

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 (the Lieberman-Warner Bill) made it to the U.S. Senate floor, but was withdrawn after a procedural vote to invoke cloture failed to gain 60 votes.¹ In June 2009, 17 years since the development of the United Nations Framework Convention on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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1. S. 3036, 110th Cong. (2008). See Zachary Coile, *Senate Defeat Puts Climate Bill on Tough Road*, S.F. CHRON., June 7, 2008, at A2, available at <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2008/06/07/MN2Q114L06.DTL> (explaining bill's defeat).
2. United Nations Framework Convention on Climate Change (UNFCCC), May 9, 1992, 31 I.L.M. 849, available at <http://unfccc.int/resource/docs/con-vc/kp/conveng.pdf>.
3. American Clean Energy and Security Act, H.R. 2454, 111th Cong. (2009).

1. Using the existing regulatory system to govern the carbon market;
2. Defining carbon allowances as commodities under existing commodities law;
3. Using the existing structure for commodities regulation but creating specific provisions to address the unique aspects of a carbon market; and
4. Designing a market structure specifically tailored to the carbon market.

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 2008,⁴ 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 2050.⁵ 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 equivalent⁶ 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.⁷

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.⁸ 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.⁹ 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.¹⁰

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)¹¹ 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.¹² Before the SO₂ market began operation, EPA estimated that permit prices would be in the range of \$579-\$760 per ton (1995 dollars).¹³ Actual permit prices were closer to \$150 per ton when trading started, although there have admittedly been periods of much higher and lower prices.¹⁴ Estimates now place the annual cost of the program at \$3 billion by 2010—one-half of EPA's original estimate in 1990.¹⁵ EPA estimates that the annual benefits of the program will exceed \$122 billion (2000 dollars) by 2010.¹⁶

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 2015.¹⁷ According to EPA, the bills would result in similar allowance prices,

4. Dingell-Boucher Discussion Draft, 110th Cong. (2008), available at http://energycommerce.house.gov/images/stories/Documents/PDF/selected_legislation/clim08_001.xml.pdf.

5. H.R. 2454, §311 (proposing addition of §702 to Clean Air Act).

6. GHGs covered by the bills include carbon dioxide (CO₂), methane, nitrous oxide, sulfur hexafluoride, hydrocarbons, perfluorocarbons, nitrogen trifluoride, and any other anthropomorphic gas that EPA designates as a GHG. H.R. 2454, §311 (proposed §711(a)). The emissions targets in the legislation use CO₂ as the common standard, and EPA determines the CO₂ equivalent for the other GHGs. H.R. 2454, §311 (proposed §711(b)). For example, a methane molecule has a “global warming potential” 21 times greater than that of CO₂. U.S. ENVTL. PROT. AGENCY (EPA), INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990-2007, at ES-3 tbl.ES-1 (2009).

7. See U.S. EPA, EPA ANALYSIS OF THE WAXMAN-MARKEY DISCUSSION DRAFT: THE AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009: EXECUTIVE SUMMARY, at 4 (2009), available at <http://www.epa.gov/climate/climatechange/economics/pdfs/WaxmanMarkeyExecutiveSummary.pdf>. See also FREYR SVERRISSON, NICHOLAS INST. FOR ENVTL. POL'Y SOLUTIONS, SIZE THRESHOLDS FOR GREENHOUSE GAS REGULATION: WHO WOULD BE AFFECTED BY A 25,000-TON CO₂ EMISSIONS RULE? (2009), available at <http://nicholas.duke.edu/institute/ni.report.09.05.pdf>.

8. H.R. 2454, §311, proposed Clean Air Act §722(b) (requiring sources to turn in one allowance for every ton of CO₂ emitted).

9. H.R. 2454, §311 (proposed §732). For more information on carbon offsets, see Lydia P. Olander & Brian C. Murray, Nicholas Inst. for Envtl. Pol'y Solutions, *Offsets: An Important Piece of the Climate Policy Puzzle* (2008), available at <http://nicholas.duke.edu/institute/offsetseries1.pdf>.

10. H.R. 2454, §311 (proposed §732).

11. 42 U.S.C. §§7401-7671q, ELR STAT. CAA §§101-618.

12. U.S. EPA, Acid Rain and Related Programs: 2008 Emission, Compliance, and Market Analyses 2, 2009, available at http://www.epa.gov/airmarkt/progress/ARP_2008_ECM_Analyses.pdf.

