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“Offsetting” Crisis?—Climate Change Cap-and-Trade Need Not Contribute to Another Financial Meltdown

Victor B. Flatt*

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I know the Wall Street crowd can't wait to sink their teeth into a new trillion-dollar trading market in which hedge funds and investment banks would trade and speculate on carbon credits and securities. In no time they'll create derivatives, swaps and more in that new market. In fact, most of the investment banks have already created carbon trading departments. They are ready to go. I'm not.

Senator Byron Dorgan (D-North Dakota)¹

People are going to be cutting up carbon futures, and we'll be in trouble. . . . You can't stay ahead of the next tool they're going to create. . . . The derivatives market has done so much damage to our economy and is nothing more than a very-high-stakes casino—except that casinos have to abide by regulations.

Senator Maria Cantwell (D-Washington)²

You're essentially setting up a brand-new currency here. . . . The American public is more than just a little suspicious about what goes on in the trading world. It's not clear and not transparent, and nothing I've seen allows it to be so. There's a deep suspicion about setting up such a regime.

Senator Lisa Murkowski (R-Alaska)³

1. Byron Dorgan, *Reduce Our CO₂, Yes . . . But Cap-and-Trade, No*, BISMARCK TRIB., July 19, 2009, http://www.bismarcktribune.com/news/opinion/mailbag/article_c337fb0c-434a-51a4-ae35-d57bb0357997.html.

2. Lisa Kassenaar, *Carbon Capitalists Warning to Climate Market Using Derivatives*, BLOOMBERG (Dec. 4, 2009, 12:01 AM), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aXRBOxU5KT5M> (quoting Senator Maria Cantwell, D-Washington).

3. Joel Kirkland, *Senators Call for Financial Reform Before Cap and Trade*, N.Y. TIMES, Nov. 5, 2009, <http://www.nytimes.com/cwire/2009/11/05/05climatewire-senators-call-for-financial-reform-before-ca-93661.html> (quoting Senator Lisa Murkowski, R-Alaska).

The system can be gamed; that's why financial types like me like it—because there are financial opportunities.

George Soros⁴

I. INTRODUCTION

There are many reasons that comprehensive United States climate change legislation has moved more slowly than anticipated just a few years ago.⁵ But surely the most important has to be the impact and aftermath of the global financial crisis of 2008 and 2009. The economic effects of the crisis have reverberated in the political sphere, where many analysts suggest that given the weak job and economic situation, now is not the time to introduce the “expense” of climate change legislation.⁶ Related to this is the choice that was made to pursue major health care reform, whose political future may also be tied to the weak economy.⁷ The combination of these events has been a potent drag on movement in climate change, especially in the U.S. Senate. As stated by Senator Byron Dorgan, D-North Dakota:

My own sense is that in the aftermath of a very, very heavy lift on health care, I think it is unlikely that the Senate will turn next to the very complicated and very controversial subject of cap-and-trade,⁸ climate change kind of legislation. . . . I think it is more compelling to turn to an energy bill that is bi-partisan.⁹

4. Katherine Burton & Jim Efstathiou, Jr., *Soros to Invest \$1 Billion in Clean Energy, Form Advisory Group*, BLOOMBERG (Oct. 11, 2009, 7:01 PM), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aehNEMSWfjiQ> (quoting George Soros).

5. Victor B. Flatt, *Taking the Legislative Temperature: Which Federal Climate Change Legislative Proposal Is “Best”?*, 102 NW. U. L. REV. COLLOQUY 123, 123 (2007) (“The United States will almost certainly enact federal legislation designed to reduce emissions of greenhouse gases within the next two years.”).

6. Darren Samuelsohn, *Economic Crisis Rattles Cap-and-Trade Debate*, EARTH NEWS (Sept. 29, 2008), <http://www.earthportal.org/news/?p=1744>.

7. Michael Cooper, *G.O.P. Senate Victory Stuns Democrats*, N.Y. TIMES, Jan. 19, 2010, <http://www.nytimes.com/2010/01/20/us/politics/20election.html>. *But see* Stephanie Cutter, *Repealing the Affordable Care Act Will Hurt the Economy*, WHITE HOUSE BLOG (Jan. 7, 2011, 1:36 PM), <http://m.whitehouse.gov/blog/2011/01/07/repealing-affordable-care-act-will-hurt-economy>.

8. *See Cap and Trade*, N.Y. TIMES, Mar. 26, 2010, http://topics.nytimes.com/topics/reference/timestopics/subjects/g/greenhouse_gas_emissions/cap_and_trade/index.html?inline=nyt-classifier (explaining the “cap-and-trade” regulatory system).

9. Tom Doggett, *Senate Not Seen Passing Climate Bill in 2010*, REUTERS (Jan. 19, 2010, 4:22 PM), <http://www.reuters.com/article/idUSTRE60I3NA20100119>.

But the impact of the economic crisis on comprehensive climate change legislation is not just because of the perceived costs of such measures in a weakened economy, but also the fear that a comprehensive cap-and-trade carbon market could produce exotic financial instruments that would lead to a similar crisis in the future. As evidenced by some of the quotes above, this concern was particularly acute in the United States Senate, where the ability to garner the sixty votes necessary to move on climate change legislation may be derailed by just a few senators suspicious of an emerging U.S. “carbon” market.

Even if a comprehensive U.S. climate bill is not forthcoming, California’s emerging economy-wide climate regulation, the Global Warming Solutions Act of 2006 (AB 32), despite a recent setback,¹⁰ is likely to depend on a comprehensive cap-and-trade scheme.¹¹ This system, if linked with other carbon trading systems in North America as anticipated, will cover over one-third of the North American economy.¹² Moreover, the Environmental Protection Agency (EPA) began regulating greenhouse gases under the Clean Air Act (CAA) in January 2010,¹³ and though EPA Administrator Lisa Jackson has said that the EPA has no plans to create a cap-and-trade system to deal with greenhouse gases, the possibility of the EPA using such a system remains.¹⁴ Several analysts have found legal authority for such a system.¹⁵ The newly elected Republican majority in the

10. A California Superior Court Judge recently suspended the implementation of AB 32’s cap-and-trade provisions, holding that the California Air Resources Board failed to adequately consider other options. *Ass’n of Irrigated Residents v. Cal. Air Res. Bd.*, No. CPF-09-509562, Order Granting in Part Petition For Writ of Mandate, filed Mar. 18, 2011, *available at* <http://cdn.law.ucla.edu/SiteCollectionDocuments/Environmental%20Law/Court%27s%20Final%20Order%203%2017%2011.pdf> (last visited Nov. 17, 2011); *see also* Global Warming Solutions Act of 2006, CAL. HEALTH & SAFETY CODE §§ 38500–38599 (West 2010) [hereinafter AB 32].

11. *See* Colin Sullivan, *Calif. Regulators Scramble in Wake of Court Ruling on Climate Law*, N.Y. TIMES, Mar. 24, 2011, <http://www.nytimes.com/gwire/2011/03/24/24greenwire-calif-regulators-scramble-in-wake-of-court-rul-93103.html?pagewanted=all>; *see also Cap-and-Trade Program*, CAL. ENVTL. PROT. AGENCY AIR RES. BD., *available at* <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm> (last visited Nov. 17, 2011).

12. Simon Lomax, *Cap-and-Trade Market for North America Weighed by States After Obama Fails*, BLOOMBERG (Nov. 29, 2010, 9:00 PM), <http://www.bloomberg.com/news/2010-11-30/cap-and-trade-market-for-north-america-weighed-by-states-after-obama-fails.html>; *see also* Nathaniel Gronewald, *Traders and Experts Say Regional Cap-and-Trade Systems will Proliferate*, CLIMATEWIRE (June 16, 2011), http://www.rggi.org/docs/Climatewire_June_16.pdf.

13. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act, 74 Fed. Reg. 66496 (effective Jan. 14, 2010).

14. Simon Lomax, *EPA Studying Own Carbon Trading System, Official Says (Update2)*, BLOOMBERG (Mar. 15, 2010, 5:38 PM), <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=ammjHfzRpc9I>.

15. *See generally* Hannah Chang, *Cap-and-Trade Under the Clean Air Act?: Rethinking Section 115* (Columbia Law Sch. Ctr. for Climate Change Law, Working Paper, Apr. 2010), *available at* http://www.law.columbia.edu/null/download?&exclusive=filemgr.download&file_id=155078

(describing the legality of a potential EPA attempt to institute a cap-and-trade program for Greenhouse Gases under Section 115 of the CAA); *see also* Jonas Monast et al., *Avoiding the*

House of Representatives may attempt to limit the EPA's authority to regulate greenhouse gases under the CAA,¹⁶ but given the Democratic majority in the Senate and a likely presidential veto, these attempts would likely amount to nothing more than grandstanding.

