Operating in the carbon markets – Compliance strategies for Airlines

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Merrill Lynch

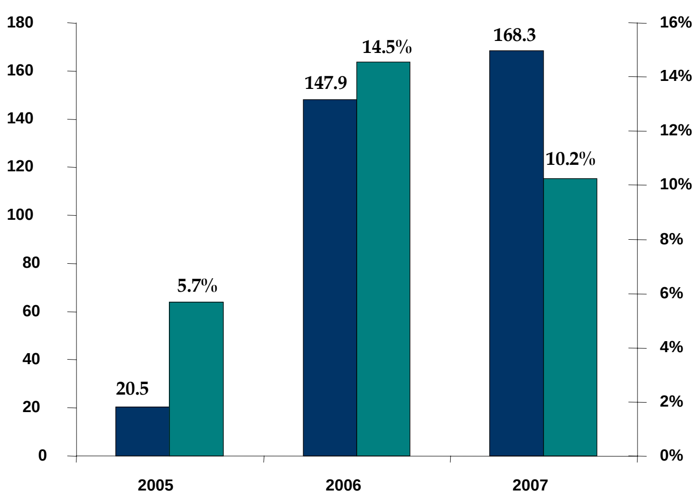
Global Markets & Investment Banking Group

Carbon Emissions Overview

Merrill Lynch Market Coverage

- Merrill Lynch is a leading dealer in the carbon emissions market providing spot and forward market-making as well as risk management and hedging services for clients
- Active participant in market providing significant liquidity with > 450 million tones of EUAs already traded
- Merrill Lynch is active in both CER and ERU carbon credit markets
- Trades on a financial, physical and cross commodity basis
- Provides innovative product solutions such as repos, options and structured emission notes
- Launched an initiative in the voluntary markets

ML Expertise: Mio of EUA traded and Market Share



Carbon Emissions Overview

Products Traded

- Trades on exchange and OTC, Physical and Financially settled
- Carbon trading allowances for EU ETS
- Primary and Secondary CERs and ERUs (Kyoto)
- Cross-commodity products – weather/emissions, coal/emissions, Clean Dark/Spark Spreads
- *Merrill Lynch Green & Gold*SM: innovative full-service climate change solution with a strong focus on sustainability and high quality offsets

Tenure

- Forward contracts trade as individual years – delivery in December each year

Liquidity

- Global Carbon Markets were worth US$62.6 billion in 2007 with 2.7 billion tonnes of CO_2e trading
- The EU ETS accounted for 61 per cent of the volume and about 70 per cent of the value
- EU ETS saw 1.6 billion tonnes of CO_2 transacted, worth US$43.6bn.

Market Structure

- To comply with the Kyoto protocol, EU adopted the European Emission Trading Scheme (ETS)
- Clean Development Mechanism and Joint Implementation are two project-based mechanisms that enable developing and transition economies to participate in emission reducing projects and benefit from technology transfer
- CDM and JI projects earn credits, called Certified Emissions Reductions (CERs) or Emission Reduction Units (ERUs) that can then be traded internationally
- Voluntary market (VERs) has been growing fast fostered by demand from companies with no compliance requirements

Fundamental Drivers

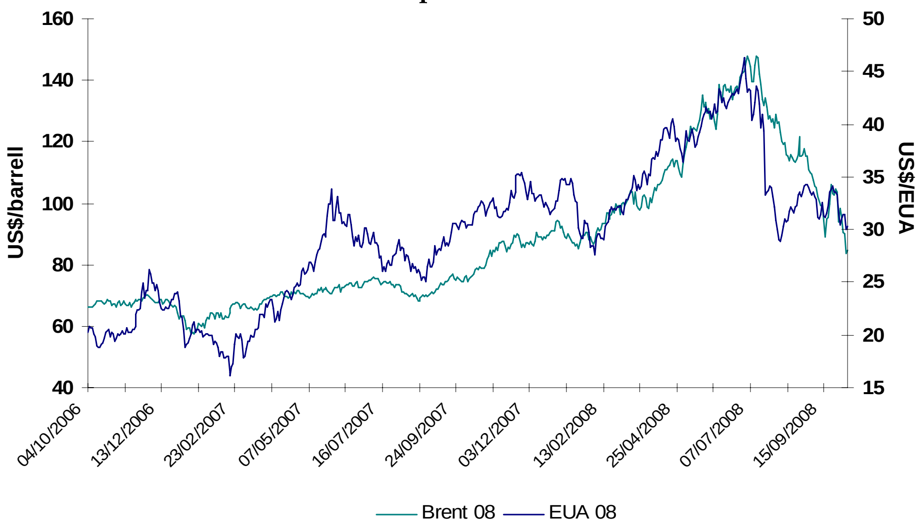
- Weather, input fuel prices, regulation, polictics
- Implied long/shorts from Member State NAPs

