CARBON FINANCE SPEAKER SERIES *at* YALE

Investing in Climate Change:
A Panel on Hedge Funds

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Prior to Ardsley Partners, Mr. Block was with Soliance Networks, a joint venture of Sempra Energy, where he authored systems that controlled end-to-end utility transactions. In 2007, he received the St. Gallen Wings of Excellence Award for a treatise on renewable energy in emerging markets. Mr. Block has also been honored with the American Academy of Achievement's Golden Scroll Award.

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Prior to founding Evolution Markets, Mr. Ertel was a Principal at Natsource LLC, developing new energy and environmental markets and brokering many of the transactions that formed the emissions trading market as it is today. He has advised the White House Climate Change Task Force on Environmental Markets and is one of the founders of the Emissions Marketing Association.

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Mr. Ezekiel oversees Credit Suisse's carbon strategy and manages the bank's relationships with and investments in carbon offset producers. He previously co-founded Antipodean Partners, a specialty merchant bank and advisory firm that developed innovative structures for carbon emissions producers, including pioneering securitizations of tradable greenhouse gas emissions credits.

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Mr. Whittaker leads MissionPoint's environmental finance strategy, with a focus on the carbon trading and environmental commodity markets. He previously served as Senior Vice President at Swiss Re where he was part of the Environmental and Commodity Markets Team, Managing Director of Innovest Strategic Value Advisors, and Adjunct Professor at the University of Toronto.

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6:30 to 8:30 p.m.
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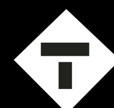

Tremaine Foundation

Center for
BUSINESS AND THE ENVIRONMENT
at Yale

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Chapter 8

Investing in Climate Change: A Panel on Hedge Funds

Bradford Gentry, Yale University (Moderator); Benjamin Block, Ardsley Partners; Andy Ertel, Evolution Markets; Paul Ezekiel, Credit Suisse; Martin Whittaker, MissionPoint Capital

EDITORS' REMARKS

This chapter comes from a talk presented in Greenwich, Connecticut[a] to an audience largely composed of hedge fund professionals. The panel consists of experts from different disciplines within environmental finance who discuss climate change investment with the hedge fund industry in mind. Given the current public commentary surrounding hedge funds, the positive role that this industry can play in more robust environmental markets may not be initially obvious. But as Andy Ertel explains from the onset, "First of all, we want to create a global pool of liquidity." We also recall Professor William Goetzmann's words from Chapter 1: "If carbon markets work, if the financial technology applied to environmental problems works, it will enlist an unusual and eclectic community of economic players, from hedge funds to savers to speculators and so on, into thinking about forecasting and estimating the effect of environmental carbon."

This chapter picks up after Win Neuger's address[b] and begins with introductions from the moderator, Professor Bradford Gentry, followed by an overview of the NYMEX Green Exchange by Andy Ertel. The panel discussion starts with a prompt about the impacts of an economic downturn, and then opens up to a question and answer session that includes such topics as ideal term structures for regulation, the depth, liquidity, and environmental benefits of the environmental markets, the role of financial engineering, the opportunity in green building, and the prospects of the Regional Greenhouse Gas Initiative (RGGI).

In addition to fulfilling an important niche within our publication by providing a perspective specific to hedge funds, this chapter also delves into more general themes such as the potential for creative finance in the environmental markets, the ability of carbon to create as well as increase and decrease asset value, and the importance of the policy community to obtain input from market participants – which is the subject of this chapter's closing remarks*

[a] We sponsored this event in conjunction with the Connecticut Hedge Fund Association, Clean Air – Cool Planet, and the Connecticut Departments of Environmental Protection, Insurance, and Treasury.

[b] See *Investing in Climate Change*, Chapter 2 of this publication.