Due to the EPA's possible implementation of a cap-and-trade scheme, the Regional Greenhouse Gas Initiative in the Northeast United States, and California's coming implementation, cap-and-trade will in all likelihood be a fixture of greenhouse gas regulation in the United States for the foreseeable future. Any programs instituted by the EPA, California, and other North American entities will likely be watched closely for their effect on the market. Their successes and failures, along with their perceived risks, could play a large role in determining whether or not the United States will ever adopt mandatory nationwide carbon emissions limitations through a comprehensive climate change bill. Given the importance of the role that markets might play in large domestic regional systems or a CAA regulatory environment, the fear of a carbon market as a financial Trojan horse must be carefully analyzed to determine what risks might lurk in a carbon market in the large United States market.

Analyzing the issues at this stage serves two important goals. If comprehensive climate change legislation is eventually passed, it is important that the legislation be tailored to address those risks; and even if Congress fails to pass a comprehensive bill, it could still intervene in a piecemeal fashion to insure that an EPA imposed cap-and-trade scheme does not pose undue risks to the financial markets. Moreover, if emerging systems do not work properly or fail outright, they could delay or suspend greenhouse gas regulation on a domestic level, and possibly limit any potential worldwide agreement on greenhouse gas reductions.

While carbon markets in this country do create a certain amount of market risk, this Article posits that risk can be lessened by careful language in a cap-and-trade bill or an agency regulation, particularly language governing greenhouse gas offsets—which, as discussed in Parts III and IV,¹⁷ could create the most significant risk in the financial markets. However, this Article is not designed to lobby for a cap-and-trade system; it is designed to

Glorious Mess: A Sensible Approach to Climate Change and the Clean Air Act (Duke Univ. Nicholas Inst. for Env'tl. Policy Solutions, Working Paper, Oct. 2010), available at <http://nicholasinstitute.duke.edu/climate/policydesign/avoiding-the-glorious-mess>.

16. See Tennille Tracy, *Upton Looks to Block Greenhouse Gas Rules*, WALL ST. J., Feb. 2, 2011, <http://online.wsj.com/article/SB10001424052748704358704576118994154302516.html>.

17. See *infra* notes 79–101 and accompanying text.

produce information necessary to create the most efficient way of controlling greenhouse gases.

In addition to the fear of market disruptions and profiteering, there is an equal or perhaps more important concern that a greenhouse gas cap-and-trade system will fail to control the environmental impacts as advertised precisely because of market control failures. Reductions could certainly be illusory due to monitoring difficulties or outright fraud.¹⁸ This is a serious concern and any careful cap-and-trade system must address both concerns about the environmental efficacy of the system as well as the risks for market problems. In fact, these issues are related. Any system to control greenhouse gases should both do what it is designed to do—reduce greenhouse gases in the amount expected—and do it efficiently. A cap-and-trade system for its own sake, while perhaps welcome by commodity traders, would be environmentally counterproductive if there were a serious risk of failing to accomplish environmental goals. Indeed, Michelle Chan, President of Friends of the Earth has propagated a list entitled “Ten Ways to Game the Carbon Market,” which is designed to discourage Congress from passing cap-and-trade legislation, or at least cap-and-trade legislation that contains offsets.¹⁹ Thus, any discussion of the probabilities and fears of market problems must also bear in mind the risk of environmental failure. Nevertheless, due to the fact that political forces seem fearful of economic impacts, this Article approaches cap-and-trade from the angle of minimizing both environmental and financial failures.

Part I of this Article begins by discussing the history of the push for comprehensive climate legislation with particular emphasis on the preference for a cap-and-trade system. Part II then briefly reviews the role that toxic assets played in the financial crisis, before analyzing the potential risks of such toxic assets infecting a greenhouse gas cap-and-trade system, particularly in the offset system. Part III discusses the possibility of offset failure, which, as discussed in Part II, could give rise to market disruptions along two distinct axes: market failure and environmental failure. Part IV proposes legislative and regulatory solutions that could lessen the risk inherent in these failures or that could cause it to be avoided entirely. Part V concludes.

18. See Flatt, *supra* note 5, at 138; Victor Flatt, *Tackling the Issue of Fraud in Carbon Trading*, FUELFIX (Feb. 10, 2010, 1:49 PM), <http://fuelfix.com/blog/2010/02/10/tackling-the-issue-of-fraud-in-carbon-trading/>. There is also the concern that even an effectively functioning greenhouse gas market will have other negative impacts on society or the environment. See Victor Flatt, *Kerry-Lieberman Creates Some Added Certainty on Offsets*, CPRBLOG (May 12, 2010), <http://www.progressivereform.org/CPRBlog.cfm?idBlog=8E818F19-A0D1-39EA-7299E012C45D6CBE>.

19. MICHELLE CHAN, TEN WAYS TO GAME THE CARBON MARKET (May 2010), available at http://www.probeinternational.org/files/10WaystoGametheCarbonMarkets_Web.pdf.

II. BACKGROUND OF CLIMATE CHANGE LEGISLATION IN THE UNITED STATES

A serious push for comprehensive climate change legislation began even before the election of Barack Obama and increased congressional majorities for the Democrats in the United States House and Senate.²⁰ The first comprehensive bill was proposed by Senators John McCain and Joe Lieberman in 2005.²¹ Activity at the state and local levels and business concerns over piecemeal legislation prompted more momentum for a comprehensive federal response.²²

After the Democratic election sweep in November 2008, momentum increased.²³ In June 2009, the House passed comprehensive legislation, called the American Clean Energy and Security Act of 2009²⁴ (ACES), and the Senate moved a bill proposed by Senators John Kerry and Barbara Boxer (Kerry-Boxer) out of the Energy and Public Works Committee.²⁵ In 2010, Senators Kerry, Lieberman, and Graham proposed adjusting the primary cap-and-trade proposals with incentives for nuclear energy and more offshore oil drilling,²⁶ while Senators Cantwell and Collins proposed a redistribution of emission allocation proceeds to the general public (the so-called cap-and-dividend approach).²⁷ The former was derailed by Senate machinations (including political issues such as parallel immigration reform)

20. Flatt, *supra* note 5, at 123.

21. Climate Stewardship and Innovation Act of 2005, S. 1151, 109th Cong. (2005).

22. See, e.g., JOEL B. SMITH ET AL., ADAPTING TO CLIMATE CHANGE: A CALL FOR FEDERAL LEADERSHIP (Pew Center on Global Climate Change ed., Mar. 2010), available at <http://pewclimate.org/docUploads/adaptation-federal-leadership.pdf>.

23. ANALYSIS: As Momentum from 2008 Election Fades, Senators Struggle to Salvage Climate Bill, US LAW WATCH (July 12, 2010), <http://www.uslawwatch.com/2010/07/12/environment/analysis-momentum-2008-election-fades-senators-struggle-salvage-climate-bill>.

24. H.R. 2454, 111th Cong. (2009).

25. Clean Energy Jobs and American Power Act, S. 1733, 111th Cong. (2009). The bill was also co-sponsored by Senators Benjamin Cardin (D-Md.) and Paul Kirk (D-Ma.). See *id.* For an analysis of these legislative developments, see Jonas Monast, *Climate Change and Financial Markets: Regulating the Trade Side of Cap and Trade*, 40 ENVTL. L. REP. NEWS & ANALYSIS 10051 (2010), available at http://www.google.com/url?sa=t&source=web&cd=1&ved=0CBQQFjAA&url=http%3A%2F%2Fnicholasinstitute.duke.edu%2Fclimate%2Fcarbon-market-oversight%2Fclimate-change-and-financial-markets-regulating-the-trade-side-of-cap-and-trade%2Fdownload%2Fpaper&ei=Ofh7TL_LIHGIQeEsr3sCw&usq=AFQjCNFAW9sRwf6kp4d4zEdTvPHiDAZdbw.

26. American Power Act, Discussion Draft, 111th Cong. (2010), available at <http://kerry.senate.gov/imo/media/doc/APAbill3.pdf>.