13. D. Burtraw & K. Palmer, *The Paparazzi Take a Look at a Living Legend: The SO₂ Cap-and-Trade Program for Power Plants in the United States. Resources for the Future* 17, Resources for the Future, Discussion Paper 03-15, available at <http://www.rff.org/rff/documents/rff-dp-03-15.pdf>.

14. *Id.* at 14.

15. U.S. EPA Clean Air Market Programs, *Acid Rain Benefits Exceed Expectations* 1, <http://www.epa.gov/airmarkt/cap-trade/docs/benefits.pdf>.

16. *Id.*

17. See H.R. 2454, §311 (proposed §721(e)); S. 1733, 111th Cong. div. B, §101 (2009) (proposed §721(e)).

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.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.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.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.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.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 2015.²³ 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.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.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.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 2008.²⁷ Global futures for cotton and sugar trading on one exchange—the ICE—reached \$154 billion and \$543 billion in 2008, respectively.²⁸

There is currently a domestic market for GHG allowances issued by the Regional Greenhouse Gas Initiative (RGGI),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 miniscule compared to traditional commodity markets, and there is little existing infrastructure or trading practices for carbon allowances or derivatives on a national scale.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.

18. OFFICE OF ATMOSPHERIC PROGRAMS, U.S. EPA, ECONOMIC IMPACTS OF S. 1733: 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_S1733_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.

19. See, e.g., David Montgomery et al., *Impact on the Economy of the American Clean Energy and Security Act of 2009* (H.R. 2454) 3, CRA International (May 2009).

20. See, e.g., Carbon Market Oversight Act of 2009, S. 1399, 111th Cong. (2009) (establishing separate regulatory requirements for allowance and derivatives trading); JONAS MONAST ET AL., NICHOLAS INST. FOR ENVTL. POL’Y SOLUTIONS, U.S. CARBON MARKET DESIGN: REGULATING EMISSION ALLOWANCES AS FINANCIAL INSTRUMENTS 6–7 (2009), available at http://nicholas.duke.edu/ccpp/ccpp_pdfs/carbon_market_primer.pdf; WASH. STATE DEPT. OF ECOLOGY, ECONOMIC ANALYSIS OF A CAP AND TRADE PROGRAM: ANALYSIS OF OPTIONS FOR LIMITING MARKET MANIPULATION 11–13 (2008), available at http://www.ecy.wa.gov/climatechange/2008CTdocs/10102008_LimitingMarketManipulation.pdf.

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

22. For example, the Lieberman-Warner Climate Security Act included differential treatment of domestic and international offset credits. See S. 3036, 110th Cong. (2008).

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

24. Point Carbon, *Towards a Common Carbon Currency: Exploring the Prospects for Integrated Global Carbon Markets* 19 (December 2008).

25. U.S. EPA, EPA Analysis of the American Clean Energy and Security Act of 2009: H.R. 2454 in the 11th Congress, at 12, http://www.epa.gov/climatechange/economics/pdfs/HR2454_Analysis.pdf (last updated June 23, 2009).

26. Speech of CFTC Commissioner Bart Chilton before the Chicago Climate Exchange & Chicago Climate Futures Exchange, Sixth Annual Meeting, Chicago, Illinois, “Green CAT” Markets: You Gotta Show Some Guts (June 11, 2009), at 2, <http://www.cftc.gov/ucm/groups/public/@newsroom/documents/speechandtestimony/opachilton-23.pdf>; Goldman Sachs, *Carbonomics: Measuring the Impact of U.S. Carbon Regulation on Select Industries*, June 25, 2009, at 17.

27. Goldman Sachs, *supra* note 26, at 17.

28. *Id.*

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>.

30. See, e.g., Chicago Climate Futures Exchange, CCFE RGGI Futures: End of Day Summary, http://www.ccfex.com/mktdata_ccfe/futuresSummary.jsf?symbol=rggi; RGGI: Auction Results, <http://www.rrgi.org/co2-auctions/results>.

