COMMENTARY

International greenhouse gas emissions trading: who should be held liable for the non-compliance by sellers?

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Abstract

Article 17 of the Kyoto Protocol authorizes emissions trading, but the rules governing emissions trading have been deferred to subsequent conferences. In designing and implementing an international greenhouse gas (GHG) emissions trading scheme, assigning liability has been considered to be one of the most challenging issues. This article discusses a variety of the rules for accountability under international GHG emissions trading. It indicates that a ‘buyer beware’ liability is effective only to the extent that it puts additional pressure on sellers to comply with their commitments because after all sellers exercise great, if not complete, control over whether or not they comply with their commitments. Because putting such a pressure on sellers to develop effective compliance systems is not without costs to buyers, a ‘buyer beware’ liability should thus be imposed only in the case where non-compliance of sellers is virtually certain to occur. Moreover, in determining the optimal combination of these not-mutually-exclusive rules for accountability that are discussed in the article, the marginal benefits of adding one rule needs to be weighted against the increased costs of doing so. © 1999 Elsevier Science B.V. All rights reserved.

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1. Introduction

The question of which party—the buyer, the seller or both—is liable for non-compliance by the seller who over-sells its permits and then fails to comply with its commitments is one of the most challenging issues in designing a workable emissions trading scheme. Given the fact that Article 12 of the Kyoto Protocol (UNFCCC, 1997) authorizes Annex I countries to acquire the certified credits obtained from the Clean Development Mechanism (CDM) projects with non-
Annex I countries, the issue of liability for the validity of the credits is of less concern in the CDM case when the credits have been certified. Thus, some analysts suggest that the transfers and acquisitions of allowances in an international emissions trading scheme could be envisioned along this line. Any extra allowances to be sold first have to be verified and certified prior to trading. Other analysts even suggest that in order to ensure that the seller only sells those assigned amounts surplus to its compliance requirements, any extra allowances are allowed to be sold only after compliance has been established. This would increase the environmental performance of the scheme by reducing uncertainty surrounding the validity of acquired allowances. In the meantime, however, it would restrict legitimate trading activities during the commitment period. This could significantly increase the costs of participating in emissions trading and thus reduce the volume of trades. Moreover, it still does not eliminate the risk of over-selling, since the surplus assigned amounts from the first commitment period might be needed by the seller during the subsequent commitment periods. Thus, rules that address the risk more effectively and allow trading during the first commitment period need to be established. They are essential to the success of emissions trading (Environmental Defense Fund, 1998). By providing some new insights, this article aims to contribute to the in-depth discussion on the rules for accountability, thus contributing to the design and implementation of an international GHG emissions trading scheme.

2. ‘Seller beware’ liability

Because Article 3 of the Kyoto Protocol refers to the transfers of allowable emissions from one nation to another without suggesting that transfers could be invalidated, some observers think that Article 17 implicitly means that trading rests on the so-called seller-only liability or ‘seller beware’ liability (Rolfe, 1998). Under a ‘seller beware’ regime, any permits acquired by the buyer are valid regardless of whether the seller is in compliance with its commitments under the Protocol, and all permits would be worth the same no matter where they originated. Because buyers bear no risk under the ‘seller beware’ liability, they are more likely to become active in the market. This would stimulate the development of a more robust trading market. This is essential to the successful function of emissions trading, particularly in the initial start-up stage when few potential buyers, if any, have any trading experiences.

‘Seller beware’ works well in domestic emissions trading schemes, such as the US SO2 allowance trading program mandated in Title IV of the 1990 Clean Air Act Amendments, whose built-in effective enforcement mechanisms make non-compliance very expensive and unattractive (Ellerman et al., 1997). However, an international ‘seller beware’ trading scheme will be problematic given the fact that enforcement at the international level often proves to be more difficult and less likely to be effective than at the national level because of the absence of an institution with the international jurisdiction to enforce policy

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1 On 24 April 1998 in Washington, DC, President José Figueres of Costa Rica received a certificate for more than one million tons of carbon sequestered via the protection and conservation of forest areas in Costa Rica. This certification was issued by the Société Générale de Surveillance (SGS), an independent inspection and verification organization which verifies the carbon sequestration of 530,000 hectares. Costa Rican forest protection projects are aimed at sequestering 15.6 million tons of carbon equivalent (Gorbitz and Trines, 1998). The carbon sequestered will be issued by Costa Rica as certified tradable offsets (CTO), which will be sold to investors. Although the above certification process guarantees that each CTO is covered by real and verified carbon sequestration, it is not yet clear to what extent these CTO can be used by Annex I Party investors to fulfill their commitments under the Kyoto Protocol. One reason is that it is not clear whether sink projects are eligible under the CDM. Secondly, whether these CTO will be recognized as certified emission reductions under the CDM depends on decisions on how and who will conduct the certification function, which has to be taken by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol.

