

International emissions trading under the Kyoto Protocol: credit trading

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Received 7 June 2000

Abstract

The Kyoto Protocol allows emissions trading between countries. The Protocol does however not specify how such trade is to take place. So far two options have been discussed in the literature: government trading and permit trading. This paper discusses a third option: credit trading. Credit trading is based on abatement projects, but differs from joint implementation in that it does not require direct foreign investment. Furthermore, credit trading can be implemented both domestically and internationally. The main advantages of credit trading are that it excludes trading in hot air, while it still makes trade between private entities possible. However, the environmental effectiveness is doubtful, especially when it is based on relative targets. The paper shows that several interest groups prefer credit trading based on relative targets to permit trading. Also governments may have reasons to prefer credit trading to permit trading. Hence, the political acceptability of credit trading is larger than that of permit trading, making it more likely that credit trading will be allowed than permit trading. © 2001 Elsevier Science Ltd. All rights reserved.

Keywords: Emissions trading; Credit trading; Kyoto

1. Introduction

The Kyoto Protocol of December 1997 sets legally binding emission ceilings for the 38 Annex B countries. To facilitate the Annex B countries in realizing their obligations, the protocol allows the use of several flexibility instruments that give countries the possibility to trade emission quotas. One of these flexibility mechanisms is emissions trading. Under article 17 an Annex B country is allowed to purchase the right to emit greenhouse gases from another Annex B country that is able to reduce its emissions. The protocol does however not give any rules for emissions trading, and subsequent Conferences of the Parties (CoP) at Buenos Aires and Bonn have not clarified the issue.

The result is an ongoing debate on the design of an emissions trading regime. An obvious option is to see international emissions trading as a transfer of emission

quota between governments. However, trade could also take place between private entities. Several authors have analyzed these two cases. Bohm (1999) gives an analysis of a government trading system. Hahn and Stavins (1999) analyze which domestic environmental policy instruments are compatible with the different flexibility instruments under the Kyoto Protocol. In their paper, emissions trading is seen as trade between private entities. They conclude that international emissions trading between private entities is only viable when the trading firms are regulated through a national tradable permit system. Ellerman (1998) and Zhang and Nentjes (1999) arrive at the same conclusion. UNCTAD (1998) mentions that both permit and government trading are an option, but does not give an analysis of the two schemes. This is done by Boom and Nentjes (2000). They conclude that the choice between permit and government trading is highly a choice between full efficiency but limited political control with the system and limited efficiency but full political discretion over the amount of trade and who to trade with.

In all these papers, trade between private entities is described as permit trading. In a system of international permit trading, firms are regulated at the national level through a tradable permit system. These permits are then

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made tradable not only domestically, but also internationally. The advantages of such a system are clear. Nationally, a cap is put on total emissions, ensuring that the Kyoto obligations will be met. Because trade is conducted at the firm level, there will be many traders, ensuring that an efficient market will come about. Hence, an international permit trading system gives a very efficient method to realize a given level of abatement. However, there are also disadvantages connected to such a system. The main ones are that it limits the use of national instruments to tradable permits and it allows for the trade in hot air.

This paper shows that besides permit and government trading, there is a third option: credit trading. With credit trading, trade takes place between private entities. However, it differs from permit trading in that the emission credits that are traded are based on abatement projects that have to be approved by an agency before trading can take place. This also means that every credit is backed by genuine emission reductions. These characteristics make that credit trading is different from both permit and government trading and might make it attractive to several interest groups.¹

Although credit trading shares many characteristics with joint implementation, it is different from it because with credit trading, a firm invests in a project at one of its own plants to receive credits and to sell them on the market. With joint implementation, the funding of the project comes from another firm than that where the project is implemented.

So far, credit trading has been treated solely as an international instrument. However, it can as well be used, and has been used, at the national level. In that case, the government regulates emission sources with a certain instrument, e.g. performance standards, emission ceilings, technical standards or taxes, and on top of that allows firms to trade emissions reductions from projects. It is exactly in this way the early emissions trading schemes in the US have functioned (see Svendsen, 1998; UNCTAD, 1998).

In the following section an outline of a credit trading scheme is given, followed by an analysis of the advantages and disadvantages of such a system in Section 3. In Section 4 we discuss the political acceptability of the scheme by analyzing the preferences on some interest groups. Finally, in Section 5 some conclusions and policy recommendations are given.

2. Outline of a credit-trading system

In a system of credit trading, emission sources will be able to trade directly with each other. In this respect,

credit trading resembles permit trading. However, with credit trading, a firm can only sell emission quotas obtained through approved abatement projects. In general, the potential seller plans an abatement project at its own emission source. The firm calculates the emission reductions that will result from the project over the term of the project. After this, an agency, probably a government agency, evaluates the project and issues emission credits to the firm in accordance with the amount of emissions that will be abated. First after the project is approved, the firm can sell its emission quotas.

Credit trading is always combined with another instrument. In most cases this will be an instrument like taxes, technology standards or performance standards that does not place a cap on emissions. Placing a cap on emissions and thereafter allowing trade is equal to permit trading.² After the implementation of the underlying instrument, firms are allowed to sell certified emission reductions, or credits to improve efficiency. The Dutch government for example does not want to regulate the so-called exposed sectors, i.e. those that face international competition, through tradable permits (VROM, 1999; Vromraad, 1998). Instead, it prefers voluntary agreements. Besides the agreements however, the Dutch government wants to give the exposed sectors the opportunity to trade emissions through the implementation of abatement projects.

If the selling firm has contacts with firms that have higher costs of abatement than itself, it might sell its credits directly to them. However, it is also possible that trade is mediated by a broker firm as is the case in the SO_x trading program in the US (see Klaassen and Nentjes, 1997; Schmalensee *et al.*, 1998). When the market becomes sufficiently large, a full developed market might arise. In that case, the buyer and the seller need no information about the identity of the trading partner. In the analysis below, we assume that such a market has developed. In some cases, both credit and permit trading can exist within one country. The Dutch Ministry of the Environment, for example, is considering permit trading for the 'sheltered' sectors, i.e. the sectors that are not exposed to foreign competition, and credit trading based on voluntary agreements for the exposed sectors (VROM, 1999). These two markets can easily be united to form one market, facilitating the development of a fully efficient market.

Credit trading shares many characteristics with joint implementation (JI). In both cases, an abatement project has to be started and approved of by an official agency before credits can be sold. The approval of the official agency is necessary to ensure that the emission reduction is genuine. To be able to assess the emission reduction, an

¹ See also Boom and Svendsen (2000a, b) for an analysis of interest group preferences for international emissions trading scheme.

² It is however possible that governments even with a cap on emissions prefer emissions trading based on projects.

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