



Governance of Artificial Markets

Balancing the Interests of Private Actors and Regulators in Emissions Trading Schemes

James Munro

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Author

James Munro[†]

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† PhD candidate, University of Melbourne.

The views expressed herein do not reflect those of any employer.

THIS ISSUES PAPER EXPLORES HOW THE INTERESTS OF PRIVATE ACTORS AND REGULATORS ARE BALANCED IN THE GOVERNANCE OF EMISSIONS TRADING SCHEMES.

These governance issues are particularly salient because emissions trading schemes constitute an artificial market – governments have artificially constructed demand by requiring certain entities to purchase carbon units in order to emit greenhouse gas, and also control supply by setting how many carbon units may be released to the market. Governments also reserve the right to manipulate the operation of their artificially-constructed market, such as through qualitative rules on the kinds of carbon units that may be traded, quantitative rules on international transactions, local content requirements, and price collars.

Ironically, however, the spectre of price-sensitive governmental interference in the market can undermine its very purpose, which is to stimulate long-term investment in clean energy by market participants. It is in this context that strong and stable governance in the market plays a crucial role. This paper examines the potential role that international investment rules could play as a novel tool for improving the governance of these kinds of artificial markets and rebalancing the power asymmetry in carbon markets in favour of market participants.

1. Introduction

Despite some recent setbacks, emissions trading schemes remain the premier policy response to climate change. They are currently being implemented or piloted on a national or subnational level in major jurisdictions such as the EU, China, the United States, Canada, and South Korea. More broadly, dozens of countries export offset credits into others' emissions trading schemes, with the global carbon market valued at US\$176 billion in 2011.

These markets are inherently artificial: governments create divisible, private units in an amorphous public good (the atmosphere), and determine both supply and demand in the market. Private actors are then responsible for purchasing, owning and trading those units, which are used as tradeable investment commodities as well as to discharge liabilities under emissions trading schemes. These differing roles for governments and private actors in the market give it an asymmetrical quality. Governments are largely responsible for determining the value of units through their control over supply, demand and other aspects of the market, but bear little of the risk for the destruction of value that may result from regulatory changes to the market. Private actors have very limited influence over the price and value of units, and yet are required, and indeed encouraged, to own and trade in them. These differing roles give rise to a tension in the governance of carbon markets.

On one hand, the artificial nature of emissions trading schemes and their function as serving an environmental objective suggests that there is a legitimate role for a high degree of government

regulation to ensure their smooth operation and that the objective is met. Past experience shows that, in addition to establishing the market, governments routinely intervene in various ways, such as price floors and ceilings, changes to supply to manipulate price, import and export restrictions on units, free allocations of units to specific actors or industries, changes to quantitative and qualitative restrictions on the types of units that may be used, and local content requirements.

On the other hand, changes to the nature and extent of government intervention in these markets necessarily affects the price of units, thus affecting their value and the economic interests of private actors in the market. Regulatory changes, such as the removal of a price floor, the acceptance of a larger quantity or new types of external units, or the wholesale repeal of a market, could substantially damage their economic interests and investments made in good faith.

This issues paper explores the development of emissions trading schemes, the functions of different participants in the market and identifies some tensions that arise in their design. In light of these findings, the paper then briefly examines the potential role that international investment rules could play as a novel tool for improving the governance of these kinds of artificial markets and protecting private actors' interests vis-à-vis government regulation. It concludes that international investment law could provide one means of rebalancing the power asymmetry in carbon markets in favour of market participants.

2. The Development and Proliferation of Emissions Trading Schemes

The failure of the Obama Administration to enact an emissions trading scheme,¹ the collapse of the carbon prices in the EU scheme,² and the intention of the newly-elected government in Australia to rescind its existing scheme³ could potentially cast doubts as to the efficacy of emissions trading as a policy of choice for mitigating climate change.

In reality, however, emissions trading continues to be the preferred policy instrument of many jurisdictions to reduce or constrain greenhouse gas emissions, and such schemes are proliferating.⁴ The established emissions trading schemes in the EU, Norway, Switzerland, Northeastern America and New Zealand have recently been joined by new schemes in California and Quebec,⁵ with South Korea, Kazakhstan, and Taiwan soon to follow.⁶ The Kyoto Protocol additionally facilitates international emissions trading in units generated under its auspices,⁷ and 78 developing countries are involved to varying degrees in the generation and export of carbon units produced from emission reductions to other countries' emissions trading schemes.⁸ Emissions trading is also in a trial phase or under active consideration in China, Mexico, Taiwan, Chile, Brazil and others.⁹

It is in this context that the global carbon market grew to be worth US\$176 billion in 2011.¹⁰ With multilateral negotiations currently underway to reach a new climate agreement by 2015 that contains mitigation commitments for all countries, both developed and developing,¹¹ it seems likely that the global carbon market will continue to grow in the medium to long term.¹²