* To gain further context, read related articles, order a bound copy of this publication, or download pdfs of the publication or the recorded version of this presentation, please visit: www.yale.edu/cbey/carbonfinance2008

INTRODUCTION

Bradford Gentry: I'm delighted to be here. At Yale we have the Center for Business and the Environment that has been looking to make the sorts of business environment connections people are making tonight. This evening is a wonderful addition to the *Carbon Finance Speaker Series* that we've been hosting this year, with the Tremaine Foundation's support, to dive into these sorts of questions. It also allows me to understand better a headline I saw in the *Financial Times* back in September that I never really quite understood: "Carbon Shields Hedge Funds." This was back when the market was the frothiest and the article talked about niche strategies coming through undamaged. I'm hoping our panelists and all of you in the audience asking questions can explain to me what exactly was going on there.

We have a terrific panel tonight to dig into these issues. Ben Block is a Senior Analyst of Renewable Energy Strategies for Ardsley Partners. Paul Ezekiel is the Global Head of Carbon Trading at Credit Suisse. Martin Whittaker is a Director of Environmental Finance Strategies at MissionPoint Capital Partners, and Andy Ertel is CEO of Evolution Markets.

NYMEX GREEN EXCHANGE

Andy Ertel: The notion of the exchange was that if you look around the world and read the press announcements, there's a push to create little pools of liquidity as we're trying to solve a global issue. Mother Nature does not care if we emit greenhouse gas in St. Louis or Singapore. It's not like mercury and mercury trading, which is one of the next federal programs that's coming here in the United States. It's not like sulfur dioxide or nitrous oxides, which are real local issues. These are some global issues that we have to address. So first of all, we want to create a global pool of liquidity. I think we're well on our way with our founding partners[1], and actually the next round of international partners.

We also wanted the highest environmental integrity. Without naming names, there have been a lot of questions about some of the voluntary offsets that are out there in the market, and not just in the OTC (Over the Counter) market, which, by the way, for carbon is 60 to 70 percent of that global volume. Most of it goes through brokerage organizations like us, rather than exchanges. They might be given up for exchange clearing, but they are actually executed OTC.

The voluntary market is one that's been problematic. There has been the possibility of investigation by the FTC (Federal Trade Commission). It's really been an inquiry at present on the quality of carbon credits. These are things that are kind of besmirching the name of the carbon markets. In terms of size, the voluntary markets are still tiny. They were valued at more than $300 million in 2007 versus about $80 billion in the total global carbon market. They are still a very small fraction, but an important fraction if you're a business or an individual that wants to make a difference and use offsets; we have to know that the quality is there. That's something that we're moving forward on for the product suite for the Green Exchange which will launch before the end of 2008.

[1] The founding partners of the NYMEX Green Exchange include Evolution Markets, Morgan Stanley, Credit Suisse, JPMorgan Chase, Merrill Lynch, Tudor, Constellation Energy, RNK Capital, Vitol, ICAP, and TFS Energy.

We're looking at a variety of high-quality voluntary carbon standards, including something called the Voluntary Carbon Standard, which is work led by the International Emissions Trading Association (IETA) and The Climate Group, the Gold Standard, and credits generated under the California Climate Action Registry (CCAR). There will also be a focus on the Regional Greenhouse Gas Initiative (RGGI) market, which is here in the U.S. Northeast; it will be the first compliance market for carbon here in America. We'll be also looking at sulfur dioxide and nitrogen oxide futures, as well as launching into carbon internationally both in the EU emissions trading system for EU allowances and for CERs, or certified emission reductions, which are the developing country reductions under the Kyoto Protocol. Voluntary renewable credits through the Green-e standard here in the U.S will also be supported.

There will be a slew of products in the NYMEX Green Exchange, all with excellent integrity, a global pool of liquidity, and more competitive rates than anybody else out there. It's a very exciting time. We are beginning to talk about water, biofuels, and other environmental commodities that will be part of the future of the Green Exchange.

IMPACT OF ECONOMIC DOWNTURN

Bradford Gentry: *What's the impact of the current financial turmoil and the possibility of a bear market on what you're seeing here? The Financial Times headline I showed earlier said that everybody should go to carbon because that will smooth everything out. What are you all seeing from an upside/downside perspective?*

Benjamin Block: Certainly there are going to be advances and declines because it's just the business that we're in. From the long-term perspective, one of the things that we like to think about is that renewable energy and energy in general are very much driven by project finance. When you're thinking about project finance, you've got a couple of things that you want to consider. What's the price of your output? I don't think that very many people foresee oil declining to $30 or $40, as was floated out there before. Renewable energy was viable when it was $60 to $70, and I have a hard time believing that it's going to go down below that. We think that energy prices are going to stay high and although we might see a short-term decline in demand, we'll most likely see long-term growth in line with general economic growth.

