Linking Emission Trading Schemes: Pros and Cons

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Abstract

Linking emissions trading schemes is the bottom-up approach to creating a global carbon market. It entails political compromise and a careful assessment of the trade-off between its advantages and disadvantage. The main benefits of linking are the reduction of the aggregate compliance and transactions costs, the reduction of the competitive distortions and the increase of market liquidity. However, there are also drawbacks as differences in certain design elements can challenge the environmental policy objectives through free-riding and emissions leakage. Therefore, a linking project requires solutions to harmonize those design elements which pose barriers to an effective linkage.

Introduction

Linking Emission Trading Schemes (ETSs) has become a topic of international interest, especially since small schemes have started to emerge at regional or country level. Moreover, intentions for linking existing schemes have already been expressed, at least on a political level. For instance, the EU Commission and the Australia officials have announced plans for a full linking of the two systems as soon as July 2018, with an interim one-way link from July 2015.[1] Similarly, the link between the California ETS and the Quebec scheme is said to become effective as of January 2014.[2]

Since linking cap-and-trade systems is seen as one of the approaches to creating a global carbon market, also called the bottom-up approach, it is important that the implications of linking one or more schemes are well understood. Thus, this paper aims at examining some of the implications of ETSs linking through arguments put forth for and against this approach towards a global ETSs network, in the absence of an international agreement for climate change mitigation.

When talking about linking two ETSs, what comes first into an economist's mind is trade liberalization. Therefore, one can make the analogy of linking ETSs with the case of international trade whereby countries go from autarchy to trade. Thus, one could think that the principles, advantages and disadvantages of international trade should immediately apply to the emissions permit markets. However, an emissions permit is not an usual asset or commodity, as its intrinsic value depends on the administrative and legal constraints, particularly with respect to their recognition from one jurisdiction to another. Moreover, the legal system and the regulatory framework in each jurisdiction may create barriers to this "trade liberalization." Therefore, special protocols must be developed and they often involve a negotiation process and political compromise. In addition, when assessing the advantages and disadvantages of emissions markets linkage, one should not consider only the economic but also the environmental impact of linking and the trade-off between the costs and benefits of each.

Two systems can be linked either directly or indirectly and unilaterally or bilaterally. Two ETSs are said to be fully linked, or linked in a bilateral manner, when the compliance instruments (emissions allowances or credits) are mutually recognized in both systems. A unilateral link has the compliance instrument from one system being recognized by the other system, but not reciprocal. In addition, two systems can be directly or "formally" linked when the two systems have made explicit agreements for linking, or indirectly, when they are linked through a third scheme, for instance a scheme of offsets or credits.[3]

An example of a linked system is the EU ETS in its Phases I and II where the initial allocation was decided on a national level and firms could trade cross-country. For Phase III, however, this is not maintained since the initial allocation is centralized, thus, the EU ETS is one whole scheme. Other existing links are between the Norwegian ETS (a cap-and-trade system) and the Clean Development Mechanism (a credit system). Moreover, there are several visions for system linking in the future. For example, the EU Commission has expressed the proposal to establish an OECD-wise carbon market by 2015 and the creation of an EU-US working group for the creation of a common emissions trading system.[4] In addition, China and India are considered the other big players, whose participation would lead to the creation of the key building block towards the establishment of the global climate architecture.

Due to space limitations, this short analysis focuses on the direct bilateral linking only and aims at dwelling on the advantages and disadvantages provided by linking.

Arguments *for* linking

The major argument for linking is the price convergence, i.e. the formation of a common carbon price. This is considered to improve efficiency and certainty as it creates a larger pool of available

[1] http://ec.europa.eu/clima/news/articles/news_2013012401_en.htm
[2] Air Resource Board: http://www.arb.ca.gov/regact/2012/capandtrade12/3d15daylinknot.pdf
[3] (Flachsland, Marschinski, & Edenhofer, 2009)
[4] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0039:FIN:EN:PDF

compliance instruments and widens the options for carbon mitigation. Therefore, the larger the distance between the initial prices, the higher the cost saving potential and the reduction of the aggregate compliance cost. In addition, by enlarging the market, concerns of market power and market abuse[5] will be reduced and the probability of the true revelation of the marginal abatement cost would increase. A large market provides also more liquidity and lower transaction costs. Moreover, price volatility and shocks in one system may be alleviated and absorbed within a larger market, thus increasing certainty for investors.[6] From a political point of view, this is also a positive aspect because it increases acceptance of the environmental policy among businesses.