27. Consolidated Land, Energy, and Aquatic Resources Act of 2010, H.R. 3534, 111th Cong. (2010).

and the Deepwater Horizon oil well platform blowout;²⁸ while the latter failed to gain expected traction.²⁹

The EPA has moved in parallel to regulate greenhouse gases under provisions of the Clean Air Act, finding that greenhouse gases endanger the public health and welfare on December 7, 2009.³⁰ Although the EPA, states, and regions appear ready to move forward with some kind of regulation, prospects for comprehensive federal legislation seem murky.³¹

While the private sector seems to be moving forward with the idea that some kind of regulation is inevitable,³² the slowdown in the Senate has had consequences. For example, in the lead-up to the Copenhagen Conference of the Parties in December 2009, the Senate's inability to pass comprehensive climate change legislation caused international attitudes towards the United States to sour, which may have caused the United States to lose leverage in pushing other nations towards binding greenhouse gas reduction targets.³³ Additionally, Congress's inaction has led to frustration in the private sector, as business leaders complain that they must know how and when climate change legislation will progress before they can move forward with future plans.³⁴

28. See, e.g., Kerry, Lieberman Willing To Scale Back Energy Bill To Get Republican Support, HUFFINGTON POST (June 29, 2010, 3:51 PM), http://www.huffingtonpost.com/2010/06/29/kerry-lieberman-willing-t_n_629618.html; see also David O. Williams, *Congress Narrowly Passes CLEAR Act as Salazar Joins GOP Opposition*, COLO. INDEP. (July 30, 2010, 6:17 PM), <http://coloradoindependent.com/58594/congress-narrowly-passes-clear-act-as-salazar-joins-gop-opposition>.

29. See S. 2877: *Carbon Limits and Energy for America's Future Renewal (CLEAR) Act*, GOVTRACK.US, <http://www.govtrack.us/congress/bill.xpd?bill=s111-2877> (last visited Oct. 3, 2011). The bill was introduced in December 2009 and has never made it out of committee. See *id.*

30. *Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act*, U.S. ENVTL. PROT. AGENCY, <http://www.epa.gov/climatechange/endangerment.html> (last updated Nov. 9, 2011).

31. See, e.g., Amy Harder, *EPA Vote: Momentum Builder?*, NATIONAL JOURNAL, June 14, 2010, <http://energy.nationaljournal.com/2010/06/epa-vote-momentum-builder.php>; see also CAL. ENVTL. PROT. AGENCY AIR RES. BD., <http://www.arb.ca.gov/homepage.htm> (last visited Dec. 12, 2011).

32. See *Fortune 500s See Cost Savings From Carbon Management*, SUSTAINABLEBUSINESS.COM (Jan. 26, 2011, 10:03 AM), <http://www.sustainablebusiness.com/index.cfm/go/news.display/id/21768>.

33. See Victor Flatt, *Climate Change Confusion in US Infects Lead Up to Copenhagen*, FUELFIX (Nov. 7, 2009, 7:33 PM), <http://fuelfix.com/blog/2009/11/07/climate-change-confusion-in-us-infects-lead-up-to-copenhagen/>.

34. See Danny Bradbury, *Business Leaders Blast Congress for Cap-and-Trade Indecision*, BUSINESSGREEN (Mar. 8, 2010), <http://www.businessgreen.com/bg/news/1804808/business-leaders-blast-congress-cap-trade-indecision>. Even without comprehensive federal regulation, many businesses and residents of the United States will see regulation in possible state or regional systems, as well as likely regulation under the Clean Air Act by the EPA. See *supra* notes 9–11 and accompanying text.

Aside from the possibility of piecemeal legislation primarily focused on energy investment and efficiency,³⁵ the only real candidates for comprehensive federal climate change law remain economy wide cap-and-trade bills. These cap-and-trade preferences appear to run deep.³⁶ California's AB 32 does not mandate a cap-and-trade bill, but this is what has been proposed in rulemaking.³⁷ Additionally, the European Union (EU) has utilized a cap-and-trade approach, under the auspices of the Kyoto Protocol's flexibility mechanisms as its primary greenhouse gas control vehicle.³⁸ In the summer of 2010, China, Japan, Australia, and New Zealand all moved in the direction of a cap-and-trade system.³⁹ The fact that cap-and-trade systems already exist and have a long history is a powerful incentive for the United States to adopt one.

The United States itself was the single most important factor in bringing about the possibility of cap-and-trade for greenhouse gases in the negotiation of the Kyoto Protocol's flexible mechanisms, under the United Nations Framework Convention on Climate Change in 1997.⁴⁰ Europe adopted this flexible approach under a multi-country system starting in 2005, and has revisited and expanded it since then.⁴¹

In addition to the "first mover" push that existing systems give to cap-and-trade, economics favors expansion of cap-and-trade rather than introduction of a new system. Cap-and-trade systems are more efficient and

35. See Steven Mufson, *Vanishing Cap and Trade in Obama's 2012 Budget*, WASH. POST, Feb. 14, 2011, http://voices.washingtonpost.com/post-carbon/2011/02/vanishing_cap_and_trade_in_oba.html.

36. Flatt, *supra* note 5, at 135 ("Interestingly all of the climate change legislative proposals would be considered market-based control regimes, with Bingaman-Specter, Udall-Petri, Lieberman-McCain, Kerry-Snowe, Waxman, Feinstein-Carper, and Alexander-Lieberman, all envisioning a cap-and-trade scheme for CO₂ . . .").

37. *Cap-and-Trade Program*, CAL. ENVTL. PROT. AGENCY AIR RES. BD. (Nov. 13, 2011), <http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>.

38. *The Mechanisms under the Kyoto Protocol: Emissions Trading, the Clean Development Mechanism and Joint Implementation*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/mechanisms/items/1673.php (last visited Dec. 12, 2011) [hereinafter UNFCCC].

39. See Robert Stavins, *Opportunities and Ironies: Climate Policy in Tokyo, Seoul, Brussels, and Washington*, AN ECON. VIEW ON THE ENV'T (Mar. 21, 2010), <http://www.robertstavinsblog.org/2010/03/21/opportunities-and-ironies-climate-policy-in-tokyo-seoul-brussels-and-washington/>; *China Studying Cap-And-Trade System to Help Cut Greenhouse Gas Emissions*, BLOOMBERG (Nov. 17, 2010, 8:44 PM), <http://www.bloomberg.com/news/2010-11-18/china-studies-cap-and-trade-system-to-spur-reduction-in-carbon-emissions.html>.

40. Michael Grubb, *The Economics of the Kyoto Protocol*, 4 WORLD ECON. 143, 143 (2003), available at <http://www.econ.cam.ac.uk/rstaff/grubb/publications/J36.pdf>.

41. UNFCCC, *supra* note 38. Though its terms were set to expire in 2012, it was extended until 2020 under an agreement reached at COP 16 in Durban, South Africa.

powerful if they become larger, and the EU has called for all Organisation for Economic Co-operation and Development countries to become part of one market.⁴² In 2007, former Governor Schwarzenegger of California put forward an executive order requiring California's eventual cap-and-trade system to integrate with the EU's system.⁴³ Regional Greenhouse Gas Initiative officials have also expressed interest in integrating with the EU.⁴⁴

The established infrastructure for cap-and-trade schemes, both capital and knowledge intensive, has already grown up around the EU system and is a powerful voice and incentive for expanding and propagating cap-and-trade systems for greenhouse gas control. The market alternative, coordinating equivalent tax systems between sovereigns, is more difficult (though not impossible) than simply allowing a worldwide clearinghouse price to arise in free trading.⁴⁵ This is because a system in which individual sovereigns self-impose a carbon tax could potentially cause problems for international trade, and any attempt to coordinate such systems could implicate complex issues under World Trade Organization rules.⁴⁶ A unified cap-and-trade system, on the other hand, reaches the optimal market price through the operation of the market itself.

Additionally, in evaluating a carbon tax versus a cap-and-trade system, cap-and-trade may offer the advantage of vested interests keeping the system robust, whereas a tax system is subject to ongoing lobbying by special interest groups which can weaken and distort the ultimate tax goals by carving out special market distorting exceptions.⁴⁷ Moreover, even absent special interest groups, Professor Deborah Paul proposed that any tax system will become more complex over time as it tries to better achieve policy goals

42. EUROPEAN COMMISSION, REFORMING INTERNATIONAL CARBON MARKET MECHANISMS, available at http://ec.europa.eu/clima/events/0013/info_sheet_carbon_markets_final_en.pdf (last visited Dec. 12, 2011).

43. Robin Lancaster, *Schwarzenegger Under Fire on Emissions Trading Plans*, ENVIRONMENTAL FINANCE (Nov. 1, 2006), <http://www.environmental-finance.com/news/view/394>.

44. Joseph Kruger & William A. Pizer, *Regional Greenhouse Gas Initiative: Prelude to a National Program?*, RES. FOR THE FUTURE, <http://www.rff.org/News/Features/Pages/Regional-Greenhouse-Gas-Initiative.aspx>; INT'L CARBON ACTION P'SHIP, POLITICAL DECLARATION (Oct. 29, 2007), available at http://www.gov.mb.ca/asset_library/en/premier/icap_declaration_oct2007.pdf.