2 If the credits were to be used in advance of certification, most analysts advocate that buyers should be primarily held liable for the compliance of CDM projects because buyers in Annex I countries have their domestic emissions limitation commitments, and have the direct access to information and the leverage necessary for project oversight. In comparison with sellers, buyers have a financial stake in CDM projects (Kerr, 1998).
As such, the ‘seller beware’ liability could lead to a regime of weak compliance because the lack of strong enforcement at the international level would provide few disincentives for buyers to acquire from sellers who take a lax attitude to compliance.

To remove the built-in flaws, one option is to use eligibility to trade as an enforcement mechanism. The approach reflects the view that in some cases prevention of non-compliance is more effective than ex post reward or punishment (Mitchell, 1994). It assumes that trading is a privilege, not a right. Initially, trading is only allowed to those ‘eligible’ parties whose domestic monitoring, tracking and enforcement systems have met certain ‘minimum quality’ criteria (Zhang and Nentjes, 1998).³ The eligibility requirement would be particularly important if ex post penalties for non-compliance were weak or unavailable in practice. By precluding those Annex B countries that do not meet the criteria from engaging in emissions trading until such time as they bring their domestic monitoring and enforcement systems up to the threshold eligible for trading, the eligibility criteria would ensure that there is no significant risk to buyers. The more stringent are the criteria, the greater is the assurance that traded tons of emissions represent real reductions, the less risk there is to buyers, and hence the more likely buyers become active in the market. From the environmental perspective, the more stringent criteria are preferred. On the other hand, less developed Annex B countries or new entrants to Annex B are less likely to have well-developed monitoring and enforcement systems in place, but are most likely to have surplus emissions permits to sell.⁴ The more stringent eligibility requirements would preclude these potential sellers of emissions permits and increase buyers’ costs of compliance, thus undermining the effectiveness of emissions trading in lowering the cost of abating GHG emissions. Clearly, there is a tradeoff between the desirability of assigning the seller responsibility for the validity of acquired allowances and the ‘appropriate’ eligibility threshold. In addition to using eligibility to determine which parties could be eligible for trading, the eligibility requirements could demand the suspension of valuable trading rights of those parties that are not in compliance with their targets in the previous commitment period once subsequent commitment periods begin to take effect. If adopted, this would promote continuing compliance.

Another option to provide an incentive to sell only assigned amounts surplus to the compliance needs of the seller could rest on the ‘seller beware’ liability with an escrow account (Haites, 1998). It requires that the proceeds from the initial sales of assigned amounts be deposited in an escrow account until compliance has been established. Any subsequent resale is unaffected by the escrow requirement, with the proceeds going to the seller. The money in the escrow account is used to compensate the buyers (that need not to be the initial buyers) for a loss of the assigned amounts that they purchased in case the seller is found to be in non-compliance with its commitments, namely, the fraction up to the quantity the seller over-sells. Because the seller does not receive the proceeds until after the end of the commitment period, it is conceivable that most trading will take place near the end of the commitment period. The reluctance to trade early in the commitment period could significantly reduce the volume of trades, thus undermining the effectiveness of emissions trading. Such a restriction might be relaxed by means of requiring only part of the proceeds from the initial

³ The European Union environmental ministers insisted until recently on the need to set a concrete ceiling on the use of emissions trading to ensure that substantial efforts to cut GHG emissions be achieved through domestic actions. According to the EU Commissioner for the Environment, Ritt Bjerregaard, however, both present and prospective EU nations are now more interested in strict rules for emissions trading than a percentage limit (Reuters, 15 September 1998). Some EU officials think that such rules should stipulate, among other things, that only those countries capable of monitoring and tracking their emissions should be allowed to engage in trading.

⁴ Joining Annex B to the Kyoto Protocol is voluntary. The ‘bribe’ for developing countries, which are not subject to legally binding GHG emissions targets, to accept GHG abatement commitments would be to give them more generous assigned amounts. As a result, new entrants to Annex B are most likely to have surplus emissions permits to sell.
sales of assigned amounts be deposited in an escrow account.