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.³¹ 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,³² the widespread economic impacts caused by excessive risk-taking in the mortgage-backed securities and credit default swap markets,³³ and the multibillion dollar Ponzi scheme operated by Bernie Madoff.³⁴ Numerous market reform proposals are currently before Congress to address many of these concerns.³⁵ 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."³⁶ 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.),³⁷ Byron Dorgan, (D-N.D.),³⁸

Blanche Lincoln (D-Ark.),³⁹ Lisa Murkowski (D-Alaska),⁴⁰ Bob Corker (R-Tenn.),⁴¹ and John Barrasso (R-Wyo.),⁴² 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.⁴³ 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.⁴⁴ 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-

31. For a summary of the potential abuses in the carbon derivatives market, see Craig Pirrong, *Market Oversight for Cap-and-Trade: Efficiently Regulating the Carbon Derivatives Market*, Brookings Institute, Policy Brief 09-04, at 7-13, Sept. 2009.

32. See, e.g., Toni Johnson, Council on Foreign Relations, *Backgrounder: Oil Market Volatility*, Sept. 24, 2008, <http://www.cfr.org/publication/15017/>.

33. See, e.g., Matthew Phillips, *The Monster That Ate Wall Street*, NEWSWEEK, Sept. 27, 2008, <http://www.newsweek.com/id/161199> (describing problems with CDS markets).

34. See, e.g., Julie Creswell & Landon Thomas Jr., *The Talented Mr. Madoff*, N.Y. TIMES, Jan. 24, 2009, <http://www.nytimes.com/2009/01/25/business/25bernie.html> (describing various aspects of Madoff scandal).

35. See *infra* Section IV.

36. Mark Jickling & Larry Parker, REGULATING A CARBON MARKET: ISSUES RAISED BY THE EUROPEAN CARBON AND U.S. SULFUR DIOXIDE ALLOWANCE MARKETS, Congressional Research Service, (Apr. 30, 2008), at 2.

37. Jim Efstathiou Jr. & Daniel Whitten, *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 markets.").

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.").

39. Kate Sheppard, "Lincoln Reaffirms Desire to Push Climate Bill to 2010," WASH. INDEPENDENT, Sept. 9, 2009 CropLife.com, "Senate Ag Committee Hears Cap and Trade Concerns," Sept. 13, 2009, <http://www.croplife.com/news/?storyid=2068> ("If we do move forward [on a cap-and-trade bill this year] . . . the regulation of carbon markets is something we need to get right.").

40. Joel Kirkland, *MARKETS: The Possibility of Carbon-Trading Fraud Elbows Into Senate Debate*, ClimateWire, Sept. 25, 2009, <http://www.eenews.net/public/climatewire/2009/09/25/1> (warning that carbon markets and offset markets will be "securitized, derivatized and speculated by Wall Street like the mortgage-backed securities").

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 corpo-

rations which invite the public to purchase their securities.”⁵² Congress created the Securities and Exchange Commission (SEC) to implement and enforce the new laws.⁵³ In addition to the 1933 and 1934 Acts, Congress also enacted the Banking Act of 1933, commonly known as the Glass-Steagall Act, prohibiting banks from dealing in securities in response to bank failures in the early 1930s.⁵⁴ After the Great Depression, Congress adopted a host of more targeted securities laws in response to specific concerns in securities regulation.⁵⁵ More recently, Congress adopted the Sarbanes-Oxley Act of 2002 to reform accounting and audit practices and “increase[e] accountability” of corporate officers and attorneys in response to the high-profile scandals involving Enron and WorldCom.⁵⁶

Commodities regulation has a similar reactive history.⁵⁷ The Grain Futures Act of 1922⁵⁸ (Grain Act) was a response to the “disruptive activities of grain speculators on futures markets,”⁵⁹ requiring grain futures transactions to go through designated contract markets.⁶⁰ By the early 1930s, there was concern that the Grain Act was not preventing excessive speculation and the ability to corner markets. Those concerns, along with a plunge in cotton prices blamed on excessive speculation and increased trading activity in commodity futures markets in the aftermath of the new securities laws, led Congress to enact the Commodity Exchange Act of 1936 (CEA).⁶¹ The CEA permitted the Commodity Exchange Commission to set speculative position limits on trading, required commodity brokers to register with the U.S. Department of Agriculture (USDA), granted the Secretary of Agriculture the authority to revoke a board of trade’s designation as a contract market, and extended regulatory coverage beyond grains.⁶²

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.*

48. U.S. Securities and Exchange Commission (SEC), How the SEC Protects Investors, Maintains Market Integrity, and Facilitates Capital Formation: Creation of the SEC, <http://www.sec.gov/about/whatwedo.shtml#create> (last updated Nov. 13, 2009).