The second factor is interest rates. You have to finance these projects, and especially the large scale ones. Thanks to Helicopter Ben (Ben Bernanke, Chairman of the Federal Reserve) today we have a nice low 3 percent interest rate that we're dealing with, and that should help push some of these projects, especially because energy demand is viewed by the financing community as stable.

There will be bubbles. There will be ups and downs. We'll hopefully mitigate these with some good portfolio management and over the long-term this should be a very constructive sector.

Paul Ezekiel: As a new asset class or an alternative asset class, private equity in the renewables space is absolutely on fire at the moment. For those of you who may have

seen some of the deals out there, there are actually two $5 billion funds being raised right now – one by River Stone and it looks like Credit Suisse will probably be doing one as well. As an asset class it seems to be completely unaffected. In fact, one could argue there's been some bias into funds like this that probably have limited correlation to the rest of the broader market issues at the moment.

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From a carbon perspective, it's a completely different game. Actually, one of the bigger risks (and it's probably an outside risk) to the U.S. signing up to some sort of formal trading construct is if the U.S. goes into some sort of extended economic recession. In such a case, the chances of its signing up to some meaningful cap goes down significantly. But of course, this is obviously speculation.

Andy Ertel: I would say the impact that we've seen in the short-term has been over the last couple of weeks. Carbon prices have taken a beating and some of the carbon stocks have been taking a beating, but it's mostly been a kind of global selloff in both the equity markets and the commodity markets. Carbon in the European Union tracks very well versus power, coal, etc.

I think this downward trend is going to be short lived. Coal prices actually rallied to record levels this last week. Carbon, I think, is taking a breather for a short time. The biggest risk is maybe some of the development and liquidity of the markets long-term in terms of what we're seeing as VAR (Value at Risk) being pulled back by some of the banks that have exposure from the other aspects of the trading markets. But I think Paul was right. Economic recession is the biggest risk to long term climate change policy. If the economy is in real bad shape, it's just not going to be very popular to put an additional cost on there.

You can take the counter view and say that in a tough economic time, cap-and-trade here in the U.S. is really about seeking greater efficiency. We still emit twice as much carbon as Europe per capita. We have a long way to go on efficiency and energy independence, and that's probably part of the economic issues that we're facing today.

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Martin Whittaker: I agree completely. Resource use efficiency is going to be a hallmark of a bear market, and that isn't just energy. That transcends new technologies and new building materials. It really can push through entire sectors. I agree that the carbon price is likely to be affected if we do enter a recession or a prolonged recession, and that any chance of a freely floating carbon price is probably diminished. It's likely to be capped by whatever federal regulation comes along, which is not good for the market in our opinion.

A lot of the publicly traded stocks are very thinly traded, so it doesn't really take much of a selloff to push them down. That's partly what's happened as well with some of the AIM (Alternative Investment Market) and London traded stocks.

Bradford Gentry: Let's take questions from the audience now.

Question and Answer Session

QUESTION 1: Ideal terms for regulations

One of the points you've made is that this is a very regulatory-driven environment, and yet with a lot of the regulatory aspects, whether they're carbon emission reductions, production tax credits, etc., everyone can see the sunset out there. It could be a year, four years, etc. What would you consider an ideal term for some of these regulations? Would you like to see ten year structures put in place or something that could match project finance profiles?

Andy Ertel: One of the success stories of emissions trading has been in sulfur dioxide. The utilities always have a 30-year forward allocation. They have 30 years of credits on hand that they can sell for cash today to finance a scrubber or any other new control technology. One of the fundamental problems we had in the EU trading system was a three year window of allowances. You're not going to finance any fundamental change with three years of capital. It just doesn't happen. If you look at the utility industry in particular, these are huge capital investments and you're talking about 20 year investments. Ten years really should be the minimum.