45. TIMOTHY E. DEAL, WTO RULES AND PROCEDURES AND THEIR IMPLICATION FOR THE KYOTO PROTOCOL 10–12 (United States Council for Int'l Bus. ed., Jan. 2008), available at http://www.uscib.org/docs/wto_and_kyoto_2008.pdf.

46. *See id.*

47. Adam S. Chodorow, *Maaser Kesafim and the Development of Tax Law*, 8 FLA. TAX REV. 153, 207–08 (2007) (“It is likely that the same need for enforcement, legal structure, and cultural values that currently bear on our income tax will come to bear on any new tax system we devise. Thus, we can expect that enforcement concerns will cause the tax base definition to deviate from the ideal to create an administrable tax; Congress will likely graft provisions to promote social policy onto the tax system, thus complicating the code and people's ability to comply; special interest legislation will likely arise, further complicating the laws; and society's underlying values, such as horizontal equity, will likely affect the development of the law.”).

and maximize revenue.⁴⁸ The speed at which this occurs is related to the potential revenue at stake, which in a carbon market would be significant.⁴⁹

Some see inherent disadvantages in the cap-and-trade system as well. It is undeniable that firms that carry out such trades will profit. It is also possible, as argued by noted environmentalists such as James Hansen, that a cap-and-trade system allows giveaways and advantages to be more easily hidden, which in turn may increase the vested interest in such a system and particular stakeholders providing political will for passage.⁵⁰ But even those with no vested interest in cap-and-trade have supported it as the most efficient system for reducing greenhouse gases.⁵¹

The truth is that the best or most efficient ways to technologically reduce greenhouse gases, or which alternative to fossil fuels will prove to be the cheapest remains unknown, and this is a powerful argument for market forces, rather than direct government control. As noted by Carol Rose in her seminal article on environmental policy implementation devices, market systems are best when the costs of the problem are large and flexibility is needed to produce the savings to control the problem.⁵²

Thus, market forces seem to be the best option for control, and for the reasons discussed above,⁵³ cap-and-trade appears to have the lead to be the primary market solution. The bottom line is that a cap-and-trade system seem to be the most likely avenue for regulating greenhouse gases. This will create a new commodity and will require addressing the regulation of that commodity market.

III. TOXIC ASSETS AND GREENHOUSE GAS CAP-AND-TRADE

A. *The Financial Crisis of 2009 and the Role of Toxic Assets*

It may be impossible to pinpoint the “cause” of the Great Recession of 2008–2010, but mistaken assumptions about commodity prices are certainly

48. Deborah L. Paul, *The Sources of Tax Complexity: How Much Simplicity Can Fundamental Tax Reform Achieve?*, 76 N.C. L. REV. 151, 155 (1997).

49. *Id.*

50. James Hansen, *Cap and Fade*, N.Y. TIMES, Dec. 6, 2009, http://www.nytimes.com/2009/12/07/opinion/07hansen.html?_r=1&emc=eta1.

51. See *ECON 101: Carbon Tax vs. Cap-and-Trade*, ENVTL. ECON., http://www.env-econ.net/carbon_tax_vs_capandtrade.html (last visited Dec. 12, 2011).

52. See generally Carol M. Rose, *Rethinking Environmental Controls: Management Strategies for Common Resources*, 1991 DUKE L.J. 1.

53. See *supra* notes 42–52 and accompanying text.

one cause.⁵⁴ Particularly for that portion of the crisis where major banks were in danger of bankruptcy and there was an extreme pullback in credit, the devaluation of assets on the books of companies played a large role.⁵⁵ The biggest culprits among these incredible shrinking assets were mortgages and mortgage-backed securities.⁵⁶

A mortgage is a commodity that represents the right to receive a payment over a fixed time at a particular rate.⁵⁷ This commodity can in turn be bundled with other commodities to form a basket of commodities that is itself an asset.⁵⁸ Major equity and trading firms created such vehicles to supposedly limit the risks of mortgage default, making these mortgage-backed securities an extremely popular asset class before the Great Recession.⁵⁹

Nevertheless, in hindsight the “limited risks” were likely the product of a mistaken assumption that the asset underlying a mortgage (the real property) would increase in value and thus be fully and overly collateralized.⁶⁰ When prices for real assets dropped, and mortgages were no longer backed by adequate value, these assets in turn lost their value.⁶¹ Asset groups that contained these mortgages were also infected, leading people to use the term “toxic assets” for these mortgages.⁶²

B. Toxic Asset Risks in a Carbon Cap-and-Trade System

Fear of another asset class similarly infecting the market has led to suspicion of cap-and-trade systems. It is estimated that a carbon cap-and-trade program will create direct assets of over one trillion dollars in its first ten years of existence.⁶³ If these assets in turn become parts of larger assets, what risk will exist in the economy as a whole?

54. See FIN. CRISIS INQUIRY COMM’N, CONCLUSIONS OF THE FINANCIAL CRISIS INQUIRY COMMISSION, at xxiii–xxiv (2010), available at http://fcic-static.law.stanford.edu/cdn_media/fcic-reports/fcic_final_report_conclusions.pdf.

55. See *id.*

56. See *id.*; Saule T. Omarova, *The New Crisis for the New Century: Some Observations on the “Big-Picture” Lessons of the Global Financial Crisis of 2008*, 13 N.C. BANKING INST. 157, 160–61 (2009).

57. See BLACK’S LAW DICTIONARY 1101–02 (9th ed. 2009).

58. See Andreas Jobst, *Back to Basics: What is Securitization?*, FIN. & DEV., Sept. 2008, at 48–49, available at <http://www.imf.org/external/pubs/ft/fandd/2008/09/pdf/basics.pdf>.

59. See *id.*; Robin S. Golden & Sameera Fazili, *Raising the Roof: Addressing the Mortgage Foreclosure Crisis Through a Collaboration Between City Government and a Law School Clinic*, 2 ALB. GOV’T L. REV. 29, 37–39 (2009).

60. See Jessie S. Lotay, *Subprime Carbon: Fashioning an Appropriate Regulatory and Legislative Response to the Emerging U.S. Carbon Market to Avoid a Repeat of History in Carbon Structured Finance and Derivative Instruments*, 32 HOUS. J. INT’L L. 459, 463–69 (2010).

61. See *id.*

62. See *id.*

63. See Monast, *supra* note 25, at 10053–54.

Considering that this is an entirely new asset class, the question is an important one. Of course we cannot know everything about the market for something that does not yet exist, but if the fear of the assets is based on similarities to the assets that were a part of the prior financial crisis, we can make comparisons. This comparison indicates that for the most part, these assets are different from the mortgage-backed assets blamed for the prior debacle.

The primary commodity created by the market is the right to emit a certain amount of greenhouse gases. That right will have value, and that value will be subject to general market forces. However, there does not appear to be a risk in misconstruing the supporting value of this asset as there was with mortgages. The value is one created by government action entirely. Unless the government required emitters of greenhouse gases to surrender the rights to emit, such rights would have no scarcity and thus no market or commodity value at all. What this means is that the “inherent” value is thus entirely dependent on government fiat and action.⁶⁴ The basis for a long term cap-and-trade system is that the government establishes the rules for the total amount of allocations available at the beginning of the system.⁶⁵ Both the ACES and the Kerry-Boxer bill specified exactly how many allocations can exist in any given year, from now through perpetuity.⁶⁶

This does not guarantee value of course. First, in situations of over-allocation, the government may unilaterally reduce the value of emission rights.⁶⁷ However, such ratcheting is applied evenly so that it does not produce disparate advantages in market participants.⁶⁸ Secondly, innovations may affect value. The point of restricting emissions and making the rights to emit scarce over time is to increase the price until such point that substitutions, such as non-greenhouse-gas emitting energy, become more cost-efficient. When these substitutions reach a particular level of affordability, the emission rights, their competitors in the market, will have their value affected by this as well.⁶⁹

64. Daniel D. Barnhizer, *Givings Recapture: Funding Public Acquisition of Private Property Interests on the Coasts*, 27 HARV. ENVTL. L. REV. 295, 321–22, 321 n.99 (2003) (noting government fiat in creating protections for land susceptible to flood produces values similar to “fiat” of backing paper money).

65. Lesley K. McAllister, *The Overallocation Problem in Cap-and-Trade: Moving Toward Stringency*, 34 COLUM. J. ENVTL. L. 395, 435 (2009).