49. Securities Act of 1933, ch. 38, Pub. L. No. 73-22, 48 Stat. 74 (codified as amended at 15 U.S.C. §§77a-77aa) (addressing the distribution of securities).

50. Securities Exchange Act of 1934, Pub. L. No. 73-291, 48 Stat. 881 (codified at 15 U.S.C. §78a) (pertaining mainly to securities trading).

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

52. Ellen Taylor, *Teaching an Old Law New Tricks: Rethinking Section 16*, 39 ARIZ. L. REV. 1315, 1359 n.19 (1997). (citing S. Rep. No. 73-792, at 3-5 (1934)).

53. SEC, *The Investor’s Advocate: How the SEC Protects Investors, Maintains Market Integrity, and Facilitates Capital Formation*.

54. Banking Act of 1933, Pub. L. No. 73-66, 48 Stat. 162. See, e.g., Saule T. Omarova, *The Quiet Metamorphosis: How Derivatives Changed the “Business Of Banking”*, 63 U. MIAMI L. REV. 1041, 1069 (2009).

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 debt 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 failure at a brokerage firm); Market Reform Act of 1990, Pub. L. No. 101-432, 104 Stat. 963 (granting additional authority to the SEC in response to Black Monday in 1987).

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

57. Grain Futures Act of 1922, ch. 369, 42 Stat. 998 (codified as amended at 7 U.S.C. §1).

58. Joseph B. Dial, Comm’r, Commodity Futures Trading Comm’n, Speech Before the NCFE Grain and Oilseeds Committee: Trade Options on Agricultural Commodities (Jan. 22, 1996) available at <http://www.cftc.gov/opa/speeches/opadial47.htm>.

59. U.S. Commodity Futures Trading Commission, Futures Regulation Before the Creation of the CFTC, http://www.cftc.gov/aboutthecftc/historyofthecftc/history_precftc.html (last updated May 27, 2009).

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

61. See 7 U.S.C. §6d (2007); Jerry W. Markham, *Super Regulatory: A Comparative Analysis of Securities and Derivatives Regulation in the United States, the United Kingdom, and Japan*, 28 BROOK. J. INT’L L. 319, 343 (2003).

62. 7 U.S.C. §2.

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.

63. Food, Conservation, and Energy Act of 2008, Pub. L. No. 110-234, 122 Stat. 923, enacted May 22, 2008, H.R. 2419, §13202.

64. See, e.g., Press Release, Office of Senator Carl Levin, Levin Introduces Bill to Close Enron Loophole and Prevent Manipulation and Excessive Speculation in Energy Markets, Office of Senator Carl Levin (Sept. 17, 2007), available at <http://levin.senate.gov/newsroom/release.cfm?id=283456>.

65. Over-the-Counter Derivatives Markets Act, H.R. 3795, 111th Cong. (2009); H. Comm. on Fin. Servs., *Committee Print of H.R. 3795: Over-the-Counter Derivatives Markets Act of 2009* (Oct. 15, 2009); H. Comm. on Agric., *Committee Print of H.R. 3795: Over-the-Counter Derivatives Markets Act of 2009* (Oct. 21, 2009), available at http://agriculture.house.gov/inside/Legislation/111/hr3795_Reported.pdf.

66. H. Comm. on Fin. Servs., *Committee Print of H.R. 3126: Consumer Financial Protection Agency Act of 2009* (Oct. 22, 2009).

67. See Michael R. Crittenden & Fawn Johnson, *House Panel to Begin Work on Systemic Risk Bill*, WALL ST. J., Nov. 3, 2009, <http://online.wsj.com/article/SB125726962831125765.html>.

68. “Restoring American Financial Stability—Discussion Draft,” http://banking.senate.gov/public/_files/AYO09D44_xml.pdf. For a summary of this draft, see “Summary: Restoring American Financial Stability—Discussion Draft,” http://banking.senate.gov/public/_files/FinancialReformDiscussion-Draft111009.pdf.

69. European Commission, *EU Action Against Climate Change: The EU Emissions Trading Scheme*, at 13-14 (2008), available at http://ec.europa.eu/environment/climat/pdf/brochures/ets_en.pdf.

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 CO₂ 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

70. H.R. 2454, §311, proposed §721(e); S. 1733, §101, proposed §721(e).

71. H.R. 2454, §311, proposed §725; S. 1733, §101, proposed §725.

72. Eileen Claussen, Pew Ctr. on Global Climate Change, Testimony Before S. Comm. on Energy & Natural Res.: How to Design Legislation to Contain Cost and Minimize GHG Allowance Price Volatility (Sept. 15, 2009). *available at* <http://www.pewclimate.org/testimony/claussen/9.15.09>.

