

## **CarbonNation:**

A discussion on alternative investment opportunities in the European Union Emission Trading Scheme (EU ETS) and Clean Development Mechanism (CDM) Projects

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The green house gas (GHG) markets are an emerging and rapidly growing asset class. Although these markets are only recently emerging, they are developing rapidly and global interest is increasing daily. As the start of the Kyoto Protocol's first official commitment period is rapidly approaching, there are still a handful of uncertainties surrounding these emerging markets: Has the EU adjusted their allocation models appropriately to avoid another April 2006? Then, the price of emissions plummeted nearly 65%, as a response to the announcement that the EU had over allocated allowances, creating an oversupplied market. What is the future of these markets post 2012, which marks the end of the Kyoto commitment period? These are all questions that are being asked but have no black and white answers. Yet, despite these uncertainties, global investors are seeking this exposure. For those who follow alternative investment strategies, it should be no surprise that these uncertainties, for some, create opportunities. Currently these opportunities are being expressed through strategies that range from quantitative programs to more private equity-like structures.

### **Background**

Before discussing these strategies, it is necessary to discuss the structure of emission markets. In addition to the universal "green" movement, the Kyoto Protocol is the main catalyst driving these markets. In summary, the Kyoto Protocol is an agreement between most European Nations and other nations (not including the United States) throughout the world to reduce net emissions by a collective average of 5% of 1990 levels by 2012. Countries who signed the treaty are segmented into two different groups: developed countries (referred to as Annex 1 countries) and developing countries (referred to as non-Annex 1 countries).

Each Annex 1 country is allocated a certain amount of emission credits from the United Nations, known as Assigned Amount Units (AAUs), which represent the amount of gasses it is allowed to emit. In order to meet its limits, an Annex 1 government is allowed to trade these AAUs with another, dependent on its need. However, the number of AAUs is very limited and represents a minute portion of the emission trading activity.

In Europe, a much larger "cap and trade" market has been created as a derivative of these AAUs, called the European Union Emission Trading Scheme (EU ETS). In a "cap and trade" market, the responsibility of reducing emissions is placed on companies, with each company allotted a predetermined amount of emissions, called EUAs. The EUA allotment is based on the company's historical emission profile. As with AAUs, companies are able to trade these EUAs in the open market depending on their needs. Companies can also invest in "green" technology to meet their emissions requirements.

On the other hand, non-Annex 1 countries are not obligated to reduce emissions, but are encouraged to participate in the global emission markets through Clean Development Mechanism projects (CDMs). CDMs allow companies from Annex 1 countries to invest in emission reduction activities in companies of developing countries. If an Annex 1 company were to implement a CDM strategy, the number of credits that are reduced (Carbon Emission Reductions or (CERs)) can be used to offset their emission limits in the EU. Although technically different than the EUA, CERs can be used against emission limits.

## **Opportunities**

Currently, the most liquid strategy is the actual trading of EUAs in the EU ETS. EUA contracts range from spot contracts to annual contracts, with most of the volume currently in the annual contracts. There are four primary exchanges where the majority of the trading takes place:

- The European Climate Exchange
- PowerNext
- Nord Pool
- the European Energy Exchange. (Each exchange is located in a different region of the EU and thus participants' needs differ across the exchanges)

Intuitively, there seems to be an inherent arbitrage opportunity created by this structure, since each exchange is driven by different fundamentals. For example, the Nordic market is very dependent on hydro energy; therefore, in a dry year, the use of other, more pollutant energy sources may increase, raising the short term price for EUAs on Nord Pool. All things remaining equal, one could buy cheaper EUAs on the PowerNext exchange while selling expensive EUAs on Nord Pool, taking advantage of the price spread. Results are mixed. Some managers feel this arbitrage play exists and is abundant enough to trade, while others feel that the opportunities are too minimal to exploit. Regardless, the general consensus is that in order for a manager to completely focus on this trade, it would take deep pockets and a well-staffed team to capitalize on the short-term opportunities that may arise.

Another strategy is to implement a quantitative approach, building a model that trades on price inputs. While this approach has existed for a long time in other markets, it may be hard to get comfortable with price models built for these markets, which offer limited historical price data to construct systems. Setting aside price, these markets are still in their development stage and are very susceptible to price shocks - shocks that would be unforeseen by any price models. An example is April 2006. This move could have been undetected by historical price models. While a systematic approach might be profitable, until more well-mature, the risk of unforeseen market shocks is much higher than in other developed markets.

On the discretionary side, managers may trade EUAs based on their fundamental forecast derived from proprietary supply and demand models. Better managers will likely have

the capability of expanding their research across multiple variables underlying these markets. A manager must possess deep knowledge of the power and energy markets, as the demand for EUAs is greatly influenced by the activity in these markets. For example, if the price of gas increases, companies may switch to coal (which is more pollutant) as their primary energy source, increasing the demand for EUAs. Factors such as weather also have a significant impact on the demand for EUAs, as energy consumption is highly correlated to weather patterns. To complicate things even further, these markets are relatively non-transparent, as a majority of the EUA trades are done over the counter. Thus, if a manager does not include this activity into his supply/demand models, the results would be misleading. Fundamental managers are also susceptible to political turmoil and emission allocation risk. Better managers may adapt their models quickly, allowing them to adjust trades accordingly to any shock that may occur. Whether it is through an extensive staff or a broad list of contacts, a manager needs to be tied into all the moving variables in order to trade the markets effectively.

Moving away from the exchanges to the less liquid opportunities, one of the most appealing trades may be in the CDM market. Since CERs can be used in replacement of purchasing EUAs, there is an obvious arbitrage opportunity inherent in this structure, as CERs can be purchased at significant discounts to EUAs. Hedge Funds have identified these opportunities and are getting involved in the CDM space by sourcing CDM projects with companies in developing countries and then selling the CERs at a premium in the EU. Getting a CDM project and the underlying CERs verified is a very complex and time intensive process, usually taking between 3-5 years before the first CER is produced. Because of this time lag, a manager must be well staffed and highly experienced in structuring these deals. As the market matures, the so called “easy” projects will be absorbed and managers will have to become more creative in their approach to finding and funding valuable projects. Underlying these markets are a handful of risks including counterparty risk, delivery risk, timing risk, political risk, and price risk. These risks partially account for the discounted price of CERs. Because of the breath of risks involved, a well diversified portfolio of projects, in terms of type, maturity, and location may be more appealing than a highly concentrated portfolio.

## **Conclusion**

From afar, the different strategies seem to be relatively straightforward. However, due to the complexity of the underlying markets, the nuances may not be apparent to most observers. The most suitable managers may be those who bring substantial experience in the emissions and underlying markets, as well as a rich list of networks spread across the different markets to assure a heavy information flow. It is difficult to say which approach is the best; however, a portfolio with exposure to both fundamental trading and CDM projects may provide a long term directional bet on the price of carbon while also the flexibility to take advantage of short term volatility. Whether or not these opportunities will be available after 2012 is unknown. Despite these uncertainties, demand for exposure to these markets is rapidly increasing.

Just as the emissions markets are likely to evolve as they mature, alternative investment strategies are likely to evolve in complexity and sophistication as well. As with any emerging market environment, it is up to the investor to assess the issues and decide whether the opportunities are worth the uncertainties.