Climate Change and Financial Markets: Regulating the Trade Side of Cap and Trade

by Jonas Monast

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Editors’ Summary:

An economywide cap-and-trade system to limit the nation’s greenhouse gas (GHG) emissions would create a large new financial market. Unlike other markets that typically evolve over time, a national GHG cap-and-trade system would be worth hundreds of billions of dollars at the outset. A market of this size requires attention to both the market risks and the political risks associated with the design and operation of a new financial market. Congress has the opportunity to guide the development of the market, incorporating best practices in market regulation and building on lessons learned from recent market failures.

The 110th and 111th U.S. Congresses have made significant progress on legislation to address climate change. In 2008, the Climate Security Act, introduced by Sens. Joe Lieberman (I-Conn.) and John Warner (R-Va.) (the Lieberman-Warner Bill) made it to the U.S. Senate floor, but was withdrawn after a procedural vote to invoke cloture failed to gain 60 votes.1 In June 2009, 17 years since the development of the United Nations Framework Convention on Climate Change,2 the U.S. House of Representatives approved the American Clean Energy and Security Act (the Waxman-Markey Bill), marking the first time either chamber of Congress has passed comprehensive climate change legislation.3 In November 2009, the Senate Environment and Public Works Committee approved the Clean Energy Jobs and American Power Act (the Kerry-Boxer Bill), a bill that follows a similar structure as the Waxman-Markey Bill. At the heart of each of these pieces of legislation is a market-based cap-and-trade system that would place a cap on the total emissions of greenhouse gases (GHGs) and allow entities to trade emission allowances.

In addition to lowering the nation’s GHG emissions, the cap-and-trade system included in the Waxman-Markey and Kerry-Boxer Bills would create a substantial new financial market. Unlike other markets that typically evolve over time, a carbon market system covering the majority of the nation’s GHG emissions would be worth hundreds of billions of dollars at the outset. A cap-and-trade system of this size requires attention to both the market risks and the political risks associated with the design and operation of a new financial market. Congress has the opportunity to guide the development of the market, incorporating best practices in market regulation and building on lessons learned from recent market failures. This Article provides an overview of the key issues in the current carbon market debate and the broader market reform efforts, identifies aspects of a carbon market that may require unique regulatory approaches, describes the evolution of securities and commodities market regulation, and provides an overview of the approaches to carbon market oversight currently under consideration, including:

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I. Overview of Cap-and-Trade Systems and a U.S. Carbon Market

Market-based cap-and-trade systems are at the heart of the major legislative proposals to address climate change, including the Lieberman-Warner Bill, a draft bill released by Reps. John Dingell (D-Mich.) and Rick Boucher (D-Va.) in October 2008, the Waxman-Markey Bill, and the Kerry-Boxer Bill. The legislative proposals place an overall cap on GHG emissions for the entities covered by the program, with the cap declining at a specified rate during the life of the program. The Waxman-Markey Bill, for example, uses 2005 emission levels as a baseline. The bill would result in a 17% reduction in GHG emissions from covered entities by 2020, and an 83% reduction by 2050. For each of the bills listed above, the caps apply to entities in designated sectors that emit over a certain level of GHGs—10,000 tons of carbon dioxide (CO2) or its equivalent in the Lieberman-Warner Bill, and 25,000 tons under the Dingell-Boucher discussion draft, the Waxman-Markey Bill, and the Kerry Boxer Bill. The Waxman-Markey Bill, for example, would cover approximately 85% of the nation’s GHG emissions.

The GHG cap-and-trade systems proposed by the Waxman-Markey and Kerry-Boxer Bills would create an “allowance,” or emission credit, for each ton of CO2 allowed under the cap. The U.S. Environmental Protection Agency (EPA) would distribute these allowances through a government-run auction and direct allocations to recipients identified in the legislation. Under the Waxman-Markey Bill, recipients of free allocations include local electricity distribution companies, certain manufacturing sectors that are particularly vulnerable if their international competitors do not face similar increased costs for their GHG emissions, and state governments. The allowances are fungible, and market participants can trade them amongst themselves. At the end of each annual compliance period, regulated entities submit allowances to EPA. The cap-and-trade system allows each covered entity to determine the most cost-effective strategy for achieving its compliance obligations—reducing its CO2 emissions, continuing to emit GHGs and purchasing allowances, or a combination of the two. The bills also allow firms to meet their compliance obligations by purchasing certified offset credits that represent a ton of CO2 that was either sequestered or avoided as a result of the offset project.

History demonstrates that economic signals help achieve specific environmental goals. In 1990, Congress created an emissions trading program to limit sulfur dioxide (SO2) emissions from electric utilities in an effort to reduce acid rain. The 1990 Clean Air Act (CAA) Amendments that launched the program are widely recognized as a resounding success—achieving the environmental goals at a fraction of the predicted cost. SO2 emissions from power plants fell to 7.6 million tons by 2008, well below the 2010 statutory deadline and cap of 8.95 million tons. Before the SO2 market began operation, EPA estimated that permit prices would be in the range of $579-$760 per ton (1995 dollars). Actual permit prices were closer to $150 per ton when trading started, although there have admittedly been periods of much higher and lower prices. Estimates now place the annual cost of the program at $3 billion by 2010—one-half of EPA’s original estimate in 1990. EPA estimates that the annual benefits of the program will exceed $122 billion (2000 dollars) by 2010.

A cap-and-trade bill covering the majority of the nation’s GHG emissions would create a large new financial market. Both the Waxman-Markey and Kerry-Boxer Bills would distribute approximately 5 billion allowances in 2015. According to EPA, the bills would result in similar allowance prices.
likely falling within a range of $13-$24 per ton of CO₂ in 2015, with the most likely scenario producing a price of $13 per ton.\textsuperscript{18} Modeling by other sources that assume more costly technology or delays or restriction in the offset supply suggests that prices may be significantly higher.\textsuperscript{19} While there is debate surrounding the most likely allowance prices, the figures demonstrate that a carbon market would result in a significant new marketplace.

There would be three general categories of emissions instruments trading in a GHG market. The first category—allowances—would be created by the government and enter the market either through government-sponsored auctions or through direct allocations. The second category includes derivative instruments for future delivery of allowances. Depending on the legislation and implementing regulations, these derivative instruments may be limited to standardized futures and options that trade on regulated trading facilities or may also include bilateral over-the-counter (OTC) contracts that parties trade directly with one another.\textsuperscript{20}

Offset credits—emission reduction credits from sectors of the economy that are not subject to the mandatory emissions cap—are the third category of instruments that would trade in a carbon market. Offset credits face a different process before entering the marketplace. Prior to use as a compliance instrument, EPA or another designated agency must certify that the credits represent true emission reductions.\textsuperscript{21} Once certified, offset credits would likely trade in a similar manner as allowances, although prices for offset-based financial instruments may differ from allowance-based instruments to account for different classes of offsets.\textsuperscript{22} Futures markets for offset credits may develop, as well. Because the trading activities will likely require similar oversight as trading allowances and derivatives, the terms “allowances” and “derivatives” in this Article will include offset credits, unless otherwise noted.

