

CER-EUA Arbitrage: a Trader's Paradise?

Arbitrage is a powerful mechanism under free trade. It means that with perfect markets, market players tend to use market information for their own benefit, which implies that if prices of similar commodities or services differ at the same time, buyers/sellers will choose the most attractive commodity/service. Consequently, net demand for the cheaper commodity/service increases, which coincides with price rise, whereas demand for relatively expensive commodities/services decreases, followed by a price drop.

Prices thus tend to converge to parity. International trade can be considered a reflection of international arbitrage of goods and services. Moreover, exchange rates are virtually the same everywhere due to arbitrage, and (after correcting for exchange rate expectations and risk factors) so are interest rates worldwide, *etc.*

Arbitrage works best when markets are transparent, products similar, and trade free and undisrupted. So, why would arbitrage not work on the CO₂-credit market? After all, the CO₂ market seems transparent, its product (credits) homogeneous and thus similar, while there do not seem to be serious trade restrictions. Nonetheless, arbitrage on the CO₂-credit market has so far not seemed to work that well. Why?

Let us focus on the EU ETS market where EUAs are traded between the installations covered by the scheme. This market has now been in operation for over two years, and average trading volumes have grown to levels of about 60 m EUAs per month. This market thus seems to have grown out of its infancy stage and in fact has matured rapidly. A peculiar and underemphasised aspect of the EU ETS is the so-called linking directive (2004/101/EC), which was initiated by the European Parliament in 2003 and adopted by the Council of Foreign Affairs Ministers on 16 September 2004. According to the linking directive, individual ETS installations can, albeit under certain (relatively weak) conditions, purchase CERs and as of 2008 ERUs to increase their EUA amounts, just as they can purchase EUAs based on unused quota of other EU ETS installations. Therefore, the linking directive creates an important 'loophole' in the system: 'if you can't get a credit from within the system, try to find a KP-based one from outside the system'.

The linking directive was clearly a political compromise to enhance acceptance of the EU ETS. By accepting a one-on-one conversion rate between KP-based credits and EUAs, also the obvious dilemma of how to value CERs and ERUs in comparison with EUAs was bypassed: it was assumed that both types of credits would be comparable just because they are expressed in tonnes of CO₂-eq. Obviously, this assumption lacks a serious basis, because the true value of

any credit is fully determined by the terms and conditions of its underlying system. Therefore, comparing credits from different trading schemes is really comparing apples with pears (would it not be time for a good theory on exchange rates for carbon credits?). This issue is very serious and particularly relevant in light of the EC Communication in November last year on the agenda for revising the EU ETS after 2012. This Communication has opened a discussion on how the EU ETS can be linked to existing or future schemes in third countries, such as in the USA or Australia: how are we going to deal with the conversion of inherently different species?

Anyhow, based on the presently used 1:1 'exchange rate', individual installations can, at least during the present 2005-07 EU ETS phase, use CERs (except those based on nuclear energy, LULUCF and non-WC-on-Dams-compliant hydro projects) for compliance without any limitation (the former EC proposal to introduce a cap of 6% of installations' total EUA allowances was not accepted). Even if the original EC proposal would have been introduced, that condition would probably not have posed a very restrictive limitation since most installations only tend to trade a limited fraction (<10%) of their allowances, simply because they need the main share of it for enabling their normal business operations.

Having said all this, one would expect arbitrage between CERs and EUAs and a convergence of their prices on the market. The carbon market data, however, show a different trend. While EUA prices steadily climbed from the start of the scheme on 1 January 2005 from a level of about €5-10 during the first two months towards levels between €20 and €30 during mid-2005 and April 2006, CER prices remained much lower and climbed during the same period (01/01/05 - 01/07/06) from levels of about €5 to €8 only (average). Such different data does not suggest convergence at all: in fact the absolute difference between EUA- and CER prices increased from a few euro only in early 2005 to about €20 in Spring 2006.

