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Can the Market Stability Reserve Stabilise the EU ETS: Commentators Hedge Their Bets

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In response to an imbalance between the demand and supply of permits within the European Union Emissions Trading System (EU ETS), the European Commission has proposed the introduction of a Market Stability Reserve (MSR). The MSR represents a quantity based automatic adjustment mechanism, which is designed to tackle the current surplus and introduce a degree of flexibility, allowing the system to respond to future demand side shocks. While some positive features of the MSR have been highlighted, the design, effectiveness and institutional setting have also come under criticism.

The current European carbon market

The European Union Emissions Trading System (EU ETS) is the central pillar of European climate policy. However, despite expected prices of between 25-39 Euros per tonne of CO_2-e (European Commission, 2009), since January 2013 the European Emission Allowance (EUA) spot price has remained at around five Euros per tonne of CO_2-e. Future prices have been similarly low (ICE 2014). The low price can be attributed to a series of unforeseen shocks that have depressed demand, including: the economic and financial crisis; the large import of offsets credits, and policy uncertainty as well as lack of long-term credibility with regard to future emission targets. As a result of these events, it is estimated that the market is oversupplied by some 2 billion allowances (see Figure 1). Moreover, as the annual schedule for releasing new permits into the market remains unchanged an oversupply of allowances will likely persist well beyond 2020.

As emissions are controlled by the cap, the surplus will not affect the environmental effectiveness of the EU ETS. However, a persistent surplus and resulting low price may delay much needed abatement and lock Europe into high carbon investments and technologies. Given that the costs of decarbonisation are likely to be lower the earlier investments in long-term mitigation efforts take place (IPCC 2014), there is a risk that under the current setting, the EU ETS will not achieve cost efficient emission reductions over the longer term (European Commission, 2014). In addition, it has been argued that under the current setting, the EU ETS will not facilitate broader European Union (EU) climate goals such as demonstrating global leadership or internalising the social cost of carbon (Grosjean et al., 2014).

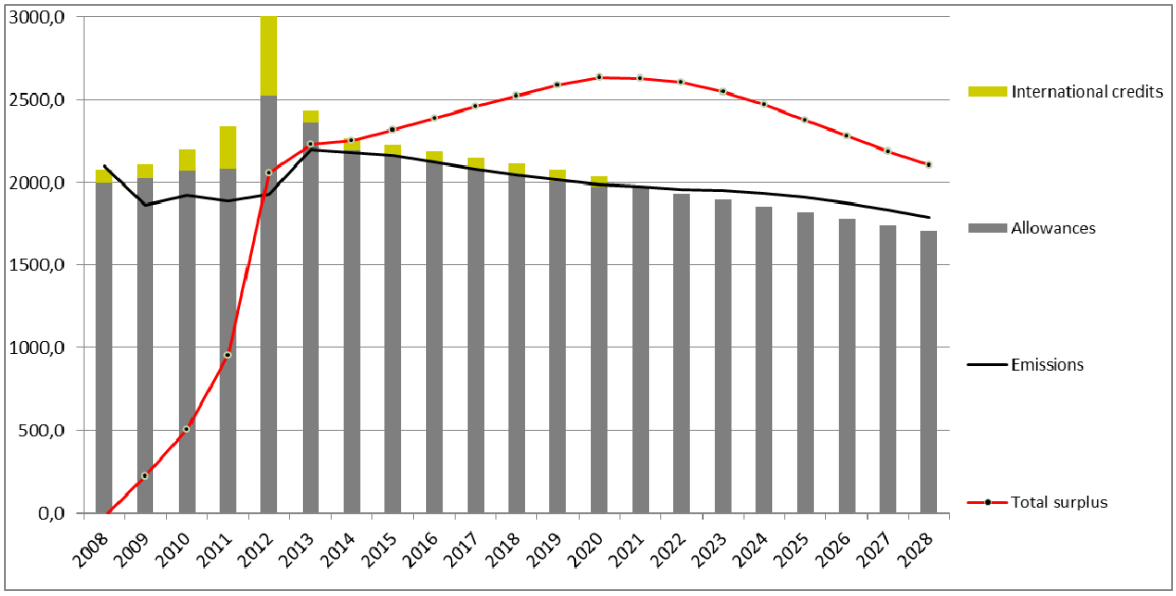

Figure 1: Historical and projected supply and demand in the EU ETS allowance market, 2008-2028

Note: the calculations assume an emissions profile in line with the 2030 Impact Assessment Reference Scenario (European Commission 2013). Given international credits are likely already to be held by utilities, industry and financial intermediaries, today's surplus may be higher than that depicted in Figure 1.
Source: European Commission, 2014.