It is also worth noting the existence of a 'voluntary' carbon market that caters for individuals and companies that seek to voluntarily reduce their carbon footprint by purchasing and cancelling carbon units.¹³ This differs from emissions trading schemes, whereby companies are legally bound to hold carbon units in order to emit greenhouse gases. The voluntary market is miniscule compared to the 'compulsory' market serving emissions trading schemes, representing 0.3% of the overall global carbon market,¹⁴ or USD 569 million worth of transactions annually.¹⁵

3. Emissions Trading Schemes: Origins, Functions, Participants

Emissions trading schemes originate from a broader family of policy instruments known as transferable permit schemes.¹⁶ In basic terms, these policy instruments are directed at remedying the 'tragedy of the commons', where otherwise 'rational' individuals produce outcomes that are not 'rational' with respect to the use of a resource that is used or owned in common.¹⁷ For example, individuals may overexploit a common resource, such as fisheries, woodlands, or waterways, to the extent that it disappears and is no longer able to be exploited.

In a market system, irrational behaviour in respect of a common resource manifests itself as a market imperfection, where the damage or harm done by the unsustainable use of a common resource is not reflected in the price of a given transaction.¹⁸ In effect, the cost of the harm or damage inflicted is externalised and borne by others, such as the community as a whole, rather than being incurred by those causing the damage or harm.¹⁹

Since the unsustainable use of a common resource stems from the unrestricted access to its use, the logical policy response is to impose restrictions on its access.²⁰ In broad terms, there are two approaches to imposing such restrictions: command-and-control policies, or market-based policies.²¹ The essential difference between these approaches lies in the allocation of decision-making responsibility in relation to who may access a resource, and the terms under which it may be accessed. Under the command-and-control

approach, the government prescribes who may access a resource (eg. who has the right to emit greenhouse gas) as well as the terms of access (eg. how much greenhouse gas an entity may emit, or certain technology standards that must be used in order to reduce emissions). However this has been criticised as inefficient or unnecessarily expensive.²²

By contrast, under the market-based approach, governmental decision-making is generally limited to setting broad parameters on the use of a resource, such as a quantitative limit, quota or cap that ensures its sustainable management. Once scarcity is imposed on access to the resource, it is then for private actors to determine by whom and how it may be accessed on the basis of market forces. As Panayotou explains, market-based approaches 'in effect transfer from bureaucrats to the market the responsibility of identifying and exploiting new and additional low cost sources of pollution control'.²³ Transferable permit schemes facilitate this by converting the common resource, or access to its use, into divisible private rights that can be traded amongst those seeking to use it.²⁴ By requiring those seeking to use the resource to own a right to its use, and by imposing scarcity on the number of rights available, the cost of using the resource – including any harm or damage caused by that use – is borne by the individual user, which can then be subsequently passed on in the cost of a relevant commercial transaction.

As such, this approach corrects the market failure implicit in a 'tragedy of the commons' by internalising the cost of using a resource and giving a price signal to the market on its use. Its key advantage lies in allowing the market to discover the most economically and technologically efficient means of sustainably managing the resource.²⁵

Through the use of a transferable permit scheme to manage a common resource, a government effectively creates an *artificial* market. By legally mandating that those seeking to use a resource must hold a right to its use or otherwise face a penalty or sanction,²⁸ it creates a demand in those rights. By determining the quantity of rights that are available to the market, it sets the supply. This leads to the somewhat odd dynamic where both supply and demand are largely determined by the same entity, which itself is not necessarily a consumer nor market participant. This aspect of trade in transferable permits differentiates it from other areas of commerce in a market economy where supply and demand are largely determined by private actors, and can potentially lead to difficult questions of governance, as discussed further below.

In the context of emissions trading schemes, the transferable permit that is traded is a carbon unit (also known as an emissions permit or emissions allowance). They represent the right to emit one tonne of greenhouse gas,²⁹ and can be 'created' in one of two ways.

First, the government operating an emissions trading scheme creates carbon units and distributes these to participants in the scheme through auctioning, selling, or freely allocating the units.³⁰ The maximum number of carbon units created and distributed by a government will usually equate to the quantitative limit it has set for greenhouse gas emissions in a given period. By only allocating a limited number of carbon units, a government effectively controls the amount of greenhouse gas that may be emitted.³¹ Once distributed to private actors, carbon units may be traded in an open market.

Second, certain carbon units may be brought into existence by private actors that engage in reductions of greenhouse gas emissions outside the context of an emissions trading scheme.³² These reductions are usually the outcome of a project or activity that either *removes* greenhouse gas from the atmosphere, for example through planting trees, or *avoids* emissions of greenhouse gas that would otherwise occur in the absence of the project, for example by installing cleaner technology in a factory leading to lower emissions. The creation of carbon units from these kinds of projects or activities is usually authorised by an independent auditing body and government regulator that approves, monitors and verifies the projects and the resultant reductions of greenhouse gas.³³ Once it has been independently verified that emissions reductions have occurred, these units can be issued and sold into an emissions trading scheme.