Using EPA’s most likely scenario of $13 per ton, the initial value of the allowances when they enter the cash market would reach over $65 billion in 2015.\textsuperscript{23} The total market value will depend on the trading volume, i.e., the number of times allowances change ownership. For example, if there are 10 billion transactions involving allowances, the market value would reach $130 billion. In 2008, for example, the turnover ratio for European Union Allowances (EUAs) was 102\%, meaning each EUA was traded an average of one time.\textsuperscript{24} By 2030, the reduced supply of allowances could push allowance prices up to an estimated $26-$31 per ton, resulting in an initial cash market in the range of $92 billion to $109 billion.\textsuperscript{25} Futures markets are generally six to 10 times larger than the physical commodity, suggesting the value of the derivatives in the market could reach a minimum of $390 billion and $650 billion in the early years using EPA’s $13-per-ton scenario.\textsuperscript{26} In comparison, the value of global crude oil markets traded on the Intercontinental Exchange (ICE) and the New York Mercantile Exchange (NYMEX) exceeded $17 trillion in 2008.\textsuperscript{27} Global futures for cotton and sugar trading on one exchange—the ICE—reached $154 billion and $543 billion in 2008, respectively.\textsuperscript{28}

There is currently a domestic market for GHG allowances issued by the Regional Greenhouse Gas Initiative (RGGI),\textsuperscript{29} and the Chicago Climate Exchange and the associated Chicago Climate Futures Exchange currently offer financial instruments for voluntary hedging of GHG emissions. Both markets are minuscule compared to traditional commodity markets, and there is little existing infrastructure or trading practices for carbon allowances or derivatives on a national scale.\textsuperscript{30} The fact that the market infrastructure is in the early stages of development suggests two takeaways for policymakers designing a national carbon market: (1) trading practices will likely evolve and the regulatory system will need the flexibility to adjust to market issues as they arise; and (2) specific direction from Congress could have a significant influence on the development of the market. The rules and guidelines that Congress and regulators create at the outset will have an impact on the structure of the marketplace and trading practices.

\textsuperscript{18} Office of Atmospheric Programs, U.S. EPA, Economic Impacts of S. 1735: The Clean Energy Jobs and American Power Act of 2009, at 1, 17 tbl. 4 (2009), available at http://www.epa.gov/climatechange/economics/ pdfs/epa_s1735_analysis.pdf. The price of allowances depends on numerous factors, including the emissions cap and the rate of reductions, the supply of domestic and international offsets, and the rate at which affordable low-carbon energy technologies become available. Id. at 19-23.


\textsuperscript{21} See, e.g., H.R. 2454, §736 (requiring that EPA certify offset projects).

\textsuperscript{22} For example, the Lieberman-Warner Climate Security Act included differential treatment of domestic and international offset credits. See S. 3056, 110th Cong. (2008).

\textsuperscript{23} The Waxman-Markey Bill issues allowances for 5,003 million metric tons of CO₂ in 2015. H.R. 2454, §721(f)(1).


\textsuperscript{27} GoldmanSachs, supra note 26, at 17.

\textsuperscript{28} Id.

\textsuperscript{29} RGGI is a regional cap-and-trade system covering emissions from electric utilities in 10 states in the Northeast and the Mid-Atlantic. U.S. Regional Greenhouse Gas Initiative, http://rggi.org/home.

II. Addressing Risk in the Creation of the Carbon Market

A new market of this size creates risks that fall into two broad categories, both of which need to be understood and addressed to ensure a long-term, stable marketplace for GHG emissions. The first category includes the market risks present in many financial markets, e.g., volatility, fraud, manipulation, and excessive risk-taking. These issues have received a substantial amount of attention in 2008 and 2009, due to the price volatility in the petroleum markets in the summer and fall of 2008 and the resulting spikes in gasoline prices, the widespread economic impacts caused by excessive risk-taking in the mortgage-backed securities and credit default swap markets, and the multibillion dollar Ponzi scheme operated by Bernie Madoff. Numerous market reform proposals are currently before Congress to address many of these concerns. Taking steps to prevent similar failures in the carbon market is critical. A properly functioning market is necessary to facilitate access to financial instruments that allow covered entities to reduce their GHG emissions at the lowest cost and, therefore, limit the economic impacts felt by the general public.

In addition to the typical risks present in existing markets, a national carbon market is particularly subject to risks created by the political process. Political concerns in the near term could prevent adoption of legislation that creates the market in the first place. In a 2008 report, the Congressional Research Service observed: “Since there is widespread suspicion that excessive speculation by hedge funds and others has affected energy prices, the possibility that the price of allowances could also be subject to distortion or manipulation will be a policy concern.” This prediction was borne out over the summer and fall of 2009. Recent statements by senators on both sides of the political divide, including Sens. Maria Cantwell (D-Wash.), Byron Dorgan, (D-N.D.), Blanche Lincoln (D-Ark.), Lisa Murkowski (D-Alaska), Bob Corker (R-Tenn.), and John Barrasso (R-Wyo.), highlight concerns about volatility, speculation, and abuse in a national carbon market.

In the longer term, political concerns about fraud, price volatility, or enriching Wall Street investment banks at the expense of average consumers could lead Congress to make changes to the cap-and-trade program that undermine the market. Without confidence in the market’s long-term viability, companies may be reluctant to make the investments in new energy technologies that will be required to meet the reduction targets—the ultimate goal of the market.

Addressing both categories of risk will require particular attention to the key issues in the current debate: treatment of OTC trading, the appropriate levels of transparency, and addressing volatility, manipulation, and excessive speculation. The debate over OTC instruments demonstrates the trade offs facing Congress and federal regulators. Banning OTC contracts and thus requiring all trading to take place on regulated exchanges could restrict the options available to covered entities seeking to hedge the costs of complying with the cap-and-trade program. Firms offering OTC contracts can design products to meet the specific needs of the covered entities or offer instruments that do not typically trade on exchanges. Requiring that all trading occur on exchanges would also require entities to post collateral (commonly referred to as margin) with a clearing organization before completing a transaction, tying up an entity’s cash reserves and potentially restricting investments in low-emitting technologies. On the other side of the argument, Congress may determine that compliance with emissions limits does not require access to unique hedging instruments and, therefore, standardized, exchange-traded instruments would be sufficient. Requiring most or all transactions to occur on regulated exchanges would improve price discovery, result in more liquidity on exchanges, and allow the regulator to track trading activity on a small number of registered trading facilities that provide regular reports on market activity. This increased transparency and regulatory oversight may help maintain political support for the market. Congress could also choose a middle ground, permit-

35. See infra Section IV.
37. Jim Elfiathiu Jr. & Daniel Whittem, Goldman, JPMorgan Face Carbon Market Curbs in Senate Proposals, Bloomberg, Aug. 13, 2009 (“The volatility that has existed in the oil market is exactly what we don't want to happen in carbon market.”).
38. Id. (“It won't be very long before we have derivatives, we'll have swaps, we'll have synthetic swaps, you name it, we'll have all of them and it'll be a field day for speculation.”).
41. Id. (“I assure you, with trillions of dollars roaming around, there are hucksters all over this world that can figure out a way to benefit.”).
42. Id. (“Cap and tax is going to be a recipe for green-collar crime, for greed and for abuse . . . . I'm very concerned that any cap-and-tax scheme is simply going to benefit the same Wall Street elite who got us in this financial mess we're in today.”).
43. Pirrong, supra note 31, at 17.
44. Testimony of Joseph R. Glace Before the Committee on Agriculture, Nutrition and Forestry, U.S. Senate, Sept. 9, 2009.
ting OTC trading for specific types of contracts that are not likely to trade on exchanges.