Perspectives on the low price

The fall in the carbon price has been interpreted in a number of different ways. Firstly, given the opportunity for banking in the EU ETS, some have attributed the low price to low future expectations surrounding the scarcity of permits. For example, Europe was hit hard by the economic crisis, depressing output and therefore demand for emission permits. As an example, production in the steel industry declined by 28 per cent from 2008 to 2009 (Eurostat, 2013). Furthermore, given proposed changes to restrict the use of international offsets in Phase III of the EU ETS, there was a rapid import towards the end of Phase II. It is estimated that by 2012, firms had already surrendered 60 per cent of the maximum amount of offsets permissible for the entire period 2008-2020 (Point Carbon, 2013). Furthermore, it is likely that at least some of the additional allowed Phase II offsets have already been banked by EU ETS market participants for future compliance, contributing further to the surplus.

In addition, expectations of low future scarcity may reflect a lack of credibility surrounding long term European climate policy. For example, the uncertain international climate policy setting and the prospects for a new international agreement envisaged for 2015, likely fuel doubts concerning the future stringency of EU climate policy. Yet even with certainty surrounding future targets, some have questioned the credibility of climate commitments, if climate policy suffers from time inconsistency (Helm et al., 2003). Some authors suggest this could occur due to several inherent features of climate policies, including: (i) the multiple and conflicting objectives (abatement, public finance, low energy prices) faced by governments; (ii) the irreversibility of large scale energy investments; as well as (iii) the possibility to ex post renege on ex ante regulatory pledges regarding emissions

caps or carbon taxes (as has been witnessed in Australia) (Brunner et al., 2012; Helm et al., 2003).

The interpretation outlined above relies on the classic assumption of unlimited banking with constant discount rates applied in theoretical permit market models (Bossetti et al 2008; Leiby and Rubi, 2001), but gives no consideration as to why individual actors bank emission permits. According to the Neuhoff et al (2012), comparable with other commodity markets, the discount rate applied to future permits depends on the strategy which motivates banking permits. Interviews with the power, industry, and finance sectors, suggest that actors which bank permits to hedge against carbon risk discount future permit prices at a rate of about 5 per cent per annum. However, experience from other commodity markets suggests that speculators expect returns in the range of 10-15 per cent per annum as they must be compensated for the risk of holding carbon permits (Bessembinder, 1992; Wang 2001). Furthermore, speculative carbon market investments must secure similar returns to those in other commodity markets.

Following this line of argumentation, the size of the permit surplus will have implications for the permit price. Specifically, when the surplus exceeds the hedging demand of covered entities; the market becomes dominated by speculators. Therefore, there is a jump in the average discount rate applied to the expected future carbon prices and as a result prices drop. Under such conditions, the average discount rate applied to future permits is well above that of a social planner and abatement will not be allocated (socially) appropriately through time. Evidence suggests that this is currently the case, as the permit surplus exceeds 2 billion while the hedging demand is estimated to be somewhere between 1.1 and 1.6 billion permits.

While previously many have argued strongly against intervention in the permit market, after almost eight years of experience with the EU ETS, there is a growing consensus (albeit from different perspectives) that the system would benefit from the flexibility to adjust short term permit supply in the face of unforseen events (European Commission, 2014).