Trading in carbon units occurs either through spot transactions,³⁴ whereby units are purchased at current prices for immediate delivery, or as derivative products,³⁵ which tend to dominate the carbon market.³⁶ Derivative products are financial instruments whose value derives from an underlying asset (eg. carbon units),³⁷ and in the carbon market they usually take the form of forwards, futures and options contracts.³⁸ In basic terms, a forward contract fixes an agreed price for delivery of carbon units at a future date.³⁹ Futures contracts are essentially the same, but are traded in standardised forms over organised exchanges.⁴⁰ Options contracts provide the right – but impose no obligation – to purchase carbon units at some time in the future for an agreed price.⁴¹ These products also offer different ways of structuring or determining the payment for carbon units at a future date, such as a fixed price per unit, a price to pegged to the prevailing market at the time of maturity of the contract, or the use of a floor or ceiling price.⁴² Derivative products therefore present a means for private actors to manage the risk of spikes or collapses in the price of carbon units.

There is also an active primary market in carbon units, whereby private actors engaged in a project or activity that produces emissions reductions can generate carbon units and sell these directly to participants in the carbon market.⁴³

The risk involved in the generation of carbon units by private actors, such as a risk that an independent auditing body or government regulator will not approve the creation of units, or that a project will result in fewer emissions reductions than anticipated, or that the prevailing price of carbon units will collapse by the time a project generates verified emissions reductions, have further given rise to a suite of risk-management financial products in the primary trade of these kinds of carbon units.⁴⁴

Participants in the carbon market include companies that are covered by an emissions trading scheme and are therefore required to hold carbon units in order to emit greenhouse gas and avoid a fine, as well as financial traders, investment banks, carbon funds, and commodity traders who treat carbon units as just another kind of tradeable asset.⁴⁵ The diversity of participants in the carbon market reflects the different ways in which carbon units may be used. For some, they are used to avoid a financial penalty imposed by an emissions trading scheme on those who emit without holding a carbon unit.⁴⁶ For others, their trade is speculative and profits are made as prices rise and fall over time.⁴⁷ In this regard, it is interesting to note that the trading of carbon units exhibits some characteristics common to trade in commodities, whereby trades often occur in large volumes through dedicated exchanges, and while the price of units is fluid across time, the price for a given unit at any particular time is largely uniform across the market.⁴⁸

Further still, the generation of carbon units by private actors through emissions reduction projects or activities may be treated by some as an investment project,⁴⁹ and for others, carbon units can be used to borrow money at attractive rates in a process called 'inventory monetisation'.⁵⁰ This involves using an asset (in this case, carbon units) as security to obtain finance. It is also possible to purchase and 'cancel', or destroy, a carbon unit, which has the environmentally-beneficial effect of reducing greenhouse gas emissions by one tonne.⁵¹

These varied uses of carbon units inform their economic value. Their value not only arises out of their ability to be used to avoid a fine under an emissions trading scheme, but also from their ability to be traded as financial products and as investment assets. Through the subsistence of value in carbon units, greenhouse gases are effectively converted from a waste product with negative value into a tradeable article of commerce.⁵²

4. Tension In Policy Design: Predictability Versis Flexibility

At a basic level, there is a tension inherent in the design of emissions trading schemes between predictability and flexibility.⁵³ On one hand, market participants such as entities with liabilities under emissions trading schemes, investors, and financial traders require a predictable and stable framework in which to engage in the carbon market. The overarching objective of an emissions trading scheme is to reduce emissions over time by imposing a cost on emissions and thereby stimulating investment in less carbon-intensive technology and methods of production. However the kinds of long-term investment-backed decisions required to transition to a low-carbon economy are contingent on a degree of predictability and stability in the operation of the market and its fundamentals relating to the price of carbon units, such as supply and demand. According to Goddard, uncertainty and unpredictability over potential governmental interference in the market 'can act as a powerful brake on transfers', thus undermining the very operation of transferable permit schemes.⁵⁴ Panayotou makes a similar point: '[i]t is the instability and unpredictability of environmental policy rather than the costs of compliance that the industry finds disruptive and ultimately more costly'.⁵⁵ Without a requisite degree of confidence relating to the future price of carbon units and the operation or existence of the carbon market generally, market participants will likely be reluctant to make significant low-carbon investments.