Testimony at a hearing before the Senate Agriculture Committee in September 2009 suggests that there is emerging consensus on these issues. Witnesses from the Nicholas Institute for Environmental Policy Solutions at Duke University, the Chicago Mercantile Exchange, Exelon, and the Iowa Farm Bureau echoed earlier testimony by the chairman of the U.S. Commodity Futures Trading Commission (CFTC) that transparency is the key to effective regulation of the carbon market, that OTC financial instruments can provide flexibility to market participants but should be regulated properly, that the CFTC is well-positioned to be the regulator, and that the regulator should have broad regulatory authority that reaches throughout the marketplace.45

III. Markets Typically Evolve Over Time

Financial markets typically evolve and expand over time and, as a general rule, market regulation tends to be reactive, rather than proactive. Major changes to securities and commodities trading laws resulting in tighter regulation typically follow the development of new financial products or respond to failures in the market system.46 These laws and regulations then guide the evolution of the marketplace.

The stock market crash in 1929 and the ensuing economic collapse led to the most significant and rapid changes to market regulation in the United States. Prior to 1933, securities laws were implemented exclusively by the states.47 In the aftermath of the Great Depression, Congress adopted a series of securities and banking laws to prevent market abuses and restore public confidence in the markets.48 Together, the Securities Act of 1933 (1933 Act)49 and the Securities and Exchange Act of 1934 (1934 Act)50 provided investors with more information about the securities market,51 protected against fraud, and addressed “the excessive use of credit for speculation, the unfair practices employed in speculation, and the secrecy surrounding the financial condition of corpora-

45. U.S. Senate Committee on Agriculture, Hearing, Global Warming Legislation: Carbon Markets and Producer Groups, Sept. 9, 2009. Despite this general agreement, however, the witnesses did not go into detail about these points.

46. See, e.g., Stuart Banner, What Causes New Securities Regulation? 300 Years of Evidence, 75 Wash. U. L.Q. 849, 850 (1997) (“[M]ost of the major instances of new securities regulation in the past three hundred years of English and American history have come right after crashes.”).

47. James D. Cox & Thomas Lee Hazen, CORPORATIONS 716, 717 (2003). In 1911, Kansas passed the first securities law in the United States. This statute, and similar laws that followed in every state, sought to protect investors against companies with “nothing behind their securities but water or blue sky.” Id. These “Blue Sky” laws were the first attempt to protect unsuspecting investors from unscrupulous securities dealers and to establish supervision and regulation over the securities market. Id.


51. Cox & Hazen, supra note 47, at 720.


55. See, e.g., Trust Indenture Act of 1939, ch. 411, 53 Stat. 1149 (requiring a formal agreement between the bond issuer and bondholder before offering or distributing securities to the public); Investment Company Act of 1940, ch. 686, 54 Stat. 789 (requiring initial and regular financial reporting to avoid conflicts of interest); Securities Investor Protection Act of 1970, Pub. L. No. 91-598, 84 Stat. 1636 (codified as amended at 15 U.S.C. §§78aaa to 78lll) (establishing the Securities Investor Protection Corporation to protect investors in the event of a default or insolvency). The quiet metamorphosis has come right after crashes.

56. Cox & Hazen, supra note 47, at 719.


59. U.S. Commodity Futures Trading Commission, Futures Regulation Before the Creation of the CFTC, http://www.cftc.gov/abouttheftc/historyofthefc/his-

tory_preachftc.html (last updated May 27, 2009).

60. Jerry W. Markham, 2 A FINANCIAL HISTORY OF THE UNITED STATES, 222 (2002).


The introduction of nonagricultural commodities and the increased trading of futures contracts in the early 1970s—all of which were outside the regulatory jurisdiction of the Commodity Exchange Commission—led Congress to restructure the CEA. Oversight of commodity and futures trading was placed under the new CFTC.63 More recently, the 2008 Farm Bill reversed a provision of the Commodities Futures Modernization Act that exempted electronic markets from CFTC jurisdiction.64 This provision, which became known as the “Enron loophole,” was widely blamed for increased speculative activity in energy markets that resulted in higher prices for consumers.65

The financial crisis in 2008 and 2009 may result in the most significant reforms of securities and commodities markets since the Great Depression. For example, the House Financial Services Committee and the House Agriculture Committee recently approved similar legislation to regulate swap markets.66 Both bills require standardized swap transactions between dealers and large market participants to trade on an exchange or electronic platform and clear through a clearing organization registered with the CFTC or the SEC. Perhaps significantly for the carbon market, the clearing requirement does not apply to transactions intended to hedge a commercial risk. This exemption would likely apply to any entity entering into a transaction to hedge its compliance obligations under the legislation—potentially a large number of participants in the carbon market. Market participants must report non-cleared transactions to a trade repository or report directly to the CFTC or the SEC.

The House Financial Services Committee also recently passed a bill that would create a new federal agency, the Consumer Financial Protection Agency, which would be tasked with creating and enforcing new consumer protection rules and would have the power to ban “unfair, deceptive or abusive” products or practices.67 Furthermore, Rep. Barney Frank (D-Mass.), Chairman of the House Financial Services Committee, recently introduced a separate bill that would give the federal government increased authority to break up large financial firms.68

The Senate is considering new regulation of financial markets, as well. On November 10, 2009, Sen. Christopher Dodd (D-Conn.), Chairman of the Senate Banking Committee, released a draft bill that would create a Consumer Financial Protection Agency, consolidate banking regulation into one central federal agency, strengthen shareholder checks on executive compensation, and increase regulation of hedge funds.69 This bill grants authority to the CFTC and the SEC to regulate OTC derivatives, require clearing and exchange trading for certain types of derivatives, and create margin and capital requirements for uncleared trades. This bill would also increase market transparency by requiring data collection and publication of relevant information through clearinghouses or swap repositories.

Because Congress would create a new carbon market via legislation, lawmakers do not have to follow this typical trajectory. Instead, lawmakers have the opportunity to design a transparent and efficient market at the outset that builds on the best practices for market regulation and lessons learned from recent market failures.

IV. Special Characteristics of a U.S. Carbon Market

There are a number of characteristics of a carbon market that lawmakers and regulators should understand as they create the rules that will guide the development of the marketplace. These characteristics, when taken together, may call for treating allowances and derivatives different from traditional energy-related commodities.

A. Government Action Creates the Market

Unlike traditional commodity markets, the very existence of a national, mandatory carbon market would depend on long-term congressional support. The market system would exist to serve the public policy goal of mitigating climate change. Legislation would create the supply in the marketplace—the number of allowances allowed by the cap—and would require participation by large emitters of GHGs. Congress, therefore, has a vested interest in ensuring that the market serves the goals for which it was created, and also operates in a manner that lawmakers intend. Market failures, whether real, e.g., market manipulation driving energy prices up, or perceived, i.e., public perception that Wall Street banks are driving allowance prices up, could risk not only the stability of market activity but also, because the cap-and-trade system is at the heart of the major legislative proposals for addressing climate change, the nation’s primary approach to mitigating GHG emissions.