The proposed Market Stability Reserve

In direct response to these concerns, in January 2014 the European Commission announced, as part of the *Policy Framework for climate and energy in the period from 2020 to 2030* the introduction of a Market Stability Reserve (MSR) from 2021. The MSR is complimented by a short-term measure to postpone the auctioning of 900 million allowances (back-loading) and a downward revision of the linear reduction factor (from 1.74% to 2.2%, also from 2021). The proposed MSR is designed to respond to unforeseen events by adjusting the supply of allowances based on pre-defined rules surrounding the level of permit surplus. By monitoring 'Allowances in Circulation' the MSR either feeds permits into or releases permits from a reserve such that the permit surplus is maintained within a certain band. In addition to quantity based thresholds, the MSR is also activated via a price based trigger. While the European Commission also discussed at length the impact of a permanent retirement of allowances, this appears to be off the table for now.

What commentators are saying

Analysts and policy commentators have highlighted both positive and negative features of the MSR. On the positive side, it has been argued that the MSR provides

much needed flexibility to deal with future unforeseen events. Furthermore, assuming the quantity triggers are set in line with the hedging demand, over the medium term the MSR will ensure scarcity pricing. In addition, it has been noted that the mechanism is simple and transparent and will therefore allow market participants to form clear expectations regarding short term permit supply adjustments. As permits are never retired, the mechanism is also cap neutral, leaving decisions regarding the ambition of climate policy in the hands of the politicians. Finally, as the mechanism is prescribed in legislated rules, it mitigates the risk of future ad hoc and unjustified interventions and protects the system from gaming and regulatory capture.

While these positive features have been highlighted, the design, effectiveness and institutional setting of the MSR have also come under criticism. Firstly, the impact of the MSR depends heavily on assumptions regarding hedging behaviour of the power sector. Recent studies have enhanced our understanding of the hedging strategies and it is generally understood that the volume of hedging demand is dictated by the quantity of power sold forward (Doege et al., 2009; Hau Fan et al., 2010; Plazer et al., 2013). However this is a corporate specific strategy that will be adjusted when forward prices deviate from previous expectations (Schopp and Neuhoff, 2013). Furthermore, the hedging demand of the market will evolve as the electricity sector incorporates a greater share of renewable sources and as industries are increasingly required to purchase permits at auction. This results in a situation where, as pointed out by the European Commission, *'only a part of the power sector's hedging behaviour is understood and published data on it far from complete'* (European Commission, 2014, pp. 20). Therefore, there is a degree of concern that a pre-determined surplus will not be set in line with the hedging demand.

Secondly, concerns have been raised regarding the timeliness of the MSR (Pöyry, 2013; Trotignon et al., 2014). As the MSR is triggered by observed data, it responds with a two year lag and therefore adjustments are only made once an event has actually occurred. A delay between the time when the change in the surplus took place and when an intervention is made could reduce the effectiveness of the instrument and potentially increase price volatility. In reality, market participants should anticipate interventions and induce self-adjusting behaviour, reducing to some degree price volatility (Taschini et al., 2014).

Thirdly, the focus on quantity has also been criticised. Specifically, it is unclear what exactly the effect of the reserve will be on allowance price formation. As no credits are to be 'cancelled' they will conceivably be released onto the market at some point in the future. Hence, while short term removal may have some upward impact on the current price, the expectation that permits will again be returned to the market at some future date is likely to depress medium to long term prices (Ceteris Paribus). Indeed it is difficult to assess how participants will respond to a perennial reserve and the potential for permits to be retained (but not cancelled) indefinitely. Therefore, some authors argue in favour of price based triggers. For example, Taschini et al. (2014) claim that the price trend over a given period would be the simplest, most transparent and least easily manipulated trigger for permit market adjustments. Alternatively, Fell and Morgenstern (2009) find efficiency gains from a price corridor with upper and lower price level triggers compared to a classic cap and trade scheme.

In addition to these design based criticisms, there is also concern that the reform proposal will not erode the current surplus quickly enough (Mathews et al., 2014). Indeed, modelling from the Öko Institute (Mathews et al 2014) and the European Commission (2014) demonstrates that even in the presence of the MSR, the surplus will likely persist well into the third phase of the EU ETS (2020-2028). Therefore, while the MSR provides flexibility to respond to future unforeseen events, it does not

effectively tackle the core problem – the current surplus. Hence, it has been argued that the reform could be complimented with the permanent retirement of allowances (Mathews et al., 2014).