Aviation in the EU Emissions Trading Scheme

Aviation & Emissions

- Emissions from aviation are growing faster than those of any other industry in the EU
- At current, the increase in energy efficiency is unable to cope with the growth in air traffic leading to higher carbon emissions from aviation
- GHG emissions from air traffic is less than 3% overall, but rapid growth offsets reductions in other sectors
- Correlation between emissions and commodities is increasing (see graph below)
- The EU published its initial proposal for a directive to include aviation to the EU Emissions Trading Scheme in 2006 and the EU Parliament and the Council reached a compromise agreement in July 2008

Brent & EUA prices 2006-08(1)



(1) *Price data from Bloomberg*

EU Regulation to include airlines into the EU Emissions Trading Scheme

- **Applicability:**
  - Intra-European and international flights from 2012
  - Exemption: airlines flying less than average 2 flights per day or emitting less than 10,000 tonnes of CO_2 per year
- **Supervision:**
  - Emissions license will be required from every airline flying into or within the EU: issuance and supervision from country that issued the operating license
  - Non-EU airlines to be supervised by countries where airlines fly most into
- **Cap:**
  - Based on 2004-2006 annual average emissions: 97% in 2012; 95% from 2013 onwards
- **Allowance Distribution:**
  - Allocation based on revenue-tonne-km (RTK): default 100 kg/passenger
  - 85% of allowances grandfathered; 15% of total allowances will be auctioned: up-front cost
  - 3% special allowance for: new airlines joining the scheme; fast-growth airlines (+18%/year traffic growth)
- **Kyoto Access:**
  - CER and ERUs of up to 15% of emissions for the period from 1 January 2012 to 31 December 2012

Key features of the proposed EU Regulation

Estimated cost sensitivity to key drivers

- Merrill Lynch Research estimated three key cost sensitivities for airlines in relation to their inclusion into the EU Emissions Trading Scheme(1):

  1. **Change in rate of growth in emissions**:
     - a 1.0% change in the level of emissions in 2015 would increase/decrease the costs of purchasing credits/auctioning by c.1.4% for the low cost carriers
     - a 1.0% change in the level of emissions in 2015 would increase/decrease the costs of purchasing credits/auctioning by c.3% for the mainline carriers
     - Incentive to reduce emissions
  2. **Change in carbon credit price:**
     - a EUR 1.0 rise/fall in the carbon credit price/auctioning price in 2012 would increase/decrease the costs of purchasing credits/auctioning by c.3%;
  3. **Change in level of auctioning:**
     - a 1% rise in the level of auctioning required to be purchased (currently 15%) in 2012 would increase costs by c.2.5%.

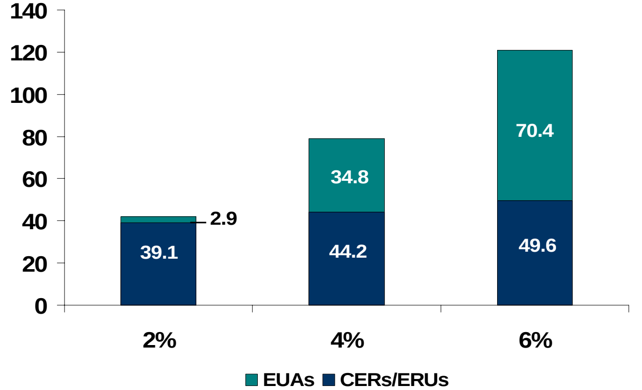
(1) *Merrill Lynch Research: Aviation in EU ETS; an incentive for efficiency, 8 September 2008*