73. Brian C. Murray et al., *Balancing Cost and Emissions Certainty: An Allowance Reserve for Cap-and-Trade* 7 (Nat'l Bureau of Econ. Research, Working Paper No. 14258, 2008).

74. The supply of offsets will be limited by the types and amount of offset credits allowed by the legislation, the protocols established by regulatory agencies, and the anticipated prices of the credits.

75. See Murray et al., *supra* note 73.

76. H.R. 2454, §721(e).

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 2050.⁷⁷ There will be a relatively small number of those allowances issued each year—approximately 5 billion in 2015 and reducing over time.⁷⁸ 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.⁷⁹ 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.⁸⁰ 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.⁸¹ 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.⁸²

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.⁸³ The Lieberman-Warner Bill modeled the CMEB after the Federal Reserve Board and granted broad latitude to the board to control allowance prices.⁸⁴ 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.⁸⁵ Both the CMEB and the reserve auctions seek to control prices while maintaining the emissions cap.⁸⁶ 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.⁸⁷ 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

77. *Id.*

78. H.R. 2454, §311, proposed Clean Air Act §721(b).

79. Craig Pirrong, *supra* note 37, 17-18 (Sept. 2009).

80. The safety valve concept first appeared in the Low Carbon Economy Act of 2007, a GHG cap-and-trade bill introduced by Sens. Jeff Bingaman and Arlen Specter. S. 1766, 110th Congress.

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.

83. Nicholas Institute for Environmental Policy Solutions at Duke University, Cost Containment for the Carbon Market: A Proposal, July 24, 2007, at 3, available at <http://www.nicholas.duke.edu/institute/carboncosts/carboncosts.pdf>.

84. H.R. 2454, §726(c); S. 1733, §726(c)(2).

85. Nicholas Institute for Environmental Policy Solutions at Duke University, Cost Containment for the Carbon Market: A Proposal, July 24, 2007, at 3, available at <http://www.nicholas.duke.edu/institute/carboncosts/carboncosts.pdf>; Brian C. Murray et al., Balancing Cost and Emissions Certainty: An Allowance Reserve for Cap-and-Trade, National Bureau of Economic Research Working Paper 14258, Aug. 2008.

86. H.R. 2454, §726(b)(1)(B).

87. 7 U.S.C. §7; 7 U.S.C. §1a(4).

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.⁸⁸ 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.”⁸⁹ Excluded commodities, including interest rates, exchange rates, swaps, and other financial instruments, fall outside the scope of the CEA.⁹⁰

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.⁹¹ 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,⁹² currently trades futures con-

tracts for both EPA’s Acid Rain Program and the RGGI.⁹³ 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).⁹⁴ The bill subjects allowances and offset credits to the same standards as agricultural commodities—the most stringent level of regulations.⁹⁵

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”; “ensure that margin requirements are established for each class of regulated allowances”; 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.⁹⁶

Like the Peterson Bill, the Waxman-Markey Bill subjects carbon derivative markets to the same standards as agricultural commodities.⁹⁷ 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.⁹⁸ 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).

90. CFTC, Press Release: CFTC Seeks Public Comment on Its Notice of Intent to Determine Whether the Carbon Financial Instrument Listed for Trading by the Chicago Climate Exchange, Inc., Performs a Significant Price Discovery Function, Aug. 17, 2009, <http://www.cftc.gov/newsroom/generalpressreleases/2009/pr5694-09.html>.

91. See U.S. CFTC, Trading Organizations, <http://services.cftc.gov/SIRT/SIRT.aspx?Topic=TradingOrganizations&implicit=true&type=DCM&CustomColumnDisplay=TTTTTTTT> (listing all DCMs).

92. See <http://services.cftc.gov/SIRT/SIRT.aspx?Topic=TradingOrganizations&implicit=true&type=DCM&CustomColumnDisplay=TTTTTTTT>; Chicago

Climate Futures Exchange, Futures and Options Products, http://www.ccfex.com/about_ccfe/products.html.