Relatedly, market participants require a degree of certainty in their ownership of carbon units. As Dales writes, the 'existence of a natural pricing system depends crucially on the institution of ownership'.⁵⁶ In his view, once the government sets the parameters of an artificial market such as emissions trading, and once ownership rights in transferable permits are vested in market participants, the government should refrain from further interference:

*The government should make it clear that it reserves the right to alter the allowable level of pollution (the number of rights it issues) at stated time intervals (say, every five or ten years). All that is required to make the market work is the inflexible resolve of the government not to change the rights issue during the interval, no matter what the political pressures to do so may be, and to enforce rigidly the requirement that a ton-year of waste discharge must be paid for by the holding of one pollution right for one year. Pollution rights are fully transferable property rights, and any wenching on the enforcement of the right would be a breach of trust.*⁵⁷

Others have made similar points. Cole, for instance, argues that 'the less secure property rights are, the less likely potential buyers will be to invest in them... Completely insecure rights would have a market value approximating zero, at which price the market would simply disappear'.⁵⁸ Baylis and Allan similarly state that '[i]t is practically an economic truism that strong property ownership rights are required to give participants enough certainty to

participate in a trading regime'.⁵⁹ In a similar vein, Goddard argues that 'attempts by government to preserve its room for manoeuvre increases the institutional risk for decentralised agents and discourages them from playing the game of permit trading'.⁶⁰

Thus, strong property rights in the objects being traded (i.e carbon units) and a perception of permanence and stability in the market (eg. the absence of governmental intervention) are important elements in emissions trading schemes. Allowing the market to operate free of governmental distortions and interventions is also consistent with the goal of market-based mechanisms – that is, to find the most economically efficient means of reducing greenhouse gas emissions.

On the other hand, the *artificial* nature of markets created by emissions trading schemes lends itself to a degree of governmental intervention. Since the government is effectively inventing an entirely new market through legally-mandating demand, setting the quantum of supply, and creating the product to be traded, it is reasonable that it would reserve the right to intervene to ensure that the market operates as it intended, and to prevent or mitigate any unanticipated or uncertain outcomes. Indeed, under some transferable permit schemes such as those for water pollution or fishing quotas, the ability to trade permits is tightly regulated, with permission required for individual transactions, and with trades limited by geography and timing in order to avoid perverse environmental outcomes.⁶¹

However, emissions trading in greenhouse gases through carbon units lends itself to a much more flexible market regime. This is because the geographic location where emissions occur does not matter in terms of its impact on climate change, since the emissions become quickly mixed in the atmosphere.⁶² Further, since emissions of greenhouse gas have a long life-span in the atmosphere of several decades or more, the particular timing of when emissions take place can make little difference.⁶³ These factors make it possible for a transferable permit scheme in greenhouse gas emissions to operate without restrictions as to geography, and to allow both the 'banking' of units from one time period for use in a later period and the 'borrowing' of units from a future time period for use in an earlier time period.

Nevertheless, emissions trading schemes only exist to serve a broader environmental objective, and governments may feel compelled to intervene in the market to ensure that the objective is being met. The ability to intervene in the market – and potentially interfere with the value or existence of the applicable transferable permits – is one reason why some governments have intentionally refrained from conferring permits with proprietary status under some transferable permit schemes. For instance, this was the case with respect to sulphur dioxide trading in the United States,⁶⁴ and with greenhouse gas emissions trading in California.⁶⁵

As Gehring and Streck explain in relation to those contexts, '[i]f [permits] were property, should the [permit] be devaluated or withdrawn from the market, holders could conceivably invoke the Fifth Amendment..., [which] prevents the taking of private property without just compensation'.⁶⁶ A requirement to compensate market participants for interfering in the market in a way that damages or destroys the value of their carbon units could restrict a government's policy space to make settings or adjustments that ensure the environmental integrity of the scheme.⁶⁷

Indeed, past experience demonstrates that governments routinely intervene in carbon markets in a number of ways.

Through qualitative restrictions, governments have discriminated between the kinds of carbon units that are able to be used for compliance with their emissions trading schemes. For instance, the EU emissions trading scheme does not permit any carbon units generated from afforestation or reforestation activities.⁶⁸ The Californian emissions trading schemes only accepts carbon units generated from activities or projects occurring in the United States, Mexico, or Canada.⁶⁹

Through quantitative restrictions, governments have imposed limitations on the amount of certain kinds of carbon units that may be used for compliance with their schemes. For instance, the Australian emissions trading scheme imposed quantitative restrictions on the use of carbon units imported from other jurisdictions in order to ensure that 'significant emissions reductions occur in Australia'.⁷⁰ Both the EU and Californian emissions trading schemes have capped the total amount of carbon units that may be generated from offset activities occurring outside the schemes in order to ensure that the large emitters covered by the schemes themselves engage in emissions reductions.⁷¹

As another example, foreign investors seeking to generate carbon units from offset activities in China are required to engage in joint ventures with local enterprises, and the Government of China imposes differential taxation rates on trades of carbon units ranging from sixty-five percent to 2 percent depending on the type of unit.⁷²

Thus, governmental intervention in the carbon market can be both wide-ranging and widespread, and can sometimes be legitimate and necessary to the smooth operation of the market and the attainment of environmental objectives.⁷³ On the other hand, stability and predictability for market participants is equally important to drive the investment in a low-carbon economy that an emissions trading scheme is intended to stimulate.