One of the fundamental problems we had in the EU trading system was a three year window of allowances. You're not going to finance any fundamental change with three years of capital. It just doesn't happen. If you look at the utility industry in particular, these are huge capital investments and you're talking about 20 year investments. Ten years really should be the minimum.

Martin Whittaker: If you look at what happened in the Clean Development Mechanism, we blew through some of the industrial gas projects right away. We want to try and drive through new technologies. I agree with Andy. I don't know what the right number is, but it's longer than three years and hopefully longer than five years because that's about the time where it starts to become meaningful from an investor's perspective.

But I would also say that you made a point about it being regulatory-driven. For a lot of the efficiency-driven companies that we're looking at, in fact, monetization of the environmental benefit is a kicker. It's an additional return; it's gravy. You get a lot of environmental benefit that doesn't necessarily have to be monetized in the form of a tradable credit. It's not necessarily the case that in all investments in the clean energy space that you have to have a heavy dose of regulation to make them successful.

Paul Ezekiel: Just quickly in regards to coal power, the big issue, as Andy mentioned earlier, is uncertainty. We're seeing situations in the U.S. where potential buyers of assets have walked away just because they can't get their heads around the contingent carbon liability. That's becoming a little clearer today, but it's still uncertain. It's obviously impacting asset valuations.

Anecdotally, there was an interesting experience pre-Christmas when I was approached by the Treasurer of New South Wales, one of the largest states in Australia, who you may have read is privatizing their four largest coal plants. As a $20 billion privatization, it is probably the largest this year. We are actually advising them on the disposal of those assets. Interestingly enough, he asked us to come down to Sydney and spend some time with him to figure out how investors or potential purchasers of these assets will value that contingent carbon liability. This is in a non-regulated market, Australia. They've just recently signed the Kyoto Protocol, but they are unregulated. The bottom line is that it's not worth $20 billion. Is it worth $15 billion with that contingent liability? Because if I'm buying those assets, I know that there's going to be some sort of cap-and-trade regime.

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QUESTION 2: Depth of the market

Other than, say, long equities under private equity or trading public equities in climate change-related companies, is there a market for several billion dollars in either trading carbon credits or investing in the futures-like instrument? I'm just curious what the market is offering now to an investor who wants to allocate substantial amounts.

Paul Ezekiel: That's an interesting question. As far as a hedge fund appetite goes at the moment, we're seeing probably ten of the largest multi-strategy hedge funds with a dedicated strategy in carbon. They've done some of the earlier deals, taking some pretty interesting profit off the table, but they're finding it increasingly hard to compete. This is certainly the case in some of the more interesting P&L or margin opportunities which are really emerging market project focused. It's very difficult for a hedge fund, no matter how large the assets under management, to have access to these projects in the field. Increasingly they're coming to us looking for structured exposure to essentially take structured risk.

How deep is that market? It's hard to say. The new thing that we're starting to see is a few dedicated pure play carbon hedge fund deals which are smaller, probably $250 to $500 million in size, but in total it's probably a couple of billion dollars of dedicated capital. That's probably a good guess.

As far as a hedge fund appetite goes at the moment, we're seeing probably ten of the largest multi-strategy hedge funds with a dedicated strategy in carbon. [. . .] The new thing that we're starting to see is a few dedicated pure play carbon hedge fund deals which are smaller, probably $250 to $500 million in size, but in total it's probably a couple of billion dollars of dedicated capital.

Andy Ertel: I would say there's about $5 billion out there in terms of carbon funds, environmental funds, etc. There are very few, but an example of a successful one is RNK Capital, who closed their fund at $500 million. They've been closed for over a year and have a long waiting list, but they've had 90 percent plus returns for two, three years. There are a lot of folks out there that have long only-carbon funds. In some ways, with long-only carbon funds, why bother? These are complex markets. There's a lot of regulatory driven events. I think one of the things that you'll see is that these markets are going to continue to grow and grow in liquidity. Looking at some of the commoditized energy products, we see this is a huge growing business. The hottest sector of natural gas trading today, for example, is options. You go down to the floor at NYMEX and so much has gone electronic. The only growing pit down there is the options pit.