93. Derivatives Markets Transparency and Accountability Act of 2009, H.R. 977, §14, 111th Cong.

94. *Id.*

95. H.R. 2454, §341(b).

96. See *supra* note 93 and accompanying text.

97. H.R. 2454, §401(c).

98. H.R. 2454, §401(b)(3), (e) & (f).

and preserves state laws regarding unfair competition, anti-trust, 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-Markey 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

99. H.R. 2448, HR 2454, §351. See also Winston & Strawn LLP, “Comprehensive Bills to Re-Regulate U.S. Commodities and OTC Derivatives Industry: Stupak and Waxman-Markey Legislation—Back to the Futures,” June 2009, http://www.winston.com/siteFiles/Publications/Stupak_Briefing_6_1_09.pdf (explaining that Waxman-Markey “incorporates substantially all of H.R. 2448”).

100. The Carbon Market Oversight Act of 2009, S. 1399, 111th Cong.

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.¹⁰⁵ 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 2008.¹⁰⁶ 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.¹⁰⁸ 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-

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.¹¹⁰ 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

105. See, e.g., 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.*

107. Craig Pirrong, Market Oversight for Cap-and-Trade: Efficiently Regulating the Carbon Derivatives Market, Brookings Inst., 17-18 (Sept. 2009).

108. See *supra* note 65.

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

110. 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.

111. See U.S. CFTC, “Large Trader Reporting Program,” <http://www.cftc.gov/industryoversight/marketsurveillance/ltrp.html> (detailing program).

112. Opening Statement of Chairman Gary Gensler, Hearing of the Commodity Futures Trading Commission, July 28, 2009, at 2.

113. 7 U.S.C. §6a(c) (2008).

114. 7 U.S.C. §6a(c) (2008).

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

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.”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.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.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.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.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

at 75.

116. See EPA Analysis of H.R. 2454, *supra* note 25.

117. See, e.g., Chicago Climate Futures Exchange, CCFE RGGI Futures: End of Day Summary, http://www.ccfef.com/mktdata_ccfe/futuresSummary.jsf?symbol=rggi; CME Group, CME E-quotes, <http://www.cmegroup.com/market-data/real-time-quotes/overview.html>; NYSE Euronext, Equities, http://www.nyse.com/equities/1088623922092.html?sa_campaign=/internal_ads/ticker/10302009realtime.

118. See Over-the-Counter Derivatives Market Act of 2009, H.R. 3795, 111th Cong.

119. For a summary of the arguments for transparency and confidentiality in emission allowance markets, see Mark Jickling & Larry Parker, *Regulating a Carbon Market: Issues Raised by the European Carbon and U.S. Sulfur Dioxide Allowance Markets*, Congressional Research Service, (Apr. 30, 2008), at 35, available at <http://www.nationalaglawcenter.org/assets/crs/RL34488.pdf>.

120. See U.S. CFTC, “Commitments of Traders,” <http://www.cftc.gov/marketreports/commitmentsoftraders/index.htm> (providing information on reports).

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

data on transactions) (providing detailed and current informations on transactions soon-after they occur and not limited to times when parties must turn in their allowances).

125. See *id.*: U.S. EPA, "Clean Air Markets—Data and Maps: Allowances," <http://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=allowances.wizard> (follow instructions in "Allowance Query Wizard" to find information on current allowance holdings).

126. See, e.g., H.R. 2454, §321.

127. See, e.g., H.R. 2454, §311, proposed CAA §734(e)(8) (requiring the U.S. EPA Administrator to consult with the Secretary of Agriculture on rules regarding offset credits from reduced deforestation).

128. See Testimony of General Counsel Dan M. Berkovitz, Commodity Futures Trading Commission, *Position Limits and the Hedge Exemption*, Brief Legislative History 2, July 28, 2009, available at <http://www.cftc.gov/ucm/groups/public/@newsroom/documents/speechandtestimony/berkovitzstatement072809.pdf> (explaining that the Food Control Act of 1917 was the first exercise of Federal authority to limit trading in the commodity futures markets); Y.H. Kim & J.J. Yang, 2004. *What Makes Circuit Breakers Attractive to Financial Markets? A Survey*. 3 FIN. MARKETS, INSTITUTIONS & INSTRUMENTS 109-46.

129. See V. Ravi Anshuman & Avaniidhar Subrahmanyam, *Price Limits, Information Acquisition, and Bid—Ask Spreads: Theory and Evidence*, 28 ECON. NOTES 91, 92 (1999).

130. See NYSE Euronext, "Circuit-Breaker Levels for Fourth-Quarter 2009," http://www.nyse.com/press/circuit_breakers.html (describing rule and its history).