As Goddard notes, these two objectives 'call for diametrically opposed solutions',⁷⁴ and raise an essential question of governance. Governments are largely responsible for determining the value of units through their control over supply, demand and other aspects of the market, but bear little of the risk for the destruction of value that may result from regulatory changes to the market. Private actors have limited influence over the price and value of units, and yet are required, and indeed encouraged, to own and trade in them. It should be noted, however, that in some instances government intervention in the market may assist in creating the stability sought by private actors.

The Australian emissions trading scheme, as originally envisaged, included both a price floor and a price ceiling on the value of carbon units.⁷⁵ Despite being a significant government intervention in the operation of the market, these caps were designed to promote predictability in the market and thereby encourage investment by guarding against both sharp rises and collapses in price.

5. Questions of Governance: Power Asymmetry in the Carbon Market

These differing interests and roles for governments and private actors in the market give it an asymmetrical quality. While private actors are both encouraged and required to hold and trade in carbon units and invest in emissions reductions, they are unable to effectively protect their interests against government interference that destroys their value.

One way to mitigate this power imbalance is to expressly designate carbon units as property rights, thus reflecting the economic reality that they are owned exclusively, have permanence, and may be re-assigned to other parties.⁷⁶ Under some schemes, this is the case. For example, the Australian scheme expressly classifies its carbon units as private property,⁷⁷ as does New Zealand legislation to regulate securities.⁷⁸ Carbon units have also been held to constitute property under English common law.⁷⁹ This provides legal protection to those units where the relevant jurisdiction has constitutional or statutory protections against arbitrary or uncompensated interference with property.

By contrast, as mentioned above, carbon units are expressly denied proprietary status under the domestic law of some jurisdictions to limit the applicability of those legal protections, such as in California.⁸⁰ Interestingly, as a matter of international law, Kyoto Protocol rules similarly clarify that carbon units issued under the Protocol do not 'create or bestow any right, title or entitlement to emissions of any kind'.

Chinese rules appear to take a different approach by designating carbon units as public property owned by the government, but whose *proceeds* are shared jointly by the government and the private entities involved in their protection.⁸¹ Private entities thus do not technically 'own' the units.

Another means to mitigate the power imbalance and enhance the governance of the market is for governments to only enact any regulatory changes at pre-determined time intervals, with prospective effect. In the meantime during the intervals, the market may operate within the parameters set by the government and free of any further intervention or interference. As Goddard explains:

If the rule for the allocation of future permits is not defined ex ante or if it can be amended at the discretion of the administrative supervising body, a potential vendor might rightly fear that the allocation to which he would be entitled in the future might be adversely affected by his transactions, in which case he might refrain from carrying them out... In order to overcome the risk of distrust on the part of agents, it is therefore important to specify beforehand at what intervals the rules will be revised and to clearly explain the procedures and criteria that will be apply to such revisions.

This approach provides stability and predictability during fixed time intervals, while permitting governmental interference and regulatory changes at pre-determined times. In some instances, this has been the approach taken by governments. For instance, the Australian government stated that any withdrawal of the acceptance of certain kinds of carbon units for compliance in its scheme will only take effect prospectively in relation to subsequent compliance period.⁸² The EU has similarly reviewed and altered its restrictions on carbon units on the basis of discrete 'phases' or time periods in the operation of its emissions trading scheme.⁸³

On other occasions, however, price sensitive determinations have been made after the initial parameters of a given time period have been set, and sometimes in an unanticipated or sudden manner. As one example, the Australian government unexpectedly announced that it would reduce the accepted amount of Kyoto carbon units for compliance under its scheme from fifty percent to 12.5 percent of an entity's liability, and that it would rescind the minimum price floor of carbon units that was due to apply until 2018.⁸⁴ As another example, the EU recently adopted a 'backloading' policy in respect of its current compliance period that withholds the supply carbon units in order to artificially inflate prices in the short term.⁸⁵

For investors that have made investments either on the basis of pre-existing parameters and rules, these kinds of price sensitive determinations during a supposedly stable time interval can have a detrimental impact.

For instance, an investor in an offset project in Australia may have calculated its return on the basis of the carbon units generated by the having a guaranteed minimum price of AUD\$15 until 2018 under the Australian scheme.⁸⁶ However, the sudden and unanticipated rescission of this minimum price floor means that the returns could be as low as one third or one quarter of that minimum price.⁸⁷

Where investors have no effective means of redress under domestic law for the detrimental impact of this kind of governmental interference in carbon market, international investment law could offer an alternative mechanism for investors to protect their interests. In this way, it can provide one means of improving governance in a market otherwise characterised by a power asymmetry between governments and private actors.

