic activity. While high CO_2 prices may dampen economic activity and help to avoid economic overheats in growth and boom phases, in times of economic crisis low allowance prices translate into low power prices and thus may benefit both companies and consumers. In fact, this can be seen as one of the virtues of the ETS: it is inherently cyclical, with low prices prevailing in economic busts when emissions are low and high prices in booms when emissions are high.

In contrast, a price floor has the disadvantage that it increases the cost burden for companies during recessionary periods, while the ceiling of a price corridor limits the dampening effect of high allowance prices in boom cycles. Furthermore, as the "appropriate" minimum price for emissions is unknown, there is no natural upper limit for political interventions with respect to the price floor. Similarly, because the range of excess allowances is arbitrary, the

41 C. Hepburn, op. cit., here p. 232.
42 Ibid., p. 238.
43 There are at least two other options that may prove effective in implementing a price floor: a gap-bridging tax and a reserve price in the auctions. See P.J. Wood, F. Jotzo, op. cit.
44 H. Fell, R. Morgenstern, op. cit.; P.J. Wood, F. Jotzo, op. cit.
45 See, for example, M.J. Roberts, M. Spence: Effluent charges and licenses under uncertainty, in: Journal of Public Economics, Vol. 5, 1976, pp. 193-208; W.A. Pizer, op. cit.; and C. Philibert, op. cit.
46 W.A. Pizer, op. cit.

MSR may also be prone to political interventions that aim at altering its lower and upper limits to impact allowance prices. The resulting uncertainties from such discretionary interventions may negatively affect both the innovation behaviour of firms and their GHG emission levels.

Based on these reflections, we advocate another solution that was also discussed by the Commission: the one-time elimination of a great deal of excess allowances, an intervention that implies a small degree of delegation and ensures a high degree of quantity certainty.[47] For maintaining the credibility of the ETS, however, it would be key to emphasise that there will be no future intervention beyond this one-time elimination to correct for failures of the introductory phase of the ETS, most notably, the generous issuing of offsets resulting from dubious international climate protection projects. More generally, it is crucial to reduce the uncertainty for investors, not least the risks resulting from political interventions.

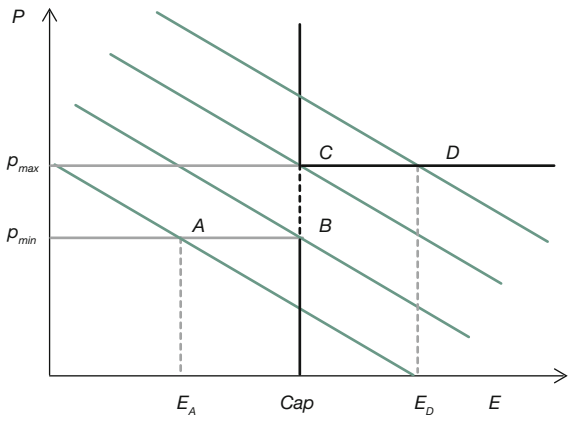
Summary and conclusions

Prices for emission allowances have been notoriously low in recent years. This fact is frequently interpreted as a symptom of the insufficient functioning of the European ETS and is used as justification for the necessity of reforming it. This argument, however, is questionable, as a low allowance price is not a sign that the trading scheme works imperfectly.[48] Rather, low prices may indicate that either the emissions cap has not been ambitious enough, e.g. as the result of a sluggish economy, or that the abatement costs have turned out to be lower than expected.

For both these reasons, at the end of 2013, the surplus allowances in the ETS amounted to more than 2.2 billion.[49] Most of this surplus has been attributed to offsets from international climate projects. Yet, as numerous dubious projects were supported in the past,[50] since 2013 the amount of offsets was limited for each EU member state to half of the emissions to be reduced between 2008 and 2020.

However, these measures, as well as postponing the auctioning of 900 million allowances from 2014-2016 to 2019

Figure 5
The effect of a price corridor in trading schemes



Source: Authors' own elaboration.

and 2020, did not lead to a reduction of the surplus and, hence, the allowance price is commensurately low. Therefore, the Commission recently decided to introduce a market stability reserve, a rule-based mechanism to steer the market volume of allowances, with which it hoped to stabilise allowance prices at a substantially higher level than currently observed. From this instrument, though, significant price increases cannot be expected in the short run, most notably due to its late introduction in 2019. In addition, while the MSR is rule-based, the probability of further political interventions seems high, specifically because it is unclear whether the MSR will be effective. Another disadvantage of the MSR – as well as of other price policies, such as price floors – is that it substantially complicates the linking with other trading schemes.[51]

Therefore, we recommend retaining the trading scheme in its pure form, instead of supplementing it with an MSR. Past mistakes, above all the generous issuing of offsets resulting from dubious international climate protection projects, should be corrected by a single intervention: deleting the 900 million allowances that are planned to be brought back to the market in 2019 and 2020. Irrevocably deleting this amount of allowances will certainly have stronger consequences than temporarily storing them in an MSR. Moreover, if it is politically desired to further stabilise the price, the emissions cap could be reduced more strongly than currently planned (2.2% per year) as of 2021, the start of the fourth trading phase. In sum, as a general rule, it must be recognised that any intervention into the mechanism of the ETS entails uncertainties, most importantly about the future amount of allowances, thereby implying negative consequences for investments.

47 European Commission: The State of the European Carbon Market in 2012. Report from the Commission to the European Parliament and the Council, COM(2012) 652 final, 2012. See also G. Grosjean, W. Acworth, C. Flachsland, R. Marschinski: After monetary policy, climate policy: is delegation the key to EU ETS reform?, in: Climate Policy, Vol. 16, No. 1, 2016, pp. 1-25.

48 S. Frankhauser, C. Hepburn, op. cit.

49 C. Gibis, J. Weiß, C. Kühleis: Stärkung des europäischen Emissionshandels notwendig und greifbar, in: Ifo Schnelldienst, Vol. 68, No. 1, 2015, pp. 26-31, here p. 26.

50 Öko-Institut, op. cit.

51 S. Frankhauser, C. Hepburn, op. cit.