3. ‘Buyer beware’ liability

Instead of only the seller being held liable, the buyers could be assigned to hold the responsibility for the validity of acquired allowances. The so-called shared liability or ‘buyer beware’ liability stipulates that the buyer, be it a country or a firm, shares the responsibility for non-compliance by the sellers. In this case, the allowances acquired by the buyers become invalidated or are discounted if the sellers are found to be in non-compliance with their commitments at the end of the commitment period. This would provide the strong incentive for risk-averse buyers to ensure that any allowances acquired are valid.

If, at the end of the commitment period, it turns out that the seller has exceeded its assigned amounts, then the allowances acquired by the buyers could either be discounted in proportion to the degree of the seller’s overage or become invalidated on a ‘last-in, first out’ (LIFO) basis. Use of the LIFO system could track the sales of allowances so that the last allowances acquired could be identified. In so doing, the parties that wished to trade are required to serialize their allowances at least by their country of origin and year of origin, with the transfers and acquisitions of allowances being mandated to start with lower numbers. In the event of non-compliance by the seller, the acquired allowances to be voided would be on the basis of last acquired, first to be voided. The process of taking back the seller’s overage continues until the seller is brought into compliance.

In the author’s view, the LIFO approach is preferred to the simple discounting approach for at least three reasons. First, the LIFO approach can distinguish buyers who acquire allowances from sellers when no implementation problems are on the horizon from those buyers who do so when serious implementation problems have arisen in the seller country (Goldberg et al., 1998). Second, it minimizes the number of transactions affected and creates an incentive to register transactions quickly because earlier sales have a lower probability of being invalidated than later sales. Third, it corrects the serious drawback of discounting that is unable to decide who, all buyers or just the marginal buyer, is liable for non-compliance by the seller whose allowances are sold to several countries.

However, one drawback of including a ‘buyer beware’ liability is that the allowances are not fungible, with each one representing a unit with reference to the country where it originated. As a result, the allowances would have different risks and thus have different prices eventually depending on the seller’s credibility. Although there is some merit of increasing the environmental performance of the regime, the ‘buyer beware’ liability might complicate the transfer and acquisition process and could add substantial transaction costs. This would reduce the volume of trades, thus leading to a loss of potential gains from trading. Another major drawback of assigning a ‘buyer beware’ liability is that it erodes the commodity nature of allowances by allowing them to be retroactively devalued, thus creating uncertainty over their value until the end of commitment period (Grubb et al., 1998). This drawback becomes even more serious because in this Protocol there is only one very long commitment period. The long length means that compliance is not determined until the end of the commitment period because, in principle, both the seller and buyer responsibility regimes do not require any interim evaluation of implementation before the end of the commitment period. As a result, whether the seller is in compliance is ascertained only at the end of the commitment period. At that time, it might be too late to bring the seller back into compliance, although a ‘true-up’ period of several months at the end of the commitment period is allowed for the seller finding itself in non-compliance to acquire additional allowances to cover its excess tons of emissions.

In order to prevent unwanted outcomes from arising at an early date, it is desirable to assign the buyer-seller hybrid responsibility by introducing a process of evaluating parties’ efforts towards implementation during the commitment period. This includes annual reporting of the progress of each Party in meeting its assigned amounts. If in a given year a Party’s actual emissions did not exceed by a certain margin its annualized assigned amounts,
the tons sold to the buyers would not be affected (namely, the seller’s tons acquired by the buyers would be valid). After the year when the seller is found to go beyond that tolerance margin, however, the buyers become liable for potential non-compliance by the seller. As such, the allowances acquired prior to that year would not be discounted, thus avoiding the imposition of retroactive liability for the buyer. The hybrid approach is superior to suspending trading rights for those sellers during the remaining commitment period, whose actual emissions in a given year exceed by a certain margin their annualized assigned amounts, because the latter restricts the legitimate rights of those sellers that might, in principle, sell all their entire assigned amounts early during the commitment period and then buy them back before the end of the commitment period. If a Party is found to be in non-compliance with its commitments at the end of the commitment period, a ‘buyer beware’ liability should be imposed on all its sales in the subsequent commitment period. Because such a Party has an unreliable reputation in the previous commitment period, the buyers would become wary of purchasing permits from such a Party. So, its permits would be automatically devalued in the subsequent commitment period, thus putting pressure on such a Party to strengthen its compliance systems and avoid over-selling its permits.