6. International Investment Law As A Tool For Governance

Unusually for public international law, private actors are routinely afforded a means of redress for violations of the disciplines of international investment agreements (IIAs).⁸⁸ This is called ‘investor-State dispute settlement’, and gives the protected class of investors under an IIA the option of pursuing binding arbitration before an international tribunal against the host State of the investment for breach of an IIA. There are over 2,800 IIAs currently in existence in the form of bilateral investment treaties, plurilateral investment treaties, and preferential trade agreements containing an investment chapter, with most containing procedures for investor-State dispute settlement.⁸⁹ In most cases, investor-State dispute settlement is conducted under the auspices of the arbitral rules of the *Convention on the Settlement of Investment Disputes between States and Nationals of Other States* (‘ICSID’)⁹⁰ or the United Nations Commission on International Trade Law (‘UNCITRAL’),⁹¹ with the investor often able to select the applicable body of arbitral rules. Awards of international investment tribunals are enforceable in a similar manner to commercial arbitration through the *Convention on the Recognition and Enforcement of Foreign Arbitral Awards* (‘New York Convention’),⁹² or alternatively under ICSID for awards issued under its auspices.⁹³

As such, a private actor in the carbon market may be able to defend its interests against undue governmental interference through international investment law if it qualifies as a protected investor under an IIA, and if the governmental conduct constitutes a breach of the disciplines of the IIA.

IIAs ordinarily protect the nationals and companies of a State party to the IIA that have made an investment in another State party to the IIA. However they are not intended to protect domestic investors vis-à-vis their own governments. As such, their benefits and protections apply in relation to the investments of foreign nationals or companies whose home State has an IIA with the host State of the investment.

The two key disciplines contained in most IIAs that would protect investors’ interests from harm or damage caused by governmental interference in the carbon market include expropriation and fair and equitable treatment. Each is described in turn.

A. Expropriation

IAs typically regulate the circumstances under which governments may expropriate an investor's investment. In particular, expropriations are generally prohibited unless certain conditions are met, and the following offers a typical example:⁹⁴

1. Neither Party may expropriate or nationalise a covered investment either directly or indirectly through measures equivalent to expropriation or nationalisation ("expropriation"), except:

(a) for a public purpose;

(b) in a non-discriminatory manner;

(c) on payment of prompt, adequate, and effective compensation in accordance with paragraphs 2 to 4; and

(d) in accordance with due process of law

Thus, expropriations are permissible only where they meet four conditions: they must be for a public purpose, be non-discriminatory, be against compensation, and due process must be accorded.

While governmental interference in the carbon market will not usually involve the formal seizure of title or ownership in carbon units, the inclusion of the words 'indirectly through measures equivalent to expropriation' in this example reflects the widespread understanding in international investment law that also protects investors against *indirect* expropriations.⁹⁵ The legal standard for identifying an indirect expropriation is an investor suffers a substantial and lasting deprivation of its investment,⁹⁶ for instance through the destruction of the value of the investment,⁹⁷ the effective loss of control of the investment,⁹⁸ or the

effective neutralisation of the benefit of the investment to its owner.⁹⁹ As such, if a given instance of governmental interference in the carbon market has the effect of destroying the value of an investor's investments, for instance through banning the use of a type of carbon unit held by the investor,¹⁰⁰ it could potentially be liable to pay compensation under an IIA.

Importantly, however, investor-State dispute tribunals have recognised that the legitimate exercise of regulatory powers in the public interest, such as to protect public health or the environment, does not constitute an indirect expropriation.¹⁰¹ While the dividing line between legitimate regulatory measures and indirect expropriations can be at times ambiguous and unpredictable, tribunals will generally take into account whether the measure is non-discriminatory, whether it is proportionate to the purported public policy objective,¹⁰² and the extent to which it is inconsistent with an investor's legitimate expectations.¹⁰³

As such, governmental interference in the carbon market that is designed to achieve a genuine public policy objective, such as ensuring the environmental integrity of the emissions trading scheme, and that is non-discriminatory, is not discordant with the legitimate expectations of investors and the market, and is proportionate to achieving that objective, will be unlikely to give rise to a compensable indirect expropriation.

B. Fair and equitable treatment

The 'fair and equitable treatment' standard contained in most IIAs may provide another means of protecting investors' interests in the carbon market from undue government intervention.¹⁰⁴ This is because that standard is traditionally recognised as protecting investors' legitimate expectations in relation to a host State's legislative framework, particularly in older IIAs that use unqualified and looser language.¹⁰⁵ It should be noted that a number of more recent IIAs have sought to minimise or exclude 'legitimate expectations' from comprising the sole basis of a fair and equitable treatment claim.

Therefore, where market participants make investments in the carbon market on the basis of bona fide, justifiable expectations as to the nature and operation of the market – for instance, government policies as to the imposition of a price floor for a specified time period, or promises to the market not to change regulatory settings during a given time interval – subsequent government interventions that subvert those expectations could violate the fair and equitable treatment standard. Protected investors under a given IIA could thus seek compensation or other remedies for any harm or damage suffered.

That said, it is important to note that the fair and equitable treatment standard does not, as one tribunal stated, function as an 'insurance polic[y] for bad business judgments'.¹⁰⁶ For instance, if it can be reasonably anticipated from the broader political or economic context that there may be future government interventions or regulatory changes impacting on an investment, it will not ordinarily be protected against such changes by disciplines on fair and equitable treatment. Indeed, one tribunal noted that 'no investor may reasonably expect that the circumstances prevailing at the time the investment is made will remain totally unchanged'.¹⁰⁷

Thus, IIAs may protect investors against sudden or unanticipated interventions in the carbon market that cause harm. However, regulatory measures that ought to have been foreseeable, or at least plausible, at the time the investment made will be unlikely to constitute a breach of fair and equitable treatment.