Finally, the institutional setting within which the MSR will operate has also faced criticism. As discussed by Grosjean et al. (2014), a rule based approach can accommodate small unforeseen events, however, it is not clear a rule can adequately accommodate the range of possible 'unknown unknowns' that may affect the carbon market. Such concerns are supported by recent modelling of the MSR by the European Commission (2014). According to the research, the European Commission's proposal would not have been designed to accommodate the scale of economic shock witnessed in 2011 and 2012. Hence had the MSR been implemented in the beginning of phase two, the surplus would have been roughly the same in 2013 as without any adjustment mechanism (European Commission, 2014).

Furthermore, as announced by the European Commission, the MSR will undoubtedly require review and potential revision. Indeed the first review of the mechanism is foreseen by 2026. However, there is concern that periodic revision of the mechanism creates additional policy uncertainty and may hamper its long-term credibility (Grosjean et al., 2014; Poyry, 2013; Trotignon et al., 2014). Koch et al. (2014) and the European Commission (2014) provide empirical evidence to support such concerns, demonstrating that policy announcements have had a significant impact on price formation over the first two phases of the EU ETS.

Alternative policy options

The MSR represents one of a number of options that have been proposed to manage allowance markets. For example, Taschini et al. (2013) propose a 'Rule Based Reserve Management Mechanism' which adds or removes permits from the market based on a price trend trigger. The authors argue for a price trend trigger over quantity based triggers as they claim it is simpler, more transparent and less easily manipulated. Moreover, a price level triggered reserve was contemplated as a feature of the Waxman–Markey bill (Section 726) within the United States. Battles et al. (2013) also discuss a potential mechanism built upon external triggers such as measures of primary energy demand, the price of fossil fuels or Gross Domestic Product. These triggers are then applied to define how the quantity of allowances should be modified whenever the real carbon price deviates from a pre-determined carbon price stabilization range.

Outside of the European debate, flexibility mechanisms have been built into legislated emission trading schemes in North America and Australia. For example, the Californian and Québec emissions trading systems insure against unforeseen events via a reserve price at auction combined with an allowance reserve. The minimum price at auction acts as a quasi-price floor as no permits are sold unless the trigger price is hit. In addition, a reserve containing five per cent of total allowances is used to contain price hikes by releasing permits at a fixed price, once certain price triggers have been reached. Alternatively, Australia has opted for a five-year rolling cap, to maintain greater flexibility in setting medium term targets. Under the rolling cap mechanism, at the end of each year, the year n+5 emissions cap is set based on advice from an independent Climate Change Authority. As discussed by Sartor (2012) the approach seeks to combine flexibility to adjust supply in response to unforeseen events with predictability and credibility regarding long-term emission pathways.

Finally, institutional reform has also been proposed as a mechanism to balance flexibility and credibility in an allowance market. For example, Trotignon et al. (2014. Pp. 8) favour *a governance reform setting up an independent authority with a specific*

mandate to dynamically control the supply of allowances and send a readable and credible price signal to economic actors. From a list of price stability options, Clò et al., (2013) also favour an independent institution that manages a pre-determined price collar. In addition, the establishment of a Carbon Market Efficiency Board, which would balance emission reductions with economic growth, has also been proposed in the United States (Congress Lieberman-Warner legislative proposal (S. 2191).

Conclusion

The proposed introduction of a MSR reflects a growing consensus that the EU ETS would benefit from added flexibility to respond to unforeseen events. However, there is currently a divergence in opinion as to which tools should be used to achieve such flexibility and which institutions should have control over these tools. The European Commission has proposed one such mechanism, which can be characterised as a quantity triggered rule base adjustment reserve. Commentators have put forward arguments both for and against this proposal. This will be the starting point of an intense debate regarding the appropriateness and effectiveness of the proposed mechanism. This debate would no doubt benefit from a detailed and balanced assessment of the various options and their likely impact on the behaviour of market participants.

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