66. H.R. 2454, 111th Cong. § 721 (2009); S. 1733, 111th Cong. § 721 (2009).

67. See McAllister, *supra* note 65, at 414.

68. See *id.* at 434–35.

69. *Cap and Invest: How a Cap-and-Trade Program Can Reduce Energy Costs, Create Jobs, and Improve Energy Security*, UNION OF CONCERNED SCIENTISTS (Apr. 6, 2009),

Moreover, comprehensive climate change legislation or even regulation could allow other variables, such as banking, borrowing, or price collars to exist.⁷⁰ Banking allows holders of existing rights to emit to “bank” these rights for future compliance, while borrowing allows those that need emission rights to borrow them from future vintages, usually at a cost.⁷¹ Price collars convert the cost of emissions to a tax at a certain low or high price.⁷² Both ACES⁷³ and Kerry-Boxer allow banking, and limited borrowing.⁷⁴ Since carbon dioxide (CO₂) is persistent in the atmosphere for long periods, it is thought that borrowing and banking have no impact on total emissions over time. Price collars and other safety valves, and their extent, have been discussed, but no hard proposals have been put forth.⁷⁵ Though in theory, price collars can actually increase the “hard cap” on emissions, if assumptions about demand are correct, this price control mechanism can operate predictably.

What is clear is that when the legislative rules are laid out, the market understands this information and risk. The problem with the mortgage backed assets is that the firms that rated them worked under an assumption that housing values would continue to rise.⁷⁶ Here, the information that can

http://www.ucsusa.org/global_warming/solutions/big_picture_solutions/cap-and-invest.html (“If companies find ways to reduce their pollution at a lower cost than the allowances, they can sell any surplus allowances to companies that cannot. The resulting market creates an incentive to implement cost-effective cuts in global warming emissions, and encourages investments in new low-carbon technologies.”).

70. See generally Peter Maniloff & Brian Murray, *Allowance Price Containment Options for Cap-and-Trade Legislation* (Duke Univ. Nicholas Inst. for Envtl. Policy Solutions ed., 2009) (examining potential price containment options—including banking, borrowing, and price collars—for the comprehensive climate change bills being debated by Congress in 2009).

71. See *id.*

72. See *id.*

73. H.R. 2454, 111th Cong. § 725 (2009); see Kristina Lewis & Terence Healy, *The Waxman-Markey Bill and the EU Emissions Trading Scheme: The Basics*, MWE.COM (May 22, 2009), <http://www.lexology.com/library/detail.aspx?g=2c08b2e6-aaaa-4dad-bd6c-162714765d8a> (“The Waxman-Markey Bill proposes that entities may bank allowances and use them to comply with their obligations in subsequent years.”); PEW CENTER ON GLOBAL CLIMATE CHANGE, COST CONTAINMENT AND OFFSET USE IN THE AMERICAN CLEAN ENERGY AND SECURITY ACT (WAXMAN-MARKEY) 2 (Sept. 2009), available at <http://www.pewclimate.org/docUploads/policymemo6-cost-containment-offsets-sept2009.pdf> (“The Waxman-Markey proposal allows covered entities to bank emission allowances indefinitely for future compliance use. In addition, the bill includes a two-year compliance period as well as unlimited next-year borrowing of allowances with no interest. Borrowing of up to 15 percent of an entities’ compliance obligation from a few years into the future is also allowed, but at an effective interest rate of 8 percent.”).

74. S. 1733, 111th Cong. § 725 (2009); see PEW CENTER ON GLOBAL CLIMATE CHANGE, AT A GLANCE: CLEAN ENERGY JOBS AND AMERICAN POWER ACT (Oct. 2009), available at <http://www.pewclimate.org/docUploads/chairmans-mark-kerry-boxer-10-29-09.pdf>.

75. See Brian C. Murray et al., *Balancing Cost and Emissions Certainty: An Allowance Reserve for Cap-and-Trade* 8–12 (Nat’l Bureau of Econ. Research, Working Paper No. 14258, July 15, 2008), <http://www.nber.org/papers/w14258>.

76. See Lotay, *supra* note 60, at 463–69.

affect the price—competitor technologies, energy savings, and government-allowed flexibility mechanisms—is understood. While we do not know what the exact reaction of the market will be, we do know that it will react. There is not any one factor that the market seems to have an unfounded belief in.

The biggest unknown may be the action of the government itself. If the government were to suddenly allow more rights to emit than anticipated at the time of the creation of the market, that could have an important impact on the entire asset class.⁷⁷ This risk is tempered by the belief that once the government establishes the system, it will proceed along the same path—indeed, this has been the experience in other cap-and-trade systems.⁷⁸ One of the values of a cap-and-trade system is that everyone with an investment in the system has an incentive to preserve the rules.⁷⁹ In such cases, if there were later rule changes, they would and should be made with the least possible impact on the market.

To the extent that the program still has uncertainty, such as allowing major decisions over supply and demand to be decided later, by regulation for instance, this does indicate risk to the market. However, with the important exception of offsets, the legislative provisions in the previously proposed laws are quite clear and straightforward, indicating less room for major government supply changes. California's system is also very specific about allocation, and to the extent the EPA introduces such a system, regulatory controls should be as specific as possible.⁸⁰

C. *The “Toxicity” of Offsets?*

Offsets appear to be the big piece of the system with attributes similar to the risky assets at play in the Great Recession. “Greenhouse gas offsets” are commonly described as projects or systems that “offset” greenhouse gas emissions by pulling an equivalent amount of greenhouse gas (or sometimes

77. See Alexander Savelkoul & Christopher Zink, *Opinion: The Price is Right*, CARBON FINANCE, Mar. 4, 2009, <http://www.carbon-financeonline.com/index.cfm?section=features&action=view&id=11893> (“[T]he mere hint of government intervention in the market has the potential to severely distort it.”).

78. See McAllister, *supra* note 65, at 398–410.

79. Jeanette M. Soares, *Solving the Super Wicked Problem of Climate Change: How Restraining the Present Could Aid in Establishing an Emissions Cap and Designing Allowance Auctions*, 40 ENVTL. L. REP. NEWS & ANALYSIS 10763, 10764 (2010).

80. *Id.* at 10763 (noting how regulatory actions should be controlled ahead of time).

warming potential) from the atmospheric system.⁸¹ In general, offsets must be “permanent” and “additional” to business as usual in order to be an actual setoff to produced greenhouse gases.⁸² While offsets are theoretically neutral with respect to their impacts for reducing greenhouse gas emissions compared with the surrender of allocations, the market effects are different.

First, unlimited offsets could imply that we may never reach a supply constriction of emission allocations, which makes creating a market in such allocations very difficult.⁸³ Nevertheless, this can be managed by capping how much compliance can be met with offsets. All of the major proposed cap-and-trade bills of the last several years specified offset limitations, generally at no more than 25%.⁸⁴ In situations where the total amount of offsets is capped, it can be assumed that given the differentiation in prices for offsets and a limited market cap, one can predict that eventually the maximum amount of offsets will be reached.⁸⁵

Another potential uncertainty with offsets is exactly how they will be defined. While the total supply of offsets was capped in the proposed federal laws,⁸⁶ the qualification procedure was less specified, with both major bills allowing agency regulation to fully make this determination.⁸⁷ The Kerry-Boxer proposal tried to lessen this impact by specifying some likely offset categories in the legislation itself,⁸⁸ thus lessening possible volatility. While this can be problematic, in some ways it is less uncertain than the current situation that exists in the voluntary offsets market, where there are multiple ways to make a determination currently in use.⁸⁹ By

81. Robert J. Carpenter, *Implementation of Biological Sequestration Offsets in a Carbon Reduction Policy: Answers to Key Questions for a Successful Domestic Offset Program*, 31 ENERGY L.J. 157, 165 (2010).

82. *See id.* at 165–66.

83. Though many experts doubt that enough offsets would be available to fail in constriction at the beginning of the market. *See* Maniloff & Murray, *supra* note 70, at 125.

84. *See* LARRY PARKER & BRENT D. YACOBUCCI, GREENHOUSE GAS REDUCTION: CAP-AND-TRADE BILLS IN THE 100TH CONGRESS, at app. A (2007), available at <http://fpc.state.gov/documents/organization/94861.pdf> (comparing “key provisions” of proposed greenhouse gas reduction bills).

85. In California, businesses have pushed for unlimited offsets recognizing the market differential between the likely costs of offsets and cost of rights to emit. *See* Debra Kahn, *Interest Groups Push for Unlimited Offsets in Western Market*, CLIMATEWIRE (July 29, 2008), http://www.offsetqualityinitiative.org/pdfs/ClimateWireStory_7_08.pdf.