7. Conclusion

When governments create artificial markets through both legally mandating demand as well as generating and fixing supply in a product, there is an inherent tension in the governance of the market. Governments have a legitimate interest in continuing to guide their artificial markets to ensure their smooth operation through regulatory interventions, however this can significantly undermine the interests of market participants.

Further research is needed to identify the most effective and efficacious legal tools available to mitigate this tension and enhance the governance of these kinds of artificial markets. While this Issues Paper has identified international investment law as one potential legal means of strengthening governance, there are likely to be other policy instruments and legal regimes that could potentially apply. For instance, the extent to which international human rights regimes protect property rights against adverse interference, and thus apply to regulatory interventions that affect carbon units, could be one area for further consideration.

The increasing use of market mechanisms to manage common resources and address the so-called tragedy of the commons will likely increase the salience of these issues in coming years.

8. Endnotes

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2. Alexandre Kossoy et al, *Mapping Carbon Pricing Initiatives: Developments and Prospects* (2013) Publication of the World Bank <www.worldbank.org> at 17 December 2013, 10.
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6. *Bloomberg New Energy Finance (Report Prepared by Ernst & Young), South Korea's Emissions Trading Scheme: White Paper* (10 May 2013) 2; *International Emissions Trading Association and Environment Defense Fund, Kazakhstan* (September 2013) <http://www.ieta.org/assets/Reports/EmissionsTradingAroundTheWorld/edf_ieta_kazakhstan_case_study_may_2013.pdf> at 17 December 2013, 2; *Environmental Protection Administration of Taiwan, Policy and Act* (2013) <http://unfccc.epa.gov.tw/unfccc/english/04_our_efforts/061_policy.html> at 17 December 2013.
7. *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (of 9 May 1992) ('Kyoto Protocol') (opened for signature 11 December 1997) [2008] ATS 2 (entered into force 16 February 2005), art 17.
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10. Alexandre Kossoy and Pierre Guigon, *State and Trends of the Carbon Market Report 2012 (2012) Publication of the World Bank <www.worldbank.org> at 17 October 2012, 9.* There have been no published figures since the collapse of the price of units in the EU ETS, however this may have led to a significant contraction in the size of the global carbon market.

11. Conference of the Parties to the United Nations Framework Convention on Climate Change, *Decision 1/CMP.17 ('Durban Platform')*.

12. See, eg, Ernst and Young (Report Prepared by the IESE Business School), *The Future of Global Carbon Markets: The Prospect of an International Agreement and its Impact on Business (2012) 11-12* (assuming an agreement is concluded through the UNFCCC process).

13. Alexandre Kossoy and Pierre Guigon, *State and Trends of the Carbon Market Report 2012 (2012) Publication of the World Bank <www.worldbank.org> at 17 October 2012, 115-117; Karan Capoor and Philippe Ambrosi, State and Trends of the Carbon Market Report 2008 (2008) Publication of the World Bank <www.worldbank.org> at 17 October 2012, 48.*

14. Nicholas Linacre, Alexandre Kossoy and Philippe Ambrosi, *State and Trends of the Carbon Market Report 2011 (2011) Publication of the World Bank <www.worldbank.org> at 17 October 2012, 54.*

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16. Olivier Godard, *Domestic Transferable Permits for Environmental Management: Design and Implementation (OECD, 2001) 7-11.*

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19. *Ibid* 205; Terry Anderson and Bishop Grewell, 'Property Rights Solutions for the Global Commons: Bottom-up or Top-down?' (1999) 10(13) *Duke Environmental Law & Policy Forum* 73, 75.

20. Daniel Cole, 'Clearing the Air: Four Propositions about Property Rights and Environmental Protection' (1999) 10(13) *Duke Environmental Law & Policy Forum* 103, 106.

21. Daniel Cole, 'Clearing the Air: Four Propositions about Property Rights and Environmental Protection' (1999) 10(13) *Duke Environmental Law & Policy Forum* 103, 106.