After the 18 April 2006 EUA price peak, prices collapsed in a few weeks to levels close to €10/EUA. After that, 2006 prices climbed again to about €15, but a second even more devastating decline followed

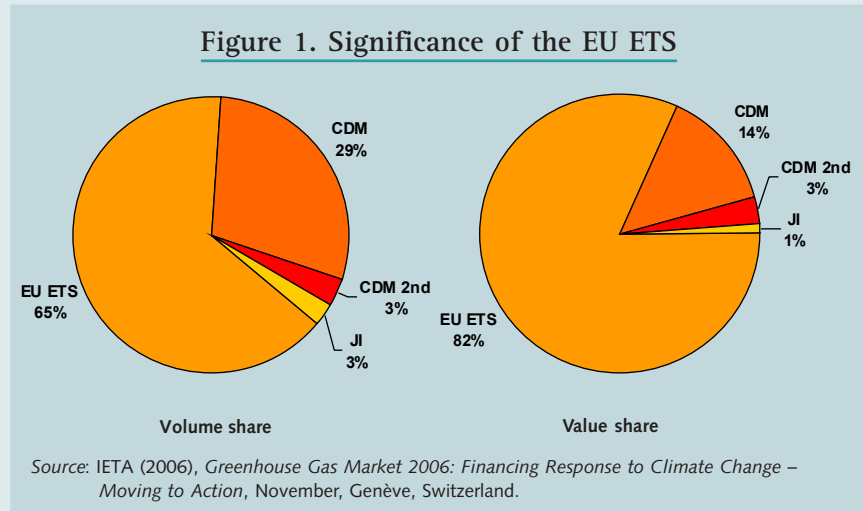
during the last few months to the present level of less than €1.20/EUA. In fact, based on the net market positions, EUA prices may well decline to levels close to zero during the next months. How have CER prices developed in the meantime? Again quite differently! First, they were hardly affected by the April 2006 EUA market collapse, and in fact kept rising gradually from an average €5 during 2005 to an average €8 for the first half of 2006.¹ Similarly, CER prices seem to be hardly affected by the present price decrease on the EU ETS.

With EUA prices jumping up and down due to not-easy-to-predict political and bureaucratic allocation decisions, and CER prices instead following their own track, both prices will at a particular moment coincide. This happened during the last months of 2006 when EUA- and CER prices moved close to €10 and in fact in November 2006 €10 CER bids were registered that surpassed the benchmark of October–December 2006 EUA price (of about €9 on average). Some commentators argued by that time that, since the carbon market is dominated by the EU ETS (see Figure 1), CER prices would now largely be linked or even pegged to EUA prices. Earlier history had, however, provided very little evidence for that argument, and neither have actual market developments since then. Therefore, it looks like the conclusion of these commentators was simply wrong. In fact, there seems to be a structurally different price trend between CERs and EUAs. How can this lack of price parity, and therefore lack of arbitrage, be explained?

A number of explanations come to mind.

Non-transparency of credit markets

Credit markets still lack transparency: of the 362 Mt EUAs traded in 2005 within the EU ETS, about 100 Mt was estimated to have been traded on the (non-transparent) bilateral market, 207 Mt in a non-standardised form via over-the-counter (OTC) brokerage which is at best slightly more transparent than bilateral trade, and only some 55 Mt (or 15%) via the transparent carbon exchange market



(mainly the European Climate Exchange, ECX). For 2006 the picture was similar, although the OTC-share declined in favour of transparent exchanges. Particularly the CER market is considered complex and non-transparent and still seems to be dominated by private parties who seek credits for compliance.

The same non-transparency is also reflected in the differences between CER prices depending on risks and reputation (e.g., in terms of projects' contribution to sustainable development) related to specific CERs. To illustrate: last month, medium-risk CER prices ranked €4-6; low-risk CER prices €7-8; CER prices based on registered projects €8-11; and issued CERs €11-13. Are you getting confused already? At the same time, NGOs propagate 'gold standard' CERs and individual CER buying governments formulate their own restrictions. Moreover, arbitrage was further slowed down by the delay in awarding the contract for the construction of the International Transactions Log (ITL), which is indispensable for transferring CERs to National Registries of EU member states so that they can be activated for EU ETS compliance.

In short, there still is a long way to go before the EUA and CER markets are fully transparent, not the least because it may well be in the interest of the trading community to maintain the present situation as they generate profit from the markets' non-transparency.

The cap

A 'supplementarity cap' in the linking directive, when activated, may act as an obstacle for arbitrage only as far as it generates a real restriction to trading by the individual installations and as long as EUA prices exceed CER prices. In the absence of a cap during the EU ETS first phase, this has been a non-issue so far. However, even within a capped system, the scope for arbitrage is still enormous. Suppose that with a 10% cap all installations would exactly have sufficient EUAs for their own compliance but would want to fully use their room for arbitrage by selling EUAs and buying CERs until parity would be reached. If applied to the first EU ETS phase, given the 6.6 bn tCO₂ total allocation, this would theoretically have involved a very massive trading volume despite the cap. Compare this to the volume of issued CERs thus far: only slightly over 31 Mt CO₂-eq.!