Practical implications and recommendations for airlines

Potential Demand[1]

- 2012 emissions: 296 $MtCO_2e$
  - Allocation (97%): 217 $MtCO_2e$
  - Expected shortfall: 79 $MtCO_2e$
  - If 15% Kyoto limit used: 44 $MtCO_2e$ CERs (€924 mln); 35 $MtCO_2e$ EUAs (€1.05 bn)
- 2013-2020 accumulative shortfall: approx. 1,216 $MtCO_2e$ (assuming 4% annual growth in air traffic)
- 2013-onwards: 95% cap may be revised

Potential EUA & CERs/ERUs demand for three air traffic growth scenarios[2]



Recommended approach: carbon risk to be integrated into risk management

- Quantify the problem: Understand the potential carbon and monetary liability of your company
- Analyze possible technological and efficiency improvements
- Develop the internal capabilities for carbon trading and engage with your clients on the issue, e.g. through a offset purchase program
- Use cost-effective market solutions to reduce compliance costs:
  1. Consider innovative hedging mechanisms involving carbon and oil to protect your company against 2012 EUA price spikes
  2. Engage in primary (early stage) CER and ERU projects to reduce compliance cost
  3. Develop long-term EUA procurement and trading strategies

(1) Point Carbon
(2) Merrill Lynch based on Point Carbon data

Bespoke carbon emissions offering for airlines

Offset Purchase Program

- Merrill Lynch offers a full-service climate change solution with a strong focus on sustainability and high quality offsets
- Carbon services for pre-compliance period
- Origination and packaging of Verified Emission Reductions (VERs) – voluntary market
- Client reputation protection through VERs with highest sustainability attributes
- *Merrill Lynch Green & Gold*℠ services to airline clients:
  - Design passenger carbon footprint removal program
  - Source VERs from specific industries, for instance, sustainable transportation and/or biofuels
  - Design pilot program based on VERs as a preparation for EU ETS 2012
  - Manage VER portfolio

Combined fuel and emissions hedge

- ML can combine the hedging of Jet Fuel and EUA price risks into one product
- ML can structure derivatives on a EUR or USD denominated basket comprising of the respective weights of fuel and EUAs
- Key benefits are:
  - the correlation between oil and EUA will reduce the cost of options on the basket relative to options on the individual underlying commodities
  - ability to reflect a specific view/exposure through a more structured derivative
- Examples:
  - zero-cost collar on a basket of Jet Fuel + Dec12 EUA the underlying formula for the basket would include the ratio of net short/long EUA related to 1MT of Jet Fuel consumption

Bespoke carbon emissions offering for airlines (cont'd)

CER and ERU procurement strategies

- CERs and ERUs are generated through two project based mechanisms under the auspices of the UNFCCC
  - Typically, CERs and ERUs are purchased on delivery
  - Primary CERs and ERUs do not contain a delivery guarantee, i.e. the buyer is taking delivery risk but receives the credits at a discount
  - Guaranteed CERs contain a delivery guarantee however they are priced closer to the EUAs,
- Merrill Lynch can help to access the primary and secondary market and design an efficient CER and ERU procurement strategy:
  - Origination of stand-alone transactions
  - Structuring of both CDM and JI related carbon risk through CER portfolio sales or tranches in CER portfolios
  - Credit sleeves for CER/ERU transactions
  - Trading of guaranteed CERs
  - EUA/CER swaps

EUA procurement strategies

- Transaction services
  - Clients can access the market through Merrill Lynch in order to manage their EUA exposure
- Financially Settled Swaps and Options
  - Swaps can be used to hedge against price movements without losing the benefit of ownership and also removing exposure to physical settlement
  - Options allow exposure to be managed more flexibly
- Cross-commodity services
  - It will be possible to combine Merrill Lynch's ability to trade gas, power, coal, oil and weather with EUA to provide consolidated risk management
- Structured financial solutions
  - Merrill Lynch already offers solutions in many areas of energy and non-energy risk management, including fixed income, strategic, credit, foreign exchange. We would welcome the opportunity to discuss our current capabilities in conjunction with your emissions trading requirements

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