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- Management and Sustainable Development (United Nations Environment Program, Environmental Economics Series Paper No 16, December 1994) 2, 46; Daniel Cole, 'Clearing the Air: Four Propositions about Property Rights and Environmental Protection' (1999) 10(13) Duke Environmental Law & Policy Forum 103, 110. See cf Elinor Ostrom, Governing the Commons: The Evolution of Institutions for Collective Action (Cambridge University Press, 1990).*
23. Theodore Panayotou, *Economic Instruments for Environmental Management and Sustainable Development (United Nations Environment Program, Environmental Economics Series Paper No 16, December 1994) 5.*
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25. Theodore Panayotou, *Economic Instruments for Environmental Management and Sustainable Development (United Nations Environment Program, Environmental Economics Series Paper No 16, December 1994) 8.*
26. Ted Gayer and John K. Horowitz, 'Market-based Approaches to Environmental Regulation' (2006) 1(4) *Foundations and Trends in Microeconomics* 201, 210-212.
27. Theodore Panayotou, *Economic Instruments for Environmental Management and Sustainable Development (United Nations Environment Program, Environmental Economics Series Paper No 16, December 1994) 512; J. H Dales 'Land, Water, and Ownership' (1968) 1 Canadian Journal of Economics 791, 803.*
28. See, eg, Clean Energy Act 2011 (Cth) s 4; Climate Change Response Act 2002 (NZ) s 63-65, s 134; Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC [2003] OJ L 275/32, art 16(3).
29. Some schemes expressly define carbon units in terms of a permission to emit: Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC [2003] OJ L 275/32, art 3(a); California Cap on Greenhouse Gas Emissions and Market-based Compliance Mechanisms 17 Cal Public Health Code § 95802(8). Other schemes are less direct in defining their units, although the practical effect of fines in the absence of holding a unit means that they de facto represent a right to emit: Clean Energy Act 2011 (Cth) s 4; Climate Change Response Act 2002 (NZ) s 63-65, s 134.
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34. Andrew Hedges, 'The Secondary Market for Emissions Trading' in David Freestone and Charlotte Streck (eds), *Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and beyond* (Oxford University Press, 2009) 324-325; Scott Deatherage, *Carbon Trading Law and Practice* (Oxford University Press, 2011) 257.
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39. Neil C. Schofield, *Commodity Derivatives* (John Wiley & Sons Ltd, 2008) 2.
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42. Martijn Wilder and Louisa Fitz-Gerald, 'Carbon Contracting' in David Freestone and Charlotte Streck (eds), *Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and beyond* (Oxford University Press, 2009) 296, 303.
43. Karan Capoor and Philippe Ambrosi, *State and Trends of the Carbon Market Report 2009* (2009) Publication of the World Bank <www.worldbank.org> at 17 October 2012, 30-38.
44. See eg. Martijn Wilder and Louisa Fitz-Gerald, 'Carbon Contracting' in David Freestone and Charlotte Streck (eds), *Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and beyond* (Oxford University Press, 2009) 296, 302-306; Neil C. Schofield, *Commodity Derivatives* (John Wiley & Sons Ltd, 2008) 258.
45. See eg. Jolene Lin, 'Private Actors in International and Domestic Emissions Trading Schemes' in David Freestone and Charlotte Streck (eds), *Legal Aspects of Carbon Trading: Kyoto, Copenhagen, and beyond* (Oxford University Press, 2009) 138; Anju Sanehi, 'Market Contracts' in Paul Q Watchman (ed) *Climate Change – A Guide to Carbon Law and Practice* (Global Business Publishing, 2008) 111, 112.
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62. Kumi Kitamori, 'Domestic GHG Emissions Trading Schemes: Recent Developments and Current Status in Selected OECD Countries' in *Implementing Domestic Tradeable Permits: Recent Developments and Future Challenges (OECD, 2002)* 73.

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101. *LG&E Energy Corp v Argentina* (Decision on Liability) (ICSID Arbitral Tribunal, Case No ARB 02/1, 3 October 2006) [195]. See also *Fireman's Fund Insurance Company v Mexico* (Award) (ICSID Arbitral Award, Case No ARB(AF)/02/01, 17 July 2006) [176(j)]; *Azurix v Argentina* (Award) (ICSID Arbitral Tribunal, Case No ARB/01/12, 23 June 2006) [311]–[312]; *Técnicas Medioambientales Tecmed v Mexico* (Award) (ICSID Arbitral Tribunal, Case No ARB(AF)/00/2, 29 May 2003) [122], [132].

102. *Fireman's Fund Insurance Company v Mexico* (Award) (ICSID Arbitral Award, Case No ARB(AF)/02/01, 17 July 2006) [176(k)].

103. It is, of course, a contested area as to whether fair and equitable treatment in investment treaties is limited to the customary minimum standard or whether it is its own autonomous, potentially broader standard founded on the text of a given treaty rather than rooted in customary principles. This controversy lies outside the scope of this Working Paper, however it suffices to note that more restrictive understandings of fair and equitable treatment that relate only to due process or natural justice could offer more limited remedies to market participants in the carbon market.

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105. *Emilio Agustín Maffezini v The Kingdom of Spain* (ICSID Arbitral Tribunal, Case No ARB/97/7 13 November 2000) [64]

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Research collaboration

Leanne McDonald
Research Development Manager
Phone: +613 9035 7677
Email: l.mcdonald@unimelb.edu.au

Executive education and partnership opportunities

Hilary Blackman
External Relations Manager
Phone: +613 9035 5428
Email: hilary.blackman@unimelb.edu.au



@Government_UoM

government.unimelb.edu.au