4. Concluding remarks

The rules for accountability are essential to the success of emissions trading. In general, a ‘seller beware’ liability works well in a strong enforcement environment where the built-in effective enforcement mechanisms make non-compliance very expensive and unattractive. In the Kyoto Protocol, however, a ‘seller beware’ liability may not always work because there is only one very long commitment period and, as of now, no subsequent commitment periods have been defined, and because enforcement at the international level has proved to be less likely to be effective than at the national level (Grubb et al., 1998). The eligibility requirement and the ‘seller beware’ liability with an escrow account could to some extent effectuate compliance by the sellers, but may not be sufficient. As a result, this may create a need for some form of a ‘buyer beware’ liability under which acquired allowances that are tainted could not be used to satisfy the buyer’s assigned amount requirements. This would provide a strong incentive for risk-averse buyers not to acquire allowances from sellers at the risk of non-compliance.

If the parties decide that ‘buyer beware’ liability is needed to complement traditional compliance procedures, the ‘last in, first out’ approach is preferred to the simple discounting approach in taking back the seller’s overage, partly because it minimizes the number of transactions affected and creates an incentive to register transactions quickly. Furthermore, the author argues that, in order to prevent non-compliance from arising at an early date, it is desirable to assign the buyer-seller hybrid responsibility by introducing a process of evaluating parties’ efforts towards implementation during the commitment period. If in a given year a party’s actual emissions did not exceed by a certain margin its annualized assigned amounts, the seller’s tons acquired by the buyers would be valid. After the year when the seller is found to go beyond that tolerance margin, however, the buyers become liable for potential non-compliance by the seller. As such, the allowances acquired prior to that year would not be discounted, thus avoiding the imposition of retroactive liability for the buyer. The author thinks that the hybrid approach is superior to suspending trading rights for those sellers during the remaining commitment period, whose actual emissions in a given year exceed by a certain margin their annualized assigned amounts.

If a party is found to be in non-compliance with its commitments at the end of the commitment period, a ‘buyer beware’ liability should be imposed on all its sales in the subsequent commitment period. Moreover, its assigned amounts in the subsequent commitment period should be reduced by the amount more than an amount by which its
actual emissions exceed its assigned amounts in the previous commitment period (Environmental Defense Fund, 1998). This penalty has to be imposed on such a non-complying party, partly because the atmosphere is negatively affected by the additional amount by which it exceeds its allowed levels, and partly because the delayed response will imply more GHG emissions emitted into the atmosphere than what would otherwise have occurred, thus leading to additional committed warming. As such, this punishment signals parties that an ‘emit now, pay later’ strategy for controlling their GHG emissions over time would be inevitably expensive and potentially risky, thus operating as a strong deterrent to non-compliance. It implicitly requires that the assigned amounts in the subsequent commitment period be negotiated well before the previous commitment period commences so that those parties that are found to be in non-compliance with their commitments at the end of the previous commitment period are unable to strategically use non-compliance to affect negotiations about their assigned amounts in the subsequent commitment period. Moreover, given the fact that parties can always choose to withdraw from the Kyoto Protocol, the credibility of the punishment could be enhanced if a non-exit provision to prevent parties from leaving the treaty could be assigned.

Finally, it should be pointed out that although the focus in the article has been exclusively on Article 17 trading, the Article 4 bubble also raises an accountability issue. Although originally conceived as a way of allowing the European Community as a regional economic integration organization (REIO) to accommodate the internal burden sharing of the Kyoto commitments among its member states, the final wording under Article 4 is framed in general terms. This might create potential loopholes in meeting the Kyoto obligations. In the case of a REIO bubble, each REIO member and the organization itself are held accountable for the failure to achieve the required reductions for the REIO member. Under the terms of the agreement notified to the United Nations Framework Convention on Climate Change Secretariat, the incentive for non-compliance is offset by the joint responsibility of both the individual members and the regional organization. In contrast, in the case of a non-REIO bubble, the absence of a formal regional organization with enforcement powers means that the seller countries are solely responsible for their own non-compliance. As discussed in Article 17 trading, these countries may have an incentive to fall short of compliance. To ensure the environmental integrity of the Kyoto Protocol, it is thus desirable to assign some form of joint responsibility for non-REIO bubbles too. However, the countries concerned within a non-REIO bubble should be left free to work out an arrangement to bring the whole group into compliance.

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References