B. Relative Size of the Carbon Market Compared to Other Emission Trading Markets

As discussed above, the carbon market would be large from the outset, dwarfing the existing emission trading markets. For example, the European Union’s (EU’s) Emission Trading Scheme—the largest cap-and-trade system currently in existence—will issue just over 2 billion allowances annually between 2008-2012, covering 40% of the EU’s total GHG emissions.\(^70\) In contrast, the legislation in the House and the Senate would result in a cash market for a U.S. cap-and-trade system with over 5 billion allowances in 2015 covering 85% of the nation’s emissions.\(^71\)

C. Mandatory Participation

Under the Waxman-Markey and Kerry-Boxer Bills, entities in capped sectors that emit over 25,000 tons of CO\(_2\) in a given year must participate in the market. Many of the major emitters are utilities and other large energy producers who already participate in commodities and/or energy markets and have sophisticated understandings of the trading processes. These entities can tap this expertise to hedge risks and identify the lowest cost options for purchasing allowances or offsets to meet their compliance obligations. There will also be a large number of covered entities that do not have expertise with hedging their energy use. These new market entrants should have confidence that they will have access to a liquid, transparent market that allows them to meet their compliance obligations in a cost-effective manner.

D. The Ability to Bank Allowances

The Waxman-Markey and Kerry-Boxer Bills allow entities to bank allowances for use at a later time.\(^72\) Unlike traditional agricultural or energy commodities, there is no storage cost for GHG allowances and no expiration date. Banking provides an option for covered entities to hedge the risk that prices will rise in the future by allowing them to hold allowances and offset credits if prices are lower in the early years.

It is clear from past cap-and-trade programs that banking and multi-year compliance periods are extremely effective tools for smoothing out price fluctuations. Banking allows firms the ability to save their offsets and allowances for future use.\(^73\)

With banking, there can be an incentive to reduce emissions early—particularly during a gradual phasedown of emissions targets—and it is not necessary for the market to meet the target exactly each year. If that were the case, there would be a danger that requiring emissions to match the number of allowances exactly would result in either too few allowances—causing the price to skyrocket—or too many allowances—causing the price to plummet.\(^74\)

For market oversight purposes, banking could also allow entities to amass a larger position over time than they would if allowances expired at the end of an annual compliance period. Regulators may need to monitor not only the trading activity but also the banked allowances in order to evaluate the relative market power of the participants in the carbon market.

E. Limited Supply of Allowances That Decreases Over Time

A GHG cap-and-trade system would create a limited supply of allowances that will decrease over time. In traditional commodity markets, limited supply and/or high prices could lead to increased production of the commodity. In contrast, options for increasing supply in the event of allowance shortages will be limited to the offset credits that make it to the marketplace,\(^75\) borrowing allowances from future vintage years and paying interest on them, or perhaps a price containment mechanism that increases the supply of allowances.\(^76\)

Over time, deploying low- or non-emitting technologies could be analogous to increasing the supply of allowances. If the reduction in overall emissions from covered entities occurs at a faster pace than required by the cap, the resulting decrease in demand for allowances would have a similar effect on market prices as introducing additional allowances. Market participants will evaluate investments in low-emission technologies. If a large number of new nuclear power plants, wind generators, and coal power plants that capture GHG emissions are under construction, for example, the long-term price should come down due to the expectation of decreased demand for allowances. If, on the other hand, few additional low-emitting power generation facilities are expected to come online, then the market will likely conclude that it will be difficult to meet the declining emissions cap and prices will climb. If prices climb high enough, investors would begin building those low-emitting facilities. These facilities would take years to begin operation, however, emphasizing the limited options for reacting to near-term demand for allowances.

F. Importance of Derivative Instruments and Emphasis on Physical Delivery

Derivative instruments will likely play an important role in the carbon market. The risk management potential may be especially important in the early years of a cap-and-trade system, as market behavior evolves and the technological...
options for cost-effective emissions reductions become clear. Perhaps more importantly, climate legislation will create a long-term obligation for regulated entities, and those entities will need access to financial instruments to hedge their exposure. The Waxman-Markey Bill, for example, distributes 131 billion allowances during the lifetime of the program—2012 through 2050. There will be a relatively small number of those allowances issued each year—approximately 5 billion in 2015 and reducing over time. This will drive demand for derivatives as emitters seek to manage longer term price volatility and provide certainty to investors.

The expectation of large volumes of derivative trades does not set a prospective U.S. carbon market apart from other energy markets. The anticipated emphasis on derivatives trading is important to note, however, because derivative markets are typically more difficult to regulate and present more opportunities for gamesmanship than a cash market where the actual commodity changes hands. The allowance market is comparatively easy to monitor, because each government-issued allowance will likely have its own serial number (similar to SO2 allowances in EPA's Acid Rain Program) and regulators could require reporting when the allowances change ownership. The derivative market, on the other hand, is based on a promise for future delivery. A range of market participants could develop derivative instruments, and the regulator may have difficulty tracking them.

In liquid markets, such as natural gas and oil, there is a presumption that the commodity will be available for delivery at some price. Entities often seek to hedge the price at which they will be able to purchase the instrument, rather than their ability to purchase the commodity itself. The carbon market may differ, as entities with compliance obligations will need assurance that they will possess the proper number of allowances at the end of a compliance period, regardless of the price of the instrument. Therefore, entities may rely on physical delivery of the allowance, requiring issuers of the derivative instrument to have the allowances on hand when the contract comes due.

G. Provisions to Contain the Cost of Allowances

Congress has considered a variety of mechanisms to control the cost of carbon allowances. These mechanisms break down into two general categories. The first category, a hard price cap, includes a “safety valve” that sets a price at which the government will sell an unlimited number of allowances or a price collar that, in addition to a safety valve to limit upper prices, also includes a minimum price for allowance auctions. These mechanisms have been criticized for their potential to undermine the environmental integrity of the cap by allowing an unlimited amount of allowances to enter the market at the safety valve price, essentially transforming the cap-and-trade program into a carbon tax if allowance prices exceed the trigger price.

The second category, a soft or flexible price cap, includes flexible mechanisms designed to control allowance prices but without setting a maximum allowance price. Examples of these flexible mechanisms include the Carbon Market Efficiency Board (CMEB) included in the Lieberman-Warner Bill and the reserve auctions included in the Waxman-Markey and Kerry-Boxer Bills. The Lieberman-Warner Bill modeled the CMEB after the Federal Reserve Board and granted broad latitude to the board to control allowance prices. The reserve auctions provide additional allowances for purchase at a minimum bid price that is set higher than the expected allowance price—$28 in the Waxman-Market and Kerry-Boxer Bills. Both the CMEB and the reserve auctions seek to control prices while maintaining the emissions cap. For example, the strategic reserve includes allowances from future years—1% of allowances from 2012-2019, 2% of the allowances from 2020-2029, and 3% of allowances from 2030-2050, thereby ensuring emissions do not exceed the overall cap. Regulators may supplement the reserve with unsold allowances at the end of one year and with offset credits.