86. *See, e.g.*, H.R. 2454, 111th Cong. § 722(d)(1)(A) (2009) (capping offsets at two billion tons); *see also* PEW CENTER ON GLOBAL CLIMATE CHANGE, PEW CENTER SUMMARY OF H.R. 2454: AMERICAN CLEAN ENERGY AND SECURITY ACT OF 2009 (WAXMAN-MARKEY) 47–49 (2009), available at http://www.pewclimate.org/docUploads/Waxman-Markey%20summary_FINAL_7.31.pdf (summarizing the relevant provisions in ACES).

87. H.R. 2454, 111th Cong. § 722 (2009); S. 1733, 111th Cong. § 722 (2009).

88. H.R. 2454, 111th Cong. § 722 (2009); S. 1733, 111th Cong. § 722 (2009).

89. *See* MOLLY PETERS-STANLEY ET AL., BACK TO THE FUTURE: STATE OF VOLUNTARY CARBON MARKETS 2001, at 55–59 annex. A.1–2 (2011), available at <http://www.forest-trends.org/~>

moving offset certification and thus offset value to one certifier, this limits some uncertainty since whatever the rules are, there will be only one set of clear rules on offsets approvals.⁹⁰

The more uncontrollable issue concerning offsets and the market is that offsets are assets that in turn could be based on an underlying asset—the amount of greenhouse gas permanently avoided that would not have occurred otherwise. If the offset asset is linked to the performance of the offset project, that can create a significant risk of market nonperformance.⁹¹ This alone does not mean that a market could not handle such information. In general, the risk of offset underperformance, while variable, would not necessarily suffer from market-wide misunderstanding, just as historically, market underperformance by loans and mortgages were generally understood by the market. It is only a problem when there is no correct information to be relied upon. Since we do have current examples of offset projects, and estimates about how well they sequester carbon, and knowledge of how and whether they are “permanent,” this risk can be controlled.⁹²

The bigger issue is how offset project underperformance will be defined in terms of market value by a government entity. While government regulation can support the market by being clear in definitions, it can also undermine the market if it is not clear about how and whether its government-controlled approval of “valuing” of the offset can be affected after general offset approval.

Again, since offsets have no inherent value, they are valuable to the extent the certifying authority states that they are. If this value is determined at one point, and in such a way that eventually the rules are understood by the market, then this uncertainty is manageable. If the value can be revisited with less certain principles, the market becomes more difficult. For example, the government could specify that an offset value changes based on the underlying success at sequestering or removing carbon, but if the

forestr/publication_details.php?publicationID=2828 (enumerating and describing various “Market Standards and Certification Programs” currently operating within voluntary carbon markets).

90. Maria Savasta-Kennedy, *The Newest Hybrid: Notes Toward Standardized Certification of Carbon Offsets*, 34 N.C. J. INT’L L. & COM. REG. 851, 857 (2009) (noting that government regulation can “standardize” offset definitions).

91. *See id.* at 867 (“The lack of a consistent certification standard undermines the integrity of offsets, both in terms of the current voluntary offset market and future regulatory markets the United States may join.”).

92. *See* Cecelia Del Cid-Liccardi & Timothy Kramer, *Managing Carbon Sequestration in Tropical Forests*, in *FOREST AND CARBON: A SYNTHESIS OF SCIENCE, MANAGEMENT, AND POLICY FOR CARBON SEQUESTRATION IN FORESTS* 255, 255–79 (Mary L. Tyrrell et al. eds., 2009).

offset did not lose its value in direct proportion to the underperformance of the project, it would be difficult for a market to understand. Since the offset value is in turn solely based on government fiat, this creates a difficulty that “hard” assets do not create.

IV. OFFSETS, MARKET PERFORMANCE, AND ENVIRONMENTAL PERFORMANCE

Offset nonperformance can be understood on two distinct axes. There could be nonperformance or underperformance on environmental goals (e.g., there was not an offset of greenhouse gases as predicted);⁹³ or there could be nonperformance or underperformance in the market context (e.g., the offset certificate is not worth what was expected or promised because the underlying asset’s value has eroded). Obviously, with no additional restrictions, these would be related. For example, if an offset failed to reduce greenhouse gases as much as projected or predicted, and its value was based on that, then an underperformance in the environmental realm would also mean an underperformance or performance failure in the market context. But of course, these two factors can be separated by law. For instance, one could have conditions precedent for qualifying an offset for the market such that when those conditions are met, it “receives” market value from the government program, whether or not it performs as guaranteed in the environmental context.

The current offset market created by the Kyoto Protocol, the Clean Development Mechanism (CDM), segregates the CDM market value from future offset reversals.⁹⁴ Since these credits are then recognized in the EU trading market,⁹⁵ also without relation to any forthcoming actual environmental performance, the market is insulated from the failure of the underlying asset.

While this may protect the market from shocks, it opens up the possibility that the environmental goals promised will go unrealized, and this of course would undermine the whole purpose of the system. Offsets have come under scathing criticism for just this problem.⁹⁶ In his analysis of the

93. See Christopher S. Galik & Robert B. Jackson, *Risks to Forest Carbon Offset Projects in a Changing Climate*, 257 FOREST ECOLOGY & MGMT. 2209, 2210 (2009).

94. See Offset Quality Initiative, *Assessing Offset Quality in the Clean Development Mechanism*, 10 SUSTAINABLE DEV. L. & POL’Y 25, 30–31 (2010).

95. See Judson Jaffe et al., *Linking Tradable Permit Systems: A Key Element of Emerging International Climate Policy Architecture*, 36 ECOLOGY L.Q. 789, 798–99 (2009).

96. Robert H. Frank, *Carbon Offsets: A Small Price to Pay for Efficiency*, N.Y. TIMES, May 30, 2009, <http://www.nytimes.com/2009/05/31/business/31view.html>.

CDM program, Michael Wara notes that many of the CDM offsets did not do what they promised.⁹⁷

Moreover, the failure to control greenhouse gases as promised can occur in many realms. In biological sequestration, the biological process may not work as planned, or there could be accidental or intentional reversals, wherein sequestered CO₂ is re-released into the atmosphere.⁹⁸ Moreover, any offset may prove over time to not have been additional, or to not be permanent.⁹⁹ Proper procedures in the certifying government body can and should be designed to minimize these possibilities, but it is true that when the market risk is separated from the environmental risk, one removes an important private market investigatory function, leaving environmental vetting and verification entirely to the certifying agency. After all, if your offset certificate retains its value even if the underlying offset reverses or does not meet an offset criteria, this may make no difference to a market participant.

On the other hand, if offset values can disappear based on government reversal of value in a way that cannot be understood or predicted, this increases the risk of the introduction of a toxic underlying asset in the marketplace.¹⁰⁰ Just as mortgage-backed securities lost their value and derivatives based on them waivered, a sudden reversal of an entire offset value could infect derivatives based on these as well.

Thus, while government protection of the greenhouse gas reduction effects of offsets is critical, how it accomplishes this is very important for purposes of a functioning market. An unfettered government discretionary action might discourage anyone from purchasing or using the offsets as they do not have any tools to assess or understand value going forward.

This seeming tradeoff, between either protecting the market from infection or protecting the environmental reductions at all costs, leads many to call for the elimination of offsets altogether.¹⁰¹ After all, if they cannot be used as substitutes for actual source reductions, they cannot be an

97. Michael Wara, *Measuring the Clean Development Mechanism's Performance and Potential*, 55 UCLA L. REV. 1759, 1764 (2008) ("The CDM is failing as a market because its rules, rather than producing real reductions, have accounting loopholes that allow participants to manufacture [greenhouse gas] credits at little or no cost beyond the payment of consultants necessary to surmount the necessary regulatory hurdles.").

98. See Carpenter, *supra* note 81, at 171.

99. *Id.* at 166–72.

100. See STEVE SUPPAN, *SPECULATING ON CARBON: THE NEXT TOXIC ASSET* 6–7 (2009), available at http://www.iatp.org/files/2009_11_30_SpeculatingOnCarbon-SS_web.pdf (arguing that price volatility could make carbon "the next toxic asset investment").