For the EU ETS second phase, EU member states can propose a cap (as a percentage of their total or individually allocated EUAs) on the use of CERs and ERUs. This has led to proposals ranging from a 50% cap for Spain, to 20% and 12% in the NAPs of Germany² and the Netherlands³, respectively. If, and to what extent, the final supplementarity caps will become actually binding in a second phase, remains to be seen, but caps will have no impact at all, as long as EUA prices will remain below CER prices.

The rationality assumption

Arbitrage assumes rational traders who take full advantage of given price differentials in the market. Any installation would therefore be expected to buy CERs and sell EUAs within the boundaries of the system if CERs would be cheaper than EUAs. In practice, this assumption does not seem to hold.

The results of a recent inquiry among some

1 Røine, K. et al. (2006), 'The Global Carbon Market in 2006 – an Overview of Prices and Volumes' in: Kirkman, A.-M. (ed.), *Greenhouse Gas Market 2006: Financing Response to Climate Change – Moving to Action*, IETA, Genève, Switzerland.

2 Germany has accepted an earlier contested 465 million allocation for the second phase per year, but increased the cap on project-based credits from 12% to 20%.

3 Earlier, 8% was proposed by the Netherlands but a 12% limit on linking was adopted in its NAP submitted to the European Commission (EC). In its communication, the EC has stated that this is not in conformity with the Netherlands supplementarity obligations under the Kyoto Protocol. Instead, the Commission would like to see the Netherlands reduce this cap to 10%. Although the Commission has not yet decided on Spain's NAP, the same reasoning applies for Sweden.

40 Dutch EU ETS installations⁴ (utility combustion plants, oil refineries, iron and steel production, paper and pulp production, etc. with different sizes) illustrate how little understood and used the credit market still is. The inquiry revealed that the emissions trading strategy was mostly developed within the own company (54%), or with the help of intermediaries (27%); some 20% of the companies indicated not to have an emissions trading strategy.

The inquiry also revealed that because the total value of the allowances makes such a small part of the balance sheet, the firms did not consider it necessary to fully dedicate employees to emissions trading. Moreover, the majority of the companies stated that they expected emissions trading not to become a core-business between 2008-12. Almost 30% of the installations were not aware of the possibility of using CERs for EU ETS compliance. Furthermore, almost 60% of the companies expected that they would not use any CERs during the second period (even if there would be interesting arbitrage opportunities). Interestingly enough, some 15% expect to fill up their commitment with CERs to the maximum extent allowed, whereas there was no relation between the number of allowances allocated to a company and the expected use of CERs.

This information suggests that only a small part of the installations sees a role for themselves as active arbitrageurs; the majority of them seems less interested in such business opportunities, probably because it is not their core business.

To conclude, conditions for arbitrage between CERs and EUAs are still far from perfect; credit markets are still non-transparent, institutional factors such as caps may occasionally further complicate

the functioning of the market, and only a few specialised installations seem interested in the arbitrage business. Together, this forms an ideal business environment for specialised trading firms to make lots of money on this market. However, is it not true that arbitrageurs' main interest is in trading and not in generating parity yet? As long as there is so little transparency, this 'trader's paradise' may last for quite a while.

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The Joint Implementation Quarterly is an independent magazine established to exchange the latest information on the Kyoto mechanisms and emissions trading. *JIQ* is of special interest to policy makers, representatives from business, science and NGOs, and staff of international organizations involved in the operationalization of the Kyoto mechanisms, including emissions trading.

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Abbreviations

CERs	Certified Emission Reductions (Article 12 Kyoto Protocol)
EC	European Commission
ECX	European Climate Exchange
ERUs	Emission Reduction Units (Article 6 Kyoto Protocol)
EUA	European Union Allowance (under the EU ETS)
EU ETS	European Union Emissions Trading Scheme
ITL	International Transaction Log
KP	Kyoto Protocol
LULUCF	Land Use, Land-Use Change and Forestry
NAPs	National Allocation Plans
NGOs	Non-governmental organisation
OTC	Over-the-counter
WC-on-Dams	World Commission on Dams

4 Wolff, A.B. de (2006), *Arbitrage Opportunities Between EU Emission Allowances and Certified Emission Reductions: the Functioning of the Linking Directive*, MA thesis, Faculty of Economics, University of Groningen, September. Downloadable from: <http://www.jiqweb.org/arbitrage.pdf>.