The type of cost-containment mechanism included in the legislation may affect trading behavior. If there is a hard price cap, trading activity may increase significantly if allowance prices near the price cap. First, speculators would seek to unload their allowances before the prices reach the safety valve level. At that point, covered entities would be able to purchase allowances directly from the government, and speculators may have difficulty selling their holdings. Second, entities would have an incentive to offer derivative instruments if prices approach the price cap because there is a known maximum price. For example, there would be little risk if an entity sells derivative products for $27.95 if the safety valve price were $28. If the price hits the $28 level at the time of delivery, the issuer of the derivative instrument only loses $0.05 per allowance. Yet, there may be a good chance that prices will fall after entities begin purchasing the extra allowances, allowing the issuers of derivative instruments to earn a profit if they can deliver the allowances for less than the purchase price of the derivative. This increased trading activity should not be seen as a negative result or one that regulations should seek to avoid. These would be normal

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77. Id.
78. H.R. 2454, §311, proposed Clean Air Act §721(b).
79. Craig Pirrong, supra note 37, 17-18 (Sept. 2009).
81. See generally Murray et al., supra note 73.
82. S. 2191, §§2601 et seq.; H.R. 2454, §311, Proposed Clean Air Act §726; S. 1733, §111, proposed Clean Air Act §726.
84. H.R. 2454, §726(c); S. 1733, §726(c)(2).
86. H.R. 2454, §726(b)(1)(B).
reactions to the predetermined maximum price, but regulators should understand this dynamic and perhaps monitor the market more closely during times of high trade volumes. The behavior of traders under a reserve mechanism is more difficult to predict.

V. Current Approaches to Regulating Allowance-Based Financial Instruments

Judging from recent proposals for regulating the carbon market, there are four general approaches under consideration: (1) regulating the carbon market under current law; (2) defining carbon allowances as commodities under the CEA; (3) regulating allowance derivatives under the existing CEA, providing flexibility to treat the derivative market uniquely where appropriate, and creating a new regulatory structure for allowances; or (4) designing a market structure specifically tailored to the carbon market.

A. Regulating the Carbon Market Under Current Law

Currently, there are no regulations dealing specifically with the trading of emission allowances. The CFTC can exert jurisdiction over allowance-based financial instruments that trade on regulated trading facilities. Currently, the CEA divides derivatives into three categories: agricultural commodities; “exempt” commodities; and “excluded” commodities. Agricultural commodities face the highest degree of regulation and must trade on designated contract markets (DCMs) unless the CFTC grants an express exemption. Exempt commodities, including energy commodities, trade on exempt commercial markets (ECMs), i.e., electronic trading facilities. Unlike agricultural commodities trading on DCMs, the CFTC may only require position limits and large trader reporting for ECM-traded instruments that are “significant price discovery contracts.” Excluded commodities, including interest rates, exchange rates, swaps, and other financial instruments, fall outside the scope of the CEA.

The CFTC recently initiated an investigation to determine whether the carbon financial instrument trading on the Chicago Climate Exchange performs a significant price discovery function. The CFTC also has jurisdiction over futures contracts in emission allowances associated with EPA’s Acid Rain Program and the RGGI, provided the contracts trade on trading facilities already subject to CFTC regulation. For example, the Chicago Climate Futures Exchange, a registered DCM, currently trades futures contracts for both EPA’s Acid Rain Program and the RGGI. Notably, current law does not grant the CFTC authority to regulate emission allowances or derivatives unless they trade on a DCM or an ECM.

B. Defining Carbon Allowances as Commodities Under the CEA

In February 2009, House Agriculture Committee Chairman Colin Peterson (D-Minn.) introduced the Derivatives Markets Transparency and Accountability Act in February 2009 (Peterson Bill). The bill subjects allowances and offset credits to the same standards as agricultural commodities—the most stringent level of regulations.

C. Regulating Derivatives Under the Existing CEA, Providing Flexibility to Treat the Derivative Market Uniquely, Where Appropriate, and Creating a New Regulatory Structure for Allowances

The Waxman-Markey bill takes a hybrid approach, creating specific standards for oversight of the allowance market and assigning oversight of the allowance market to the Federal Energy Regulatory Commission (FERC). FERC must promulgate regulations that, inter alia: “prohibit fraud, market manipulation, and excess speculation”; limit “unreasonable” price fluctuation; ensure transparency and recordkeeping; “ensure that position limitations for individual market participants are established with respect to each class of regulated allowances”; and “ensure that margin requirements are established for each class of regulated allowances”. The bill also instructs the president to create a national market system; establish standards for trading facilities and clearing organizations; and any other requirements as necessary to preserve market integrity and facilitate compliance” with the CAA and the Public Utility Regulatory Policies Act.

Like the Peterson Bill, the Waxman-Markey Bill subjects carbon derivative markets to the same standards as agricultural commodities. Derivative instruments for allowances or offsets must therefore trade on DCMs and clear through Designated Clearing Organizations unless the CFTC grants express exemptions. The bill also instructs the president to create an interagency working group, including the EPA Administrator and representatives from other appropriate agencies, to make recommendations to the CFTC regarding regulation of the allowance derivative market. In addition to the specific standards that the regulations must address, the legislation also includes detailed enforcement provisions.

88. 7 U.S.C. §2(h)(7).
89. 7 U.S.C. §1a(4), (13) & (14).
92. See http://services.cftc.gov/SIRT/SIRT.aspx?Topic=TradingOrganizations&implicit=true&type=DCM&CustomColumn Display=TTTTTTTTT; Chicago
and preserves state laws regarding unfair competition, antitrust, consumer protection, securities, and commodities.\(^99\)

In addition to the provisions regulating trading of allowance-based instruments, the Waxman-Market Bill also incorporates the Prevent Unfair Manipulation of Prices Act of 2009 (PUMP Act), introduced by Rep Bart Stupak (D-Mich.).\(^{100}\) This amendment would reform several different aspects of the financial industry, with a primary focus on energy commodities. First, the PUMP Act would remove the current CEA exemption for OTC energy commodity transactions, including swaps. Additionally, energy transactions would be subject to aggregate position limits. The PUMP Act would also eliminate the bona fide hedging exemption for energy swaps not backed by a physical commodity, and it would require swap dealers in all markets to report their market positions. This amendment would also increase the regulation of index funds by requiring disclosure of market positions, the size of positions invested in commodity index replication strategies, and the total value of energy contracts traded by commodity index speculators. Position limits would also be required for index funds, and the CFTC would have the authority to publicly disclose the identity of anyone who violates these limits. The amendment would apply all relevant reforms of the CEA to the carbon markets.

### D. Designing a Market Structure Specifically Tailored to the Carbon Market

The Carbon Market Oversight Act of 2009, introduced by Sens. Diane Feinstein (D-Cal.) and Olympia Snowe (R-Me.), treats the carbon market as a distinct new marketplace. Although it follows the basic structure of the CEA and takes some language directly from the Act, the bill creates a new CEA title for the carbon market.\(^{101}\) The bill includes separate provisions for the allowance and derivatives markets, including registration and reporting requirements for trading facilities and intermediaries, and creates a new Office of Carbon Market Oversight and a Carbon Clearing Organization for carbon allowances.\(^{102}\) The bill creates an exemption for private bilateral transactions but, because the exemption is written narrowly, most, if not all, trading would occur on regulated trading facilities.\(^{103}\)

Under the first three approaches, and possibly the fourth, broader market reform efforts would also apply to the carbon market. It is unclear where the market regulation provisions in the Kerry-Boxer Bill would fall along the spectrum described above. Unlike the Waxman-Markay Bill and Feinstein-Snowe Bill, the Kerry-Boxer Bill does not identify a regulator or create mandatory requirements for market regulation. Instead, the version of the bill approved by the Senate Environment and Public Works Committee on November 5, 2009, includes a “sense of the Senate” provision calling for a single, integrated carbon market oversight program—