Apart from the price convergence and cost saving reasons, maybe one of the most important effect of ETS linking is the signal it provides for long-term commitment to climate change mitigation actions. This commitment provides farther certainty to the businesses in the sense that the climate policy is here to stay and it becomes a constant to be taken into account in business decisions.

When adopting environmental policies such as an ETS, strong opposition is faced by the sectors affected by international competition. With linking, this concern is eliminated between the linking partners, due to the price harmonization, but it remains in relation to the unlinked partners.[7] A side effect of implementing environmental policies, such as a cap-and-trade system, is the phenomenon of leakage, when the industrial activity, hence the emissions, moves to unregulated or mild-regulated jurisdictions. Moreover, when markets are linked without coordinating caps, there is incentive for the permit sellers to increase their caps and the total emissions might actually increase. Therefore, if markets are linked, it is preferable that caps are coordinated immediately because it will always give a positive surplus that can be redistributed.[8] Moreover, if the need for harmonization between the cap-and-trade systems passes the political and legal barriers, linkage can create pressure on a loose-cap jurisdiction to strengthen its cap-and-trade policy.[9] This is a significant environmental benefit of linking.

Nevertheless, for the benefits of linking to produce themselves, several design elements require harmonization. While linked ETSs may maintain differences regarding their design, the literature has identified some elements which are critical to the well-functioning of the link. For instance, **big differences in the stringency of the cap** may result in political opposition since, following the link, prices will converge. Although large pre-link price differences constitutes strong economic motivation for linking due to the large potential of cost saving, this may produce political pressure and opposition because money will flow from the ETS with the lowest cap, thus the highest initial price, to the ETS with the highest cap, thus the lowest initial price.

Another political opposition may result from **differences in off-sets recognition** policies**.** Due to linking, an ETS may end up de facto recognizing offsets which are not de jure recognized, since these offsets would free up domestic allowances from the linked system.[10] Finally, the existence of a **price management mechanism**, particularly a price ceiling, in one system only would trigger increased emissions in all systems with which this is linked, in case the price reaches the ceiling. Finally, **the borrowing policy** can have serious impacts over the environmental integrity in a given system due to the moral hazard issues. Linking with such a system will be a serious problem because it will be seen as importing lower environmental integrity.[11] Hence, certain design elements may be propagated through linking, having the potential of undermining the environmental integrity of the system in which such provisions are missing.

Arguments *against* linking

Despite the major motivation for linking systems, i.e. the minimization of the total cost, there are also arguments which may render linking undesirable. This is because linking can create both losers and

[5] (Tuerk, et al., 2009)
[6] (Zetterberg, 2012)
[7] (Hausotter, Steuwer, & Tänzler, 2011; Bramley, Partington, & Sawyer, 2009)
[8] (Heitzig, 2012)
[9] (Bramley, Partington, & Sawyer, 2009)
[10] (Zetterberg, 2012)
[11] (Bramley, Partington, & Sawyer, 2009)

winners through its distributional impacts. If the caps are not coordinated, linking can create perverse incentives to the net seller who can relax the cap to further increase the sales revenue.[12] Thus, the environmental effectiveness is undermined. Therefore, when the decision makers are not farsighted, the possibility of market linkage with immediate cap coordination is essential for the emergence of the first best state with a global cap-and-trade system.[13]

As mentioned above linking reduces the emissions leakage between the linked systems. However, due to the price convergence, emissions leakage from the system with lower pre-linking price will increase, while leakage from the system with higher pre-linking price will decrease. Hence, depending on the net leakage effect, the global emissions may increase or decrease. For example, it is anticipated that a link between RGGI and the EU ETS would produce large leakage from the RGGI system, thus increasing global emissions.[14] In any case, the potential for leakage resulted from linking systems also depends on the sectors which are covered in each system as some sectors are more prone to leakage than others.