101. See CHAN, *supra* note 19, at 8.

environmental *or* market problem. However, those that have studied cap-and-trade recognize offsets to be some of the most efficient ways to reduce greenhouse gases.¹⁰² As noted by Brian Murray and Aaron Jenkins:

Perhaps the most compelling case for offsets use is that it can increase the cost-effectiveness of a compliance-based cap-and-trade system. By providing inexpensive mitigation, especially at the beginning of a new mandatory [greenhouse gas] system, offsets could help to lower the overall cost of reaching the abatement level set by the policy cap.¹⁰³

As such, offsets help us reach the environmental goal with less expense, and since they can be available quickly, they provide a way for a cap-and-trade market to initially function.¹⁰⁴ They can also function as a market relief valve, providing ways for emitters to get permits if the price of the right to emit goes up too quickly and unpredictably.¹⁰⁵ Moreover, by helping reduce other pollutants or enhancing other environmental values, such as habitat, offsets can provide additional benefits.¹⁰⁶

V. TAILORING LEGISLATION TO AVOID ENVIRONMENTAL AND MARKET RISK

The risks in offsets can be divided into risks from fraud and risks from the structure of the system itself. While fraud can be a serious issue and has already affected the European Union Emissions Trading Scheme,¹⁰⁷ it is

102. See Brian C. Murray & W. Aaron Jenkins, *Designing Cap and Trade to Account for “Imperfect” Offsets 1* (Duke Univ. Nicholas Inst. for Envtl. Policy Solutions, Working Paper EE 10-03, Sept. 2010), available at <http://nicholasinstitute.duke.edu/environmentaleconomics/designing-cap-and-trade-imperfect-offsets> (“The use of offsets can potentially improve a cap-and-trade system by lowering the overall cost of compliance, encourage mitigation from outside of the cap, and function as a bridge strategy, giving the regulated sectors time to innovate new low-carbon technologies and business plans.”); see also Frank, *supra* note 96.

103. Murray & Jenkins, *supra* note 102, at 3.

104. ECOSYSTEM MARKETPLACE & BUS. FOR SOC. RESPONSIBILITY, *OFFSETTING EMISSIONS: A BUSINESS BRIEF ON THE VOLUNTARY CARBON MARKET 2* (2d ed. Feb. 2008), available at http://www.bsr.org/reports/BSR_Voluntary-Carbon-Offsets-2.pdf.

105. See Murray & Jenkins, *supra* note 102, at 5–6 (describing the “welfare gains from offset trade”).

106. Of course offsets can also cause additional social and environmental harm. Controlling for these risks and benefits may be another aspect of offsets that can be considered by the verifying agency. Both the Waxman-Markey and the Kerry-Boxer bills recognize these as legitimate factors in offset approval. See H.R. 2454, 111th Cong. § 722 (2009); S. 1733, 111th Cong. § 722 (2009). And California’s AB 32 has a major focus on offset co-harms and benefits. See AB 32, *supra* note 10.

107. See Will Bierbower, *A Brief History of Fraudulent Activity on the EU-ETS*, WORLDWATCH INST. (Feb. 25, 2011), <http://blogs.worldwatch.org/revolt/a-brief-history-of-fraudulent-activity-on-the-eu-ets-2/>; Nathaniel Gronewold, *Europe’s Carbon Emissions Trading—Growing Pains or*

little different from preventing fraud in any market system. For instance, because the EU does not have taxes on inter-country purchasing, but does have it within countries, fraudsters tried to defraud the Denmark tax authorities.¹⁰⁸ This was discovered, however, and can be addressed by increased enforcement. Similarly, bribes can be addressed as they are addressed in other contexts.¹⁰⁹

Reporting schemes can also be problematic. In her *Ten Ways to Game the Carbon Market*, Michelle Chan of Friends of the Earth focuses on problems in reporting baselines—inflating how much carbon is sequestered or reducing how much is produced—and also the potential for misrepresenting information about whether or not an offset is real, which is necessary to meet the requirements for an offset to be an actual “additional, permanent” reduction from business as usual.¹¹⁰ In general, these concerns are best addressed by not allowing self-reporting and having strong monitoring and evaluation at the front end of certification of carbon credits or offsets.¹¹¹ But it is true that if this is not addressed, these are the kind of issues that could infect the market (by value being stripped from government action) or alternatively, not infect the market but misstate the actual greenhouse reductions that were reported.

Thus, the trillion dollar question for a regulatory cap-and-trade system is the one proposed in the Introduction: how does one ensure that real reductions actually happen from offsets in a system, and also ensure that the market does not face a substantial risk of failure that can infect other financial instruments?

The ACES and the Kerry-Boxer bill authorize the EPA Administrator to determine which mechanisms to employ to ensure offset integrity and also specify two major propositions for controlling the risks associated with

Wholesale Theft?, N.Y. TIMES, Jan. 31, 2011, <http://www.nytimes.com/cwire/2011/01/31/31/climatewire-europes-carbon-emissions-trading-growing-pai-74999.html?pagewanted=all>.

108. *The Carbon Carousel: VAT Tax Fraud*, CORPORATE WATCH (July 22, 2010), <http://www.corporatewatch.org/?lid=3676>.

109. We do not think of bribery as a large issue in the developed world but it can have significant consequences in the developing world. Since many offsets may be allowed from the developing world in a U.S. system, such a problem must be considered. See *Phishing, Bribery and Falsification: Combating the Complexities of Carbon Fraud*, KNOWLEDGE@WHARTON (June 9, 2010), <http://knowledge.wharton.upenn.edu/article.cfm?articleid=2521>.

110. See CHAN, *supra* note 19, at 2–3.

111. See Thomas P. Healy, *Clearing the Air: Pursuing a Course to Define the Federal Government's Role in the Voluntary Carbon Offset Market*, 61 ADMIN. L. REV. 871, 882 (2009) (arguing that challenges to the carbon offset market's credibility can be improved by increased regulation).

offset qualification: insurance provisions and a reserve bank.¹¹² The provisions from ACES are reviewed in an earlier research paper from CLEAR.¹¹³

ACES would have required the Administrator to “prescribe mechanisms to ensure that any sequestration with respect to which an offset credit [corresponds] . . . results in a permanent net increase in sequestration.”¹¹⁴ ACES “specifically lists an offset reserve mechanism (combined with reversal penalties) and an insurance mechanism as two possibilities” to avoid offset problems.¹¹⁵ “The bill’s suggested offsets reserve mechanism establishes a pool of offset credits . . . from which credits are retired in the event of a reversal episode at an amount sufficient ‘to fully account for the tons of carbon dioxide equivalent’ released.”¹¹⁶ The goal is to ensure that the actual greenhouse gas reduction matches the amount promised in the initial offset.¹¹⁷

To build and preserve this offset reserve, offset projects must compensate for reversal risks by paying a “reversal premium” in the form of discounted value.¹¹⁸ This can be based on specific project’s known reversal risks, but can also be more arbitrary.¹¹⁹ As a result, the offset approver may issue “fewer credits to an offset project than it has actually sequestered” in many cases.¹²⁰

Additionally, ACES requires offset project developers “to pay a reversal penalty to help replenish the offset reserve” when a reversal occurs.¹²¹ If the reversal is intentional, the “offset project developer must place credits or allowances into the reserve ‘equal in number to the number of reserve offset credits that were canceled due to the reversal.’”¹²² If the reversal is unintentional, the project developer must place the lesser of “half the number of credits canceled due to the reversal or half the number of credits already placed into the reserve for that project, whichever is less.”¹²³

112. H.R. 2454, 111th Cong. § 734 (2009).

113. See Ken Allinson et al., *International Avoided Deforestation Offset Projects: Insuring the Risk of Reversal Penalties* (Ctr. for Law, Env’t, Adaptation & Res., May 2010), available at <http://www.law.unc.edu/documents/clear/adoffsetreversalpenaltyinsurance.pdf>.

114. *Id.* at 8 (citing H.R. 2454, 111th Cong. § 734(b)(2) (2009)).

115. *Id.*

116. *Id.* (quoting H.R. 2454, 111th Cong. § 734(b)(3)(B)(i) (2009)).

117. See *id.*

118. See *id.*

119. *Id.*

120. *Id.* (citing H.R. 2454, 111th Cong. § 734(b)(3)(A) (2009)).

121. See *id.* (citing H.R. 2454, 111th Cong. § 734(b)(3)(B) (2009)).

122. *Id.* at 8–9 (quoting H.R. 2454, 111th Cong. § 734(b)(3)(B)(ii) (2009)).