1. to provide for effective and comprehensive market oversight and enforcement;
2. to lower systemic risk and protect consumers;
3. to ensure market liquidity and allowance availability;
4. to enhance the price discovery function of such markets, ensuring that the price for emission allowances and offset credits reflects the marginal cost of abatement;
5. to prevent excessive speculation that contributes to price volatility, including the establishment of robust aggregate position limits and margin requirements;
6. to ensure that market mechanisms and associated oversight support the environmental integrity of the program established under title VII of the Clean Air Act . . . ;
7. to establish provisions for market transparency that provide authority, resources, and information needed to prevent fraud and manipulation in such markets;
8. to establish standards for trading as, and operation of, trading facilities;
9. to ensure a well-functioning, well-regulated market, including a futures market, designed to manage risk and facilitate investment in emission reductions;
10. to establish clear, professional standards for dealers, traders, and other market participants;
11. to provide for appropriate criminal and civil penalties; and
12. to prevent any excessive leverage by market participants that creates risk to the economy.\(^{104}\)

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101. Id. at §§203, 206.

102. Id. at §202(12).

PRIVATE BILateral CONTRACT. The term private bilateral contract means a nonstandard contract that lacks each of the following characteristics:

(A) The applicable transaction or class of transactions settles against any price (including the daily or final settlement price) of 1 or more contracts listed for trading on a registered trading facility.

(B) The price of the applicable transaction or class of transactions is reported to a third party, published, or otherwise disseminated.

(C) The price of the applicable transaction or class of transactions is referenced in another transaction.

(D) There is a significant volume of the applicable transaction or class of transactions.

(E) The value of the applicable transaction is significant in comparison to the value of the underlying carbon derivative market.

(F) The contract or applicable transactions meets other criteria that the Commission determines to be appropriate. Id.

103. S. 1733, Title VII, Subtitle D.

104. For example, the Waxman-Markey Bill requires FERC to set position limits, margin requirements, and requirements to qualify as trading facilities and clearing organizations. H.R. 2454, §341, Proposing Federal Power Act §410(2).
VI. Addressing the Carbon Market Under the CEA Framework

The ongoing efforts to reform financial markets and the competing legislative proposals for oversight of the carbon market make it difficult to predict how the specific regulatory structure for the carbon market will develop. It is notable, however, that each of the approaches described above is rooted in the existing CEA framework. Even the section of the Waxman-Markey Bill that assigns oversight of the allowance market to FERC borrows heavily from the structure of the CEA. This suggests that the implementing regulations will likely build upon a core set of existing market oversight mechanisms regardless of which legislative approach Congress ultimately settles upon. The new applications may expand the scope of certain regulations and may remove exemptions that apply in other markets. These potential changes could have significant impacts on trading behavior, but the mechanisms themselves are generally understood and are common practice.

Existing CEA provisions, if applied correctly, could go a long way toward creating a transparent, stable marketplace for GHG allowances and derivatives. The following section examines aspects of commodities regulation that will likely apply to a new federal carbon market and discusses adjustments that could allow the regulatory structure to address concerns specific to the carbon market.

A. Clearing

Clearing is widely cited as a means of limiting systemic risk in the aftermath of the credit default swap market collapse in 2008. As CFTC Chairman Gary Gensler explained to the House Agriculture Committee: “When a contract is submitted for clearing, the clearinghouse is substituted as the counterparty for both the buyer and the seller. The clearinghouse guarantees the performance for each counterparty, reducing risk for both the buyer and the seller.”107

Exchanges typically process transactions through clearinghouses to ensure that both parties to the transaction can meet their obligations. Clearinghouses require members to post margins to serve as collateral for their transactions, and the margin requirements are adjusted on a daily basis. In contrast, OTC contracts may allow contracting parties to post non-cash collateral, e.g., physical assets, as margin or, in some instances, post no margin at all, thereby allowing entities to use their cash flows for other purposes. Mandatory reporting to trade repositories or directly to the market regu- 105. Statement of Gary Gensler, Chairman, Commodity Futures Trading Commission, Before the House Committee on Agriculture, Sept. 22, 2009, at 6 (“Requiring clearing of standardized products will protect the American public by lowering risk. One of the lessons learned from the crisis was that financial institutions were not only too big to fail, but too interconnected to fail. In that regard, moving bilateral trades into regulated clearinghouses will reduce the risk that a failure of one firm will cause other firms to fail.”).

106. Id.


108. See supra note 65.


110. U.S. Senate Permanent Subcommittee on Investigations, Excessive Speculation in the Wheat Market: Majority and Minority Staff Report (June 24, 2009) at 72.

111. See, e.g., CME Group, Excessive Speculation and Position Limits in Energy Derivative Markets 6, available at http://www.cmegroup.com/company/files/PositionLimitsWhitePaper.pdf. [T]he regulatory structure for speculative position limits has been administered under a two-pronged framework: with enforcement of speculative position limits being shared by both the Commission and the DCMs. Under the first prong, the Commission establishes and enforces speculative position limits for futures contracts on a limited group of agricultural commodities. Under the second prong, for all other commodities, individual DCMs, in fulfillment of their obligations under the CEA’s Core Principles, establish and enforce their own speculative position limits or position accountability provisions (including exemption and aggregation rules), subject to Commission oversight.


115. U.S. Senate Permanent Subcommittee on Investigations, Excessive Speculation in the Wheat Market: Majority and Minority Staff Report (June 24, 2009)

lator, as proposed in the recent House legislation to regulate swaps, presents a potential compromise.109

B. Position Limits

Position limits are a common tool to address excessive speculation in commodity futures markets. Currently, trading facilities typically set their own speculative position limits, and traders can amass large positions by purchasing contracts from multiple sources.111 Under the CFTC’s Large Trader Reporting Program, entities whose positions in standardized commodity contracts exceed a specified level must report those positions to the Commission.112 While that allows the CFTC to monitor trading behavior that occurs on regulated trading facilities, it does not necessarily prevent excessive speculation nor does it provide the regulator with information about market activity taking place in other venues.

Regulations specific to the carbon market could create aggregate position limits that apply to individual traders, regardless of where they conduct their transactions. The CFTC sets aggregate position limits for some agricultural commodities but does not do so for energy markets.113 If OTC trading is allowed, it could be difficult for regulators to apply position limits to nonstandardized contracts. Some portion of OTC contracts will call for delivery by a certain date, potentially allowing regulators to treat those contracts in the category of standardized contracts with the same delivery date. It would be more difficult to apply position limits to OTC contracts that do not call for delivery.

The CEA allows the CFTC to exempt entities entering into “hedge exemptions” from speculative position limits.114 The CFTC has discretion to determine the types of transactions that qualify as bona fide hedge exemptions to “permit producers, purchasers, sellers, middlemen, and users of a commodity or a product derived therefrom to hedge their legitimate anticipated business needs for that period of time into the future for which an appropriate futures contract is open and available on an exchange.”115 In 1991, the CFTC
expanded the exemption to allow firms to hedge financial risks that were not “connect[ed] with the production, sale, or use of any physical commodity.”\(^\text{116}\)

Hedge exemptions are appropriate for the carbon market, as covered entities should be able to purchase allowances and futures to hedge their compliance obligations and the costs associated with them. It may make economic sense for some firms to purchase and hold large quantities of allowances and derivatives. Regulators may need to closely monitor the application of hedge exemptions in the carbon market, however. The potential exists for some well-capitalized firms with compliance obligations to use the hedge exemptions to purchase allowances and futures in quantities large enough to affect market prices, potentially as speculative investments.