Under some circumstances linking can lead to overall emissions increase if the linked systems have different rules of establishing the cap. Precisely, the link between an ETS with an absolute cap and one with a relative cap can produce total emission increases in the two systems. For example, if following the link the allowance price decreases in the relative system, this translates into lower production cost in this system. Low production cost leads to increase in the production and, thus, more allowances issued in the relative cap system. Moreover, linking between systems with different types of caps may raise competition issues because firms in the relative emissions cap system have incentive to increase production and receive more allowances. This may be regarded as subsidies when compared to an absolute cap regime.[15] A similar perception affecting competing firms in different environmental jurisdictions can appear if the methods of permits allocations are different, i.e. auction versus grandfathering. If large amount of money flows from the system which auctions off the allowances (the net buyer) to the system with grandfathering (the net seller), then the firms in the former system may be regarded as subsidizers of the firms in the latter system. Needless to say, such situation brings about political discomfort.

From an institutional point of view, linking can result in a partial loss of regulatory control if there are large differences in their market designs. Hence, the system's domestic goal will begin to be influenced by the decisions made in the system with which it is linked. For example, if one system implements a price ceiling, this regulation is *de facto* applied in the linked system, despite not being explicitly implemented.[16] Moreover, while price convergence is economically desirable, it may also affect the environmental effectiveness. Linking with a low price system could destabilize the efforts for technological innovation via high permit prices because it leads to the import of lower domestic policy stringency.[17] Hence, linking may adversely affect the domestic environmental policy objective. Generally, different levels of environmental integrity, which may refer to the method of emissions monitoring, verification and reporting or the quality of accepted offsets, are regarded as obstacles to linking because they create an ineffective overall system. In such case, linking will lead to a loss of environmental integrity in the high integrity system.[18]

Finally, regarded from one system's perspective, linking also means imported price volatility. While this volatility may reflect real uncertainty arising from shocks in the linked system, it creates unnecessary costs when it results from poor management of the trading system. Monitoring and reporting of emissions are such management elements that can create artificial price volatility. In this respect, differences in the reliability of the monitoring and reporting methods of the linked systems will induce costly price volatility from the poorly designed system to the more effective system.

[12] (Zetterberg, 2012)
[13] (Heitzig, 2012)
[14] (Jaffel & Stavins, 2007)
[15] (Deloitte Climate Change and Sustainability; Bramley, Partington, & Sawyer, 2009)
[16] (Flachsland, Marschinski, & Edenhofer, 2009)
[17] (Bramley, Partington, & Sawyer, 2009)
[18] (Bramley, Partington, & Sawyer, 2009)

Conclusions

Several political intentions have been expressed for creating links between the existing and the planed emissions trading schemes. Apart from diversifying the abatement possibilities and reducing the aggregate compliance cost, a major benefit of ETS linking is that of signaling long-term commitments to mitigation actions. Among other benefits, this short analysis has revealed that linking has the potential to alleviate price volatility and reduce the phenomenon of leakage. Despite the economic benefits of linking, some design elements may render linking undesirable. While some of these elements are easier to overcome and eliminate the disadvantages resulted from linking (e.g. monitoring, reporting and verification procedure, banking or allowance allocation method), other differences in design pose challenges. For instance, with differences in environmental stringencies linking may adversely affect the policy objectives of the more stringent scheme. Moreover, differences in the rules for establishing the cap may lead to an increase in the overall emissions, thus undermining the environmental objective of linking. Therefore, the decision to link would depend on the trade-off between the cost saving and the distributional and emissions implications of the linking. As it has been seen, apart from technical and legislative preliminary measures, linking entails challenges with respect to the regulatory control and environmental performance. However, since to date there is negligible practical experience with linking, it is, for now, difficult to assess and anticipate all the practical and legislative problems involved. Therefore, any linking project would, before anything else, require careful harmonization of those elements which pose barrier to an effective linked trading system.

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