123. *Id.* at 9. Here is an example to illustrate this provision:

[C]onsider a hypothetical project that offsets one-hundred tons of carbon dioxide (“CO₂”) in one vintage year. Under ACES, if the Administrator applied a twenty percent discount, it would issue the project developer eighty offset credits and place twenty

The reversal penalty is the “key to maintaining environmental integrity” in the ACES offset program.¹²⁴ Without replenishment, the reserve pool would be depleted, and the Administrator “would not be able to retire offset credits equal to the amount of CO₂ released in a reversal.”¹²⁵ “Such a scenario would create a gap between AD offset credits on the market and the putative corresponding amount of tons sequestered.”¹²⁶ The offset reserve mechanism ensures that the amount of offset credits introduced into the market never exceeds the amount of CO₂ the offset project is actually supposed to sequester and thus protects environmental integrity.¹²⁷

ACES alternatively suggests an insurance mechanism to ensure environmental integrity. This would provide “for purchase and provision to the Administrator for retirement of an amount of offset credits or emission allowances equal . . . to the tons of carbon dioxide equivalents of greenhouse gas emissions released due to reversal.”¹²⁸ ACES would leave the form of insurance to the Administrator’s discretion¹²⁹ but there are prior examples of situations in which insurance requirements have been used to ensure environmental integrity.¹³⁰ Both the Resource Conservation and Recovery

credits into the offset reserve at the end of the vintage year. Now assume that this project experiences an unintentional reversal (e.g., a forest fire initiated by lightning) releasing forty tons of sequestered CO₂. Under ACES, at the time of reversal, the Administrator would retire a quantity of offset credits equivalent to forty tons of CO₂ from the offset reserve to account for the credits lost due to the unintentional reversal. The Administrator would then require the project developer to place ten offset credits into the reserve (half the number already reserved for that project), rather than twenty credits (half the number of credits retired by the Administrator).

Id. at 9 n.31.

124. *Id.* at 9.

125. *Id.*

126. *Id.*

127. *Id.* (citing H.R. 2454, 111th Cong. § 734(b)(2) (2009)) (charging the Administrator to “prescribe mechanisms to ensure that any sequestration with respect to which an offset credit is issued . . . results in a permanent net increase in sequestration, and that full account is taken of any actual or potential reversal of such sequestration”).

128. *Id.* (citing H.R. 2454, 111th Cong. § 734(b)(2)(B) (2009)).

129. *See* H.R. 2454, 111th Cong. § 734(b)(2) (2009) (instructing the Administrator to create “at least one” mechanism designed to ensure that all sequestration for which offset credit is issued actually “result[s] in a permanent net increase in sequestration”—including an offsets reserve or an insurance provision).

130. *See* Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901–6992k (2006); *see also* EPA Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities Rule, 40 C.F.R. § 264.147 (2011) (implementing the Resource Conservation and Recovery Act by requiring “[a]n owner or operator of a hazardous waste treatment, storage, or disposal facility [to] . . . demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences arising from operations of the facility”); Jeffrey Kehne, *Encouraging Safety Through Insurance-Based Incentives: Financial Responsibility for Hazardous*

Act and the Underground Storage Tank provisions of the Solid Waste Disposal Act require that those handling potentially environmentally harmful products maintain insurance or bonding sufficient to ensure that any damage from an accident could be corrected.¹³¹ Such provisions could be applied in an offset context as well, since sequestration would be a product on the market that could be purchased to provide for offsetting unexpected greenhouse gas release harms.

Since these proposals for reversal require that reversal risks are borne by the offset project developer, these proposals would generally not cause any reduction in the value of the offset once it has been certified. In this sense, it would be similar to the CDM mechanism wherein offsets retain market value once they have been approved. This avoids situations in which the manner of government accountability for reversals is unknown and thus would eliminate unexpected “toxicity” in offset asset classes. Moreover, unlike the situation with the CDM, both of these mechanisms provide legitimate ways for the greenhouse-gas-reducing integrity to be preserved.

The reserve requirement in particular is well drafted. Risks of loss are factored in at the beginning based on actuarial data, and intentional reversals provide for additional penalties, all of which shore up the reserve necessary to preserve the greenhouse gas reductions.¹³² The insurance provision is less certain to address actual losses since it is unknown how such insurance would be capitalized or operationalized, but as noted above, such programs can work.¹³³

Unfortunately, the bills do not stop there in accounting for offset reversals. In the ACES and Kerry-Boxer proposals, there is one key sentence that allows the Administrator of the offset system to make “any other provisions the Administrator determines necessary” to ensure the environmental benefits of carbon reduction if there is a problem with offsets.¹³⁴ While one sentence may seem innocuous in a bill that runs to hundreds of pages, this language is particularly problematic for the risk of introducing toxic assets in a cap-and-trade system. It is uncertain what this provision would have looked like in practice, but it seems to have been designed to allow the offset administering agency to do anything necessary to preserve the environmental value of an offset. While laudable from an environmental perspective, this could introduce massive uncertainty into a

Wastes, 96 YALE L.J. 403, 416–17 (1986) (noting that RCRA regulations require hazardous waste facilities to carry liability coverage).

131. See 42 U.S.C. §§ 6991b, 6991b(d)(1) (2006).

132. See H.R. 2454, 111th Cong. §§ 734(b)(3), 734(b)(3)(B)(ii) (2009).

133. Of course there is a possibility that insurance markets themselves can fail as was seen in the recent financial crisis, and the risks of systemic failure of the whole system would need to be examined before deciding solely on an insurance provision for safeguard.

134. H.R. 2454, 111th Cong. § 734 (2009).

market. Any offset, in anyone's hands, could have its value reduced to zero at any time, and in unpredictable ways. Assets based on such offsets, such as derivatives, would in turn see their values reduced in completely unknowable amounts.

In one sense, such a provision recalls the government's unfettered power under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) clean-ups, when the government and other parties could go after anyone seeking up to full liability.¹³⁵ The response in that situation was avoidance of the system entirely, which could be expected here as well, removing any benefits of offsets from a cap-and-trade market.¹³⁶

What then is the lesson from regulation of offsets in a cap-and-trade market? In order to preserve both environmental and market integrity, the needle must be threaded carefully. Some provision must be made to ensure that underperforming offsets are made whole or accounted for so that all expected greenhouse gas reduction occurs.¹³⁷ But this provision should be structured in a way to throw the risk of loss on a predictable target rather than on the offset asset itself. The most likely provision would put the risk of loss on the offset developer, who is the one who creates and profits from the offset originally.

Such a risk of loss aligns incentives to prod the developers to be careful and honest in offset development. Of course, there must be some way to ensure that offset developers can make sub-performing offsets whole. Both a carefully structured insurance mechanism and an even more creative reserve mechanism would do this.¹³⁸ If the reversal percentages are calculated correctly, the offset reserve should be entirely sufficient to handle offset failures.

VI. CONCLUSION

While there could be problems with a cap-and-trade system to control greenhouse gases, the risk of financial ruin from toxic assets need not be one of them. Assuming we are in an inexorable march towards cap-and-trade with linked systems both domestically and internationally, it is important to

135. See 42 U.S.C. §§ 9606, 9607 (2006).

136. See Alfred R. Light, *Restatement for Joint and Several Liability Under CERCLA After Burlington Northern*, 39 ENVTL. L. REP. NEWS & ANALYSIS 11058, 11058 (2009) (noting that, under *Burlington*, a party can avoid CERCLA liability by demonstrating that a "reasonable basis . . . exists to limit the extent of his liability").

137. See H.R. 2454, 111th Cong. § 734(b)(2) (2009).

138. See H.R. 2454, 111th Cong. § 734(b)(2) (2009).

understand this simple fact.¹³⁹ It is not that a huge new market with exotic financial instruments could not pose risk, it is that we can understand where such a risk comes from, and have effective ways of countering such risk.¹⁴⁰

In the carbon market scenario, this requires a focus on offsets. Offset programs can be designed to ensure that they do the environmental job of actually reducing or sequestering greenhouse gases while also ensuring that reversals and underperformance do not create toxic assets. Because the government controls the value, it can define how an offset will be valued and then ensure that the value will be retained in a market. It then ensures environmental integrity by creating mechanisms which ensure that all losses can be covered by a particular participant, in this case the offset developer.

Given the criticism that the ACES proposal's great complexity was its problem,¹⁴¹ it is ironic that the examples of the more complex provisions in these bills, such as reserve mechanisms, are more likely to ensure both environmental and market stability than the simple general regulatory authority provisions. The specific provisions in the bills can work and unfettered government discretion could create market dangers.¹⁴² Wherever cap-and-trade systems are adopted, be they statutory or regulatory, if we can tailor the offset provisions in a manner to account for losses in a particular way as outlined in the statutory proposals, we can have our environmental cake and the market too.

139. *See supra* Part II.

140. *See supra* Part V.

141. *Senate Offers Some Hope for Legislation to Combat Climate Change*, WASH. POST, Feb. 10, 2010, <http://www.washingtonpost.com/wp-dyn/content/article/2010/02/09/AR2010020903526.html>.

142. *See supra* Part V.