In addition, the banking provisions in the Waxman-Markey and Kerry-Boxer Bills allow firms to bank allowances from year to year, making it more likely that firms could hold large positions. This may be a particular concern in the early years, as economic modeling suggests that the relatively lax emissions cap during that time would lead firms to reduce emissions through “low hanging fruit” such as investments in energy efficiency and save allowances for use at a later date.\(^\text{117}\)

Financial hedging may prove especially problematic. For example, if banks act as intermediaries purchasing financial instruments on behalf of a covered entity, the hedge exemption could apply. Allowing entities without compliance obligations to take advantage of hedge exemptions could encourage the use of allowance-based instruments as a tool to hedge a wide range of energy exposures, thereby increasing speculative market behavior.

C. Transparency

Transparency is the foundation of an effective regulatory system. Regulators require sufficient information about the marketplace, including prices, volume, positions, and market trends, in order to prevent and punish market abuses. The more detailed information an oversight body receives, the better its capacity to detect trading irregularities and inconsistencies. With timely data, appropriate enforcement authority, and sufficient resources, regulators can quickly identify suspicious spikes in market price or trade volume. Similarly, accurate, timely data about prices, trade volume, and counterparty risk allow market participants to make more accurate bids and offers, thereby reducing price volatility. This, in turn, helps ensure that allowance prices more accurately reflect the marginal cost of abating emissions. Transparency can also help maintain public confidence in the fairness and stability of the market—an element that may be essential to the long-term success of the cap-and-trade program’s ability to reduce emissions in a cost-effective manner. Unlike position limits and clearing, however, the term “transparency” refers to a broad range of mechanisms to provide information about market activity.

Transactions taking place on exchanges are generally more transparent than their OTC counterparts. The trading activity occurs on centralized trading platforms, and the contracts are standardized and fungible. As exchange-traded transactions occur under the supervision of both a clearinghouse and an exchange, the regulator can receive and compare information from a discrete number of sources. This centralization also makes it easier for a regulator to receive verifiable information in a format that it can easily analyze. In addition, exchanges provide information to its members and often to the general public regarding the prices and market activity.\(^\text{118}\)

Emission allowances issued pursuant to federal climate legislation will likely have unique serial numbers, allowing regulators to track ownership of the allowances with the proper reporting requirements. The legislation or implementing regulations could achieve transparency in the derivatives markets by requiring reporting from exchanges, clearing organizations, trade repositories, and intermediaries such as brokers and dealers. If over-the-counter instruments are allowed in the carbon market, the rules could require reporting of any non-cleared transactions to a trade repository or directly to the CFTC—the model included in the swap markets reforms passed by the House Financial Services and Agriculture Committees.\(^\text{119}\)

There is a strong argument for a high level of public transparency in the carbon market, as it is designed to address a key environmental issue, and the cost of allowances will have a direct impact on energy prices. The success of cap-and-trade depends, in no small degree, on public acceptance of the market, which could unravel if excessive speculation drives prices up or high-risk instruments proliferate undetected in carbon markets. Public disclosure of individual market positions would allow the public to monitor the activities of each participant in addition to general market activity. Public watchdog organizations could evaluate market trends and draw their own conclusions about the effects of speculative behavior and the extent to which emitters are participating in the market to cover their compliance obligations versus treating allowance-based instruments as investment vehicles.

At the same time, confidentiality and efficiency concerns may counsel for a more tempered approach to public disclosure.\(^\text{120}\) Disclosure of these data on a daily, weekly, or even monthly basis could allow speculative traders to anticipate when entities with large compliance obligations may need to

\(^{116}\) See EPA Analysis of H.R. 2454, supra note 25.


\(^{118}\) See Over-the-Counter Derivatives Market Act of 2009, H.R. 3795, 111th Cong.


purchase allowances. This, in turn, may lead to those traders purchasing allowances ahead of compliance entities in an attempt to raise prices (referred to as front running). The public does not necessarily need daily access to these positions in order to evaluate market behavior, however. Regulators could balance the public disclosure requirements with the concerns about confidentiality by including allowance-based financial instruments in the CFTC’s weekly Commitments of Traders (COT).121 The COTs disclose the total open interest for many of the commodities markets, but do not include information about the holders of those positions.

In addition to the COTs, the regulations could increase transparency in the carbon market by requiring market participants to publicize their holdings on a delayed basis, e.g., one quarter delay. This would allow the public to monitor market behavior but would not provide information in time to influence daily trading activity. This data may already be available for publicly traded companies, as the SEC requires disclosure of “material information” in quarterly reports.122 Not subjecting privately held companies to the same standard could give them an advantage, because they will have more information about their competitors than their competitors have on them. Alternatively, the regulator could disclose the positions but use numbers assigned through a confidential system to represent the entities rather than names.

The Acid Rain Program currently administered by EPA may also provide lessons for creating a transparent carbon market. The annual SO2 allowance auction is a major part of the program, and EPA makes public a considerable amount of information for both spot bids and seven-year advance bids after the auction takes place, including the identity of the bidders, the amount of bids, and the bid price.123 A potentially important difference between the Acid Rain Program and the carbon market that would result from the Waxman-Markey and Kerry-Boxer Bills is the fact that EPA allocates allowances to entities covered by the Acid Rain Program while most, if not all, covered entities in the carbon market would have to purchase at least some allowances to meet their compliance obligations. Disclosing auction data in real time could allow other market participants to assess the exposures of the covered entities, potentially allowing them to front-run those entities.

Entities are not required to report information to EPA’s Allowance Management System (AMS) on other transactions until the allowances are actually used to meet a source’s emissions requirements.124 Many entities do report their transactions to EPA as they occur, however.125 EPA then posts information on an online database regarding the parties involved in the transaction, the amount of allowances traded, and the serial number and vintage year of the allowances. This publicly accessible database also displays information on current allowance holdings by all entities involved in the market, but does not indicate the prices paid for the instruments.126

D. Information-Sharing Between Agencies

Even if the CFTC is assigned exclusive responsibility for regulating the financial instruments associated with the carbon market, as contemplated by the Feinstein-Snowe Bill, it will be necessary for the commission to share information with other federal agencies. For example, a separate agency, likely EPA, will be responsible for facilitating the entry of allowances into the marketplace through auctions and direct allocations.127 EPA, and possibly the USDA, will also likely be responsible for certifying offset credits,128 a necessary step to the credits entering the marketplace.

E. Price Limits

The potential for allowance price volatility driving up energy prices is a particular concern in the political process.129 In addition to mechanisms to contain the overall cost of allowances, daily price limits, sometimes referred to as circuit breakers, are existing tools to control daily price volatility on commodities and securities exchanges. For example, while the overall cost-containment provisions may introduce a new supply of allowances at a certain price, the daily price limits could prevent prices for exchange-traded instruments from increasing more than 10% in a given day.

