Carbon as a New Asset Class

Wednesday, April 26, 2006
10:35 a.m. – 11:50 a.m.
The Carbon Disclosure Project (CDP) provides a secretariat for the world's largest institutional investor collaboration on the business implications of climate change.

Institutional investors collectively sign a single global request for disclosure of information on Greenhouse Gas Emissions.

CDP has historically sent this request to the largest companies in the world.
Requests sent to each company in The Financial Times Global 500…
  – 71% of the contacted companies responded

…on behalf of 155 investors with assets of $21 trillion
  – The number of participating investors doubled from 2004 to 2005
Carbon Disclosure Project

Results

• **Investment in clean technologies has risen**
  – Companies are seeking to hedge their exposure to potential increases in carbon costs

• **Awareness of climate change has increased, but action is lagging**
  – More than 90% of respondents listed climate change as a corporate risk or opportunity
  – Less than 40% have begun to participate in emissions trading
  – Most companies in the FT500 are not actively reducing emissions
Vintage 2003 Carbon Trading Price

Chicago Climate Exchange

USD Per Ton CO₂
Financial Incentives for Companies to Reduce Emissions

- **The threat of litigation**
  - In the U.S., Europe, Australia and Africa, lawsuits similar to those against tobacco and asbestos are possible

- **Increasing insurance costs**
  - According to the Association of British Insurers, the costs from hurricanes, typhoons and windstorms will rise from $16 billion to $27 billion per year by 2080

- **Shareholder activism**
  - Through movements like the Carbon Disclosure Project, investors are pushing for disclosure and reductions

- **Emissions trading**
  - Conducted by companies and investors through EU Emissions Trading Scheme and the Chicago Climate Exchange
Managing Climate Change Can Affect a Firm’s Performance

- **Guenster et al. (2005):** Environmental factors were relevant to firm performance for 1996-2002
  - Companies with a high eco-efficiency rating had a higher valuation
  - Eco-efficiency was also positively associated with ROA

- **Dowell et al. (2000):** There is a significant and positive relationship between a firm’s market value and level of environmental standard
  - S&P 500 manufacturing and mining companies operating in developing countries from 1994-1997
  - Market value measured with price/book ratio
Dramatic Growth in Institutional Ownership of U.S. Equity

Percent of Total Equity

- Individual Investors
- Institutional Investors

<table>
<thead>
<tr>
<th>Year</th>
<th>Individual Investors</th>
<th>Institutional Investors</th>
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<tbody>
<tr>
<td>1945</td>
<td>90</td>
<td>5</td>
</tr>
<tr>
<td>1970</td>
<td>85</td>
<td>30</td>
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<tr>
<td>2005</td>
<td>65</td>
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Shareholder Advocacy

- **Long-term engagement with company to facilitate change**
  - Convinced drug store chains to stop selling mercury-filled thermometers

- **Dialogue with corporate management**
  - Recently 38,000 individual investors wrote letters to Fidelity and Vanguard, urging them to carefully consider the issue of global warming

- **Proxy-voting**
  - Mutual funds own large percentages of a corporation and vote on issues like executive pay
  - Votes must be disclosed
U.S. Shareholder Resolutions

Climate Change

<table>
<thead>
<tr>
<th>Year</th>
<th>Filings</th>
<th>Withdrawals</th>
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<td>2005</td>
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Carbon Funds

• Public and private entities that seek to mitigate climate change
  – Invest in projects to create credits for reductions in emissions of greenhouse gases

• Originated with the World Bank Prototype Carbon Fund in 2000
  – Joint effort among 6 governments and 17 companies with $180 million in funds

• Currently more than 50 carbon funds and carbon-tender programs with more than $1.5 billion in capital
Scale of CCX Thus Far

- CCX total emissions baseline of 226 million metric tons CO$_2$e is equivalent to the United Kingdom’s annual allocation under the EU trading system and would make CCX one of the largest “countries” in the EU CO$_2$ market.

- CCX total emissions baseline thus far is equivalent to 4% of the United States annual GHG emissions and 8% of U.S. Stationary emissions.

- Total reductions thus far in the CCX program are roughly equal to 1/3 the annual emissions of Norway.
CCX Trading Highlights to Date

- Total allowances transferred: 6,063,400 metric tons carbon dioxide.
- Average daily trading volume: 27,328 metric tons carbon dioxide.*

Select Cumulative Market Summary

<table>
<thead>
<tr>
<th>Vintage</th>
<th>High</th>
<th>Low</th>
<th>Last</th>
<th>Volume</th>
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<td>$0.73</td>
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<td>$4.65</td>
<td>$4.00</td>
<td>$4.40</td>
<td>56,100</td>
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<td>$4.60</td>
<td>$4.00</td>
<td>$4.40</td>
<td>43,600</td>
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<td>2010</td>
<td>$4.60</td>
<td>$4.00</td>
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Total 6,063,400

*Average volume based on 2006 trading
Data based on 592 trading days from December 12, 2003 – April 19, 2006
Big Picture Results From CCX

• Breakthrough Pathway: Carbon now has an initial price in a rules-based program in the world’s largest economy

• North American entities with verifiable GHG emission reductions now receive revenue for that environmental service

• Entities that do not incorporate carbon prices in their decisions risk major mistakes, and lose benefits

• CCX framework is synergistic and complementary to all policy options and precludes no other reduction or registry initiatives--local, regional, state or Federal

• CCX shaping and influencing emerging global market and post 2012 harmonization
European Climate Exchange
As of April 2006

- ECX has emerged as the most liquid Exchange in the EU ETS
- ECX volume over 196 million metric tons
- ECX accounts for 75% of total exchange traded volume in the EU ETS
- ECX Accounts for 35% of the total market on EU ETS
- ECX CFI Contracts are the most successful contract listed on ICE futures in over a decade