If you look at the EU allowance market, it's still very small in terms of options trading. One of the things that we are doing at the Green Exchange is that the first two years will be quarterly contracts, and we're going to have quarterly settles and options. That's an area that's really nascent and really does not have the level of trading expertise that you see in other places. There's a lot of activity in the funds that actually specialize in more commoditized businesses and trading opportunities because, to be quite frank, of the trading expertise in Europe in this very big growing market. The sophistication is not what you see in the world oil market or gas market.

I'm not sure I would say this in Europe, but it was not the top guys who got promoted to trade FX (foreign exchange), electricity, or gas. You have to understand that four years ago nobody took this market seriously at the European utilities. Now that's changing. Credit Suisse, for example, has come in and built a really good banking team in these markets along with a trading and execution team. That's one example of the kind of professionalization of these markets.

There are tremendous growth opportunities and there are a bunch of new up-and-coming managers out there. My old partner, David Candola, is launching a new fund and the reality is that the next wave of managers are coming in. Renewables trading is still nascent. A lot of these markets are very young with a lot of room to grow. There's a lot of opportunity.

QUESTION 3: Betterment of the environment

My question is geared mainly toward Martin. What steps are you taking so as to not focus purely upon profit making through carbon trading, and also include a focus on the betterment of the environment?

Martin Whittaker: At the moment, we don't trade credits directly. We're a growth equity fund. We're investing in businesses, and we're not a hedge fund. We feel that the better the environmental benefit of some of these companies, the better they are at solving the underlying problem of emissions reduction or energy efficiency and the better we'll get paid because that's really what's driving value. That's why this market is growing and that's why it exists. I don't see it as being a tradeoff. We do a lot of research, and we spend a lot of time understanding the fundamental trends affecting different segments of the clean energy industry and answering just those questions.

That's why we didn't make any biofuel investments in the last couple of years, and that's why there are other sectors that we've stayed away from. We didn't think the environmental entitlement was there. It's just a very strong focus of our analysis, and we track it with our portfolio companies, but we don't see it as being a tradeoff. We're totally profit-driven.

Benjamin Block: If I might add something to that, if you've watched the solar market for the last 18 months or so, what you've seen is this: a company comes out and announces that it's expanding its capacity and lowering its costs, and then the market rewards it with a giant increase in share price. This is just incentive-based behavior. You expand because you're going to get paid for it. One of the repercussions of this expansion has been that the cost of solar electricity has come down substantially. So if you take care of the economics, you'll get this market-based behavior and the environmental benefits will follow.

QUESTION 4: Role of financial engineering

Andy, it was interesting to hear Paul talk a little bit about CDO (Collateralized Debt Obligation) technology being implemented back in December. How much do you think what we've learned in financial engineering is going to help get this market to higher levels?

Andy Ertel: I really think that we're still in the very early stages of creative finance. A lot of what's gone on has been very bread and butter in terms of the sophistication of these markets. A number of the banks, for example, are working on securitization products. That's one aspect. The derivative markets are really just beginning. A lot of the contracts that we are coming out with are both on Green Exchange and physically settled contracts. The building of ETFs (Exchange-Traded Funds) and other product classes . . . we're really in the first inning of a nine inning game, and we know it's going to go at least nine innings.

What we really need now is for the legislators to listen to some of the market folks about how to build a simple and effective program. What scares me is the political engineering that's being talked about in Washington in terms of price caps, safety valves, and a federal reserve for carbon. When I start hearing that, I just think about political intervention and chaos in the market, and markets like certainty.

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Martin Whittaker: I'd like to make the point that the underlying risk in the delivery of some of the carbon credits and the project-based carbon credits is just not well

understood by most of the investors. We're still at the very early stage and a lot of the projects are underperforming. Landfill gas projects, for example, are underperforming because of insufficient engineering data on leachate collection and things like that. We're not getting the carbon credits that we thought we would. This is going to be a big asset class, but I still don't think a lot of the basic risks around delivery of project-based carbon credits have really been teased out yet. The worry is, of course, analogous to that of subprime mortgages. If we start to replicate that activity and don't learn from history, then we're doomed to repeat it.