Daily price limits first appeared in the United States in August 1917 to control volatility in the cotton markets during World War I.130 The Chicago Board of Trade formally adopted price limit rules in 1925.131 In the aftermath of the

123. See U.S. EPA, “Acid Rain Program SO2 Allowances Fact Sheet: What Is the System for Keeping Track of Allowances?,” http://www.epa.gov/airmarkets/trading/factsheet.html/whatis (last visited Nov. 12, 2009) (explaining that “it is not necessary to record all transfers with EPA until such time that the allowances are to be used to meet a source’s SO2 emissions limitation requirement”).
124. See U.S. EPA, “Clean Air Markets—Data and Maps: Transactions,” http://camdataandmaps.epa.gov/gdm/index.cfm?fuseaction=allowances.wizard (click on “Transactions” on left side of screen and follow instructions to find data on transactions) (providing detailed and current information on transactions soon-after they occur and not limited to times when parties must turn in their allowances).
126. See, e.g., H.R. 2454, §52.
127. See, e.g., H.R. 2454, §311, proposed CAA §734(c)(8) (requiring the U.S. EPA Administrator to consult with the Secretary of Agriculture on rules regarding offset credits from reduced deforestation).
131. SEC Rule 80B (Trading Halts Due to Extraordinary Market Volatility).
1987 stock market crash, the New York Stock Exchange (NYSE) issued, and the SEC approved, a new rule requiring a 30-minute halt in securities trading if the Dow Jones Industrial Average (DJIA) drops by 350 points, and a one-hour halt if the DJIA drops by 550 points. The NYSE amended, and the SEC approved, the rule in 1998, opting for triggers based on the percentages of the price declines and the time at which they occur.135 The new rule was an attempt to tailor the circuit breakers so the trigger only occurs “when market decline is of historic proportions . . . when the prices have dropped so dramatically that liquidity and credit dry up, and when prices threaten to cascade in a panic-driven spiral.”134

Price limits are intended to: (1) prevent large movements in prices due to panic and speculation; (2) limit the daily liability of market participants and the consequent costs of portfolio adjustment, a particular concern with daily settlement in futures markets; and (3) allow brokers time to consult with their clients during times of market turbulence. Whether or not the price limits achieve these objectives or simply impose costs on the marketplace remains in dispute. Daily price limits, if triggered, interrupt normal market activity and may (1) delay price discovery, and (2) simply transfer volatility to subsequent days or trading periods. Recognizing that price volatility and the resulting increases in energy prices for consumers are significant political concerns, policymakers may want to consider creating daily price limits for the carbon market or implementing another form of market circuit breaker. Rather than protecting against price drops, the carbon market price limits could instead apply to daily increases in prices. The market’s downtime could allow regulators to better understand the drivers behind the price swings, and could allow covered entities to assess their options. Compliance periods occur on an annual basis, potentially allowing covered entities to delay their market activity if they determine that prices are likely to come down in the future. Regulators may need to suspend price limits at the end of the compliance period to ensure that covered entities have access to the allowances necessary to meet their compliance obligations. Policymakers could also consider creating flexibility in the timing of compliance if allowance prices spike as the compliance period nears its end, allowing covered entities more time to submit allowances for the previous period.

F. Information-Sharing With Appropriate International Regulators

There is a concern that allowances and derivatives could trade in other countries, beyond the jurisdiction of U.S. regulators. The CFTC has bilateral memoranda of understanding (MOU) with regulatory bodies in other countries, allowing for varying levels of access to information about market activity that takes place on foreign boards of trade. In addition, the CFTC is a party to two multilateral MOUs among securities and derivatives regulators. The Boca Declaration, signed March 1996, facilitates information-sharing on a bilateral basis. In 2003, the CFTC signed the Memorandum of Understanding Concerning Consultation, Cooperation, and the Exchange of Information of the International Organization of Securities Commissions (IOSCO MOU), allowing securities and futures regulators to share information on a multilateral basis. The IOSCO MOU, for example, “provides for the exchange of essential information to investigate cross-border securities and derivatives violations, including the most serious offenses, such as manipulation, insider trading and customer fraud.” These memoranda do not “create legally binding obligations or supersede domestic laws,” nor do they call for regular, ongoing sharing of information. Instead, it is up to the regulator to request the information from its international counterparts. The CFTC monitors market trends and only initiates investigations into activity occurring on foreign

132. The new rule calls for a one-hour halt in trading if there is a 10% decline that occurs before 2 p.m., for 30 minutes if the decline occurs between 2 and 2:30, and no halt if the decline occurs after 2:30. A 20% decline requires a two-hour halt if it occurs before 1 p.m., a one-hour halt if the decline occurs between 1 p.m. and 2 p.m., and closing the market for the rest of the day if the decline occurs after 2 p.m. If the market declines by 30% at any time during the day, trading would be halted for the remainder of the day.


134. Kim & Yang, supra note 128.

135. Id.


137. In addition to price limits, lawmakers could also consider other forms of circuit breakers to control price volatility, including “firm-specific trading halts” or “market-wide circuit breakers.” Kim & Yang, supra note 128, at 2.

138. See, e.g., H.R. 2454 § 722 (requiring regulated parties to turn in allowances for previous year by April 1 of the following year).


A multi-trillion dollar carbon market is expected to attract interest from overseas exchanges looking to facilitate trades during non-U.S. market hours. These exchanges will tend to have their own reporting criteria that may or may not be accessible to US regulators. This leaves open the risk that market players could side step position limits on carbon trades by holding some or all of these allowances offshore.
commodity futures markets when an abnormality appears. The majority of investigations, particularly in recent years, have focused on market irregularities with energy commodities. The MOUs are written broadly and do not specify commodities, so allowance-based financial instruments should fall within the existing agreements.

The CFTC can monitor international trading to some degree by requiring any entity within its jurisdiction to report trades occurring on foreign boards of trade to U.S. trading facilities of which they are members, clearinghouses, trade repositories, or directly to the commission. It may also be necessary for the CFTC to seek regular, timely information from international regulators overseeing markets that trade U.S.-issued allowance-based financial instruments. This may be especially important in the early years of the carbon market, as the CFTC will not have data on long-term market trends and thus may have difficulty identifying irregular trading behavior. Because the Waxman-Markey and Kerry-Boxer Bills allow offset credits from international sources, the CFTC will also need to monitor, not only instruments involving U.S. allowances and related derivatives, but also offset credits that could qualify as compliance instruments in the U.S. market. The entities producing and buying these initial offset credits may fall outside the jurisdiction of the CFTC, highlighting the importance of international agreements that cover carbon markets.

VII. Conclusion

The creation of a new cap-and-trade system to limit the nation's GHG emissions presents lawmakers with a series of key decisions. Suspicion of market mechanisms is particularly high in the aftermath of the extreme volatility in the petroleum market, the broad economic impacts caused by failures in the derivatives markets, and the SEC's failure to catch Bernie Madoff's multibillion dollar Ponzi scheme. The long-term viability of a GHG cap-and-trade system, and thus the nation's approach to addressing climate change, may depend on addressing the market and political risks associated with a carbon market. Proper market design at the outset can address many of these concerns. With the benefit of hindsight, Congress can address the potential for market failures by incorporating best practices into the regulatory structure.

148. See H.R. 2454, §311, proposed CAA §743; S. 1733, §101, proposed CAA §744.