Market Share of ECX vs. Other Exchanges
Stark Investments

Assets Profile for Stark Investments’ Family of Funds

Assets Under Management (mm)
as of March 31, 2006

$8.074 billion
Total Assets Under Management

Founded: 1992
Locations: Milwaukee, London, Hong Kong, Chicago, Toronto, New York, San Francisco
Employees: 244 (10 principals)
- Portfolio Managers (includes 3 principals): 49
- Other Investment Professionals: 77
- Investor Relations: 8
- Back Office / Accounting (includes 1 principal): 48
- Administration: 13
- Information Technology: 41
- Legal / Compliance: 10

Stark NatCat Offshore Fund
Natural Catastrophe Risk-Linked Securities
$106

Stark Strategic Cat Fund Ltd.
Risk-Linked Securities
$33

Stark Multi-Strategy Arbitrage Fund
Multi-Strategy Insurance U.S. Domestic Investors
$12

SQI Currency Fund
Quantitative Long/Short Currency Fund
$100

Stark Investments, L.P.
Domestic Multi-Strategy
$1,951

Shepherd Investments International Ltd.
Multi-Strategy for Normal/SF
Tax-Efficient Investors
$5,426

Stark Structured Finance Fund
Offshore & Domestic
$181

Stark Asia Fund
Multi-Strategy Offshore & Domestic
$239

Stark Al-Noor Fund
Quantitative Equities Long/Short Islamic SRI
Carbon as an Asset Class

• Stark Investments shares the view that we are in a carbon constrained world
• When… not if…
• Carbon is an element of the valuation of a company
• There is substantial opportunity to be part of this market as it evolves (the proposal, the process and the program)
Stark Investments’ Perspective of the U.S. Carbon Market

- National mandate, consistent with current proposals
- Should follow the same evolution as the EU ETS
- Trading platform already exists (CCX)
- Will have the same volatility profile as the Kyoto emission credits
- Price signal
Stark Investments’ Role in this Market

- Work to integrate a public policy initiative into a capital market
- Liquidity provider
- Shape legislation and trading programs
- Be involved in the education process
- Work to solve a problem that MUST be solved
Long Term Outlook

• Cooperation among U.S. companies, regulators and legislators
• Sustainability based on the strength of compliance and a high degree of fungibility with other carbon programs
• Wide variety of carbon reducing projects in all sectors of manufacturing and production
Oakland Facts
(2000 Census Results)

- Population: 399,484
- White: 31.3%
- Black: 35.7%
- Asian: 15.2%
- Hispanic or Latino: 21.9%
Oakland Fights Global Warming

• **Renewable energy source use**
  – Oakland is seeking to achieve 40-50% of its energy portfolio from renewables by 2017

• **Savings by design lead incentive pilot**
  – Oakland is the first California pilot community in PG&E’s “Savings by Design” Program

• **Alternative fuels for vehicles**
  – There are four stations in Oakland that currently, or will soon, provide alternative fueling options
Oakland Fights Global Warming

- **Community choice aggregation**
  - Refers to the opportunity for local governments to purchase electricity on behalf of its residents

- **Leader in promoting infill development**
  - Oakland is on track to bring 10,000 new residents into the transit-oriented, mixed-use downtown
Carbon Trading & Oakland’s Bottom Line

- Direct emissions from the fleet and building heating are 19% lower in 2004 compared to the baseline period of 1998-2001.
- Electricity emissions are down by 3.2% (compared to a commitment of 2%) relative to the baseline period.
- Preliminary data suggest that the City of Oakland will be a “seller” of greenhouse gas allowances on the CCX.
Regulation of Pollutants

• **Four major pollutants**
  – SO$_2$, NO$_x$, Mercury, CO$_2$

• **Regulation is fragmented**

• **Federal regulation has been in place for SO$_2$ and NO$_x$ under the Clean Air Act**

• **There is no regulation of CO$_2$ at the federal level at this time**
Environmental Regulation

Effect on Credit Profiles

• Increasing CapEx
• Rising allowance/credit prices

• Leading to:
  – Higher energy costs
  – Increased leverage
  – Lower profit margins
• **Who is responsible for compliance?**
  – SO\textsubscript{2}, NO\textsubscript{x}, Ng and CO\textsubscript{2} – the generator
  – Renewable requirements – the load servicing entity

• **Who pays?**
  – Open Access States - the generator
  – States with vertically integrated utilities?

• **Most vulnerable?**
  – Generators in deregulated states
  – Companies with weak credit profiles
Value of Emission Allowances

- Buys time
- More coordinated CapEx plans
- A market price for compliance!
- A market price for compliance?
  - The price of uncertainty
  - The price of time
  - The price of alternative fuels
CO₂ Regulation

Not if but when

• Fitch believes that there will be a carbon law at the federal level; however, it may be a number of years off

• Increasing number of state regulators are placing a cost on carbon in rate making proceedings

• RGGI (the template for a federal law?)

• More traditional Wall Street investors are now looking at carbon issues

• Desire of industry participants to reduce regulatory risk by reducing uncertainty
Anticipation of a Carbon Constrained Environment: Current Industry Response

• Proposals to construct clean coal plants are before a number of state regulatory commissions

• Buy Carbon Credits – Chicago Climate Exchange

• Estimate and inform Investors as to possible costs (for example studies done by AEP and Cinergy)
Challenges for CO₂

• The power industry will need economically feasible CO₂ emission control technology
• The development of these devices will be challenged by:
  – The time horizon for investors and developers
  – The time horizon for electric power generators
  – A realistic estimate for the price of “carbon” is challenged by the lack of US regulation
    • Ultimate market size
    • Uncertainty of
      – Timing
      – Regulatory framework