We're still at the very early stage and a lot of the projects are underperforming. Landfill gas projects, for example, are underperforming because of insufficient engineering data on leachate collection and things like that. We're not getting the carbon credits that we thought we would. This is going to be a big asset class, but I still don't think a lot of the basic risks around delivery of project-based carbon credits have really been teased out yet.

QUESTION 5: Green building potential

I want to get your opinion on the potential for green building. I know Win mentioned the potential for sustainable buildings.[2] With energy efficiency, water efficiency, and waste reduction, there's so much potential to build an infrastructure with the energy and the environment in mind. It really is in need of capital investment at this stage and these types of projects are something that can be done today. By contrast, a lot of the other things are out into the future – we're still waiting for technologies, for example.

[2] Win Neuger, Chairman of the AIG Investment Group, spoke earlier in the evening at this event.

Andy Ertel: Absolutely true. I just got back from the United Arab Emirates where they're going to be building a city for something like 50,000 to 100,000 people that's going to have a zero carbon footprint. It will include everything from green roofs to water collection systems to composting to automatic systems that work so that when you go on vacation, your air conditioning automatically turns off in your apartment. That's on a very big scale.

QUESTION 6: Prospects for the Regional Greenhouse Gas Initiative (RGGI)

Will RGGI work?

Andy Ertel: I had very high aspirations for RGGI, and we were an advisor to Governor Pataki in the original design of RGGI. But to be quite frank, I'm a little bit scared about the 100 percent auctioning provisions that are now going into this. For background, basically every other emissions trading program to date has handed out an allocation of credits to the affected sources along with some auctioning. For example, the U.S. sulfur dioxide program initially had two and a half percent auctioning to ensure price discovery and liquidity because nobody knew what would happen in an emissions trading program since it was the first. There's now this groundswell for auctioning and New York State has taken the lead.

Here is the issue. Even though there's a small reduction in allowances and emissions under the cap during the first couple of years, we could get significant price shock in that because there's no allocation. The market is only two percent short, but in reality, every unit is 100 percent short at the outset. What happens if the 200 people in this room represent 200 hedge funds, participate in the auctions, and tie up, as speculators, a large amount of the carbon that will be available? Are we going to turn the power off? No. The concern is that this is a little bit of an experiment at a time when RGGI has the possibility to do for regulated carbon in the U.S. what California did for deregulation of the power markets. That scares me quite a bit because this is a very important mission that we're all on, and it's very important that all of us in the financial community play a role in its success. When you start putting in price caps and getting highly experimental, it just makes me nervous.

Martin Whittaker: My sense is that RGGI is going to probably kick off just fine, but that it will be superseded by a federal program. It reminds me a little bit of the U.K. Emissions Trading Scheme which was just enveloped by the EU Emissions Trading Scheme (EU ETS). At this point, the only presidential candidate that I knew that wasn't in favor of cap-and-trade was Giuliani, and he's now out of the race.

CLOSING REMARKS

Bradford Gentry: We've got a very complicated market in its very early stages. It sounds like opportunity to me – lots of opportunity for financial institutions to speak with each other about how to do this. I think most importantly though, are some of the last comments about regulation; the policy community needs to hear from you all. To the extent that markets are going to be built to last, the message needs to come from the investment community because the scale of the change that's needed globally is going to require massive shifts in long term investment. Insights from all of you into that process for policy makers will be critical, and that's why we're delighted to be part of this kind of a conversation today between the state and the hedge fund industry.

We've got a very complicated market in its very early stages. It sounds like opportunity to me – lots of opportunity for financial institutions to speak with each other about how to do this. I think most importantly though, are some of the last comments about regulation; the policy community needs to hear from you all. To the extent that markets are going to be built to last, the message needs to come from the investment community because the scale of the change that's needed globally is going to require massive shifts in long term investment.