131. SEC Rule 80B (Trading Halts Due to Extraordinary Market Volatility).

121. See SEC, Form 10-Q: General Instructions, available at <http://www.sec.gov/about/forms/form10-q.pdf> (laying out requirements for mandatory quarterly filings).

122. See, e.g., U.S. EPA, "Clean Air Markets: 2009," <http://www.epa.gov/airmarkt/trading/2009/index.html> (last visited on Nov. 12, 2009) (follow links for a summary or more detailed information).

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/airmarkt/trading/factsheet.html#what> (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://camddataandmaps.epa.gov/gdm/index.cfm?fuseaction=allowances.wizard> (click on "Transactions" on left side of screen and follow instructions to find

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.¹³² 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.¹³³ 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.¹³⁵ Whether or not the price limits achieve these objectives or simply impose costs on the marketplace remains in dispute.¹³⁶ 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.¹³⁷

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.¹³⁸ 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,¹³⁹ 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.¹⁴⁰ 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.¹⁴¹ In addition, the CFTC is a party to two multilateral MOUs among securities and derivatives regulators.¹⁴² The Boca Declaration, signed March 1996, facilitates information-sharing on a bilateral basis.¹⁴³ 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.¹⁴⁴ 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.”¹⁴⁵

These memoranda do not “create legally binding obligations or supersede domestic laws,” nor do they call for regular, ongoing sharing of information.¹⁴⁶ 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. *Id.*

133. Testimony of Arthur Levitt, Chairman, U.S. Securities Exchange Commission Before the Subcommittee on Securities of the Senate Committee on Banking, Housing and Urban Affairs, *Concerning Circuit Breakers*, Jan. 29, 1998, *available at* <http://www.sec.gov/news/testimony/testarchive/1998/tsty0198.txt>.

134. Kim & Yang, *supra* note 128.

135. *Id.*

136. Lucy F. Ackert, *THE EFFECT OF CIRCUIT BREAKERS ON EXPECTED VOLATILITY: TESTS USING IMPLIED VOLATILITIES*, 25 ATLANTIC ECON. J. 117 (June 1997).

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).

139. *See, e.g.*, Andy Stevenson, “Carbon Trading Regulation Needs to Be Made Explicit Under a Climate Bill,” NRDC Switchboard, http://switchboard.nrdc.org/blogs/astevenson/carbon_trading_regulation_need.html (last accessed Nov. 11, 2009).

A multi-trillion dollar carbon market is expected to attract interest from overseas exchanges looking to facilitate trades during non-US 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.

140. U.S. CFTC, *Memoranda of Understanding*, <http://www.cftc.gov/international/memorandaofunderstanding/index.htm#fininfohare mou> (last updated Sept. 15, 2009).

141. International Organization of Securities Commissions, *List of Signatories to the IOSCO Multilateral Memorandum of Understanding Concerning Consultation and Cooperation and the Exchange of Information*, http://www.iosco.org/library/index.cfm?section=mou_siglist (last visited Nov. 17, 2009).

142. Declaration on Cooperation and Supervision of International Futures Markets and Clearing Organisations (as amended March 1998), *available at* http://www.cftc.gov/international/currentinternationalinitiatives/oia_bocadec0398.html.

143. U.S. CFTC, *Memoranda of Understanding*, <http://www.cftc.gov/international/memorandaofunderstanding/index.htm#fininfohare mou> (last updated Sept. 15, 2009).

144. U.S. CFTC, *Memoranda of Understanding*, <http://www.cftc.gov/international/memorandaofunderstanding/index.htm#fininfohare mou> (last updated Sept. 15, 2009).

145. *See, e.g.*, MOU Between the U.S. CFTC and the German Bundesaufsichtsamt für den Wertpapierhandel Concerning Consultation and Cooperation in the Administration and Enforcement of Futures Laws, Oct. 17, 1997.

146. Interview with Bruce Faccarat, CFTC Office of International Affairs. NY Office (202) 418-5578. Conducted by Matt Kaufmann, November 2, 2009.

commodity futures markets when an abnormality appears.¹⁴⁷ The majority of investigations, particularly in recent years, have focused on market irregularities with energy commodities.¹⁴⁸ 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.

147. Interview with Bruce Faccarat, CFTC Office of International Affairs. NY Office (202) 418-5578. Conducted by Matt Kaufmann, Nov. 2, 2009.

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