Commodity Trading Strategies, Common Mistakes, and Catastrophic Blowups

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CEM2017: COMMODITY AND ENERGY MARKETS 2017

15 de junio de 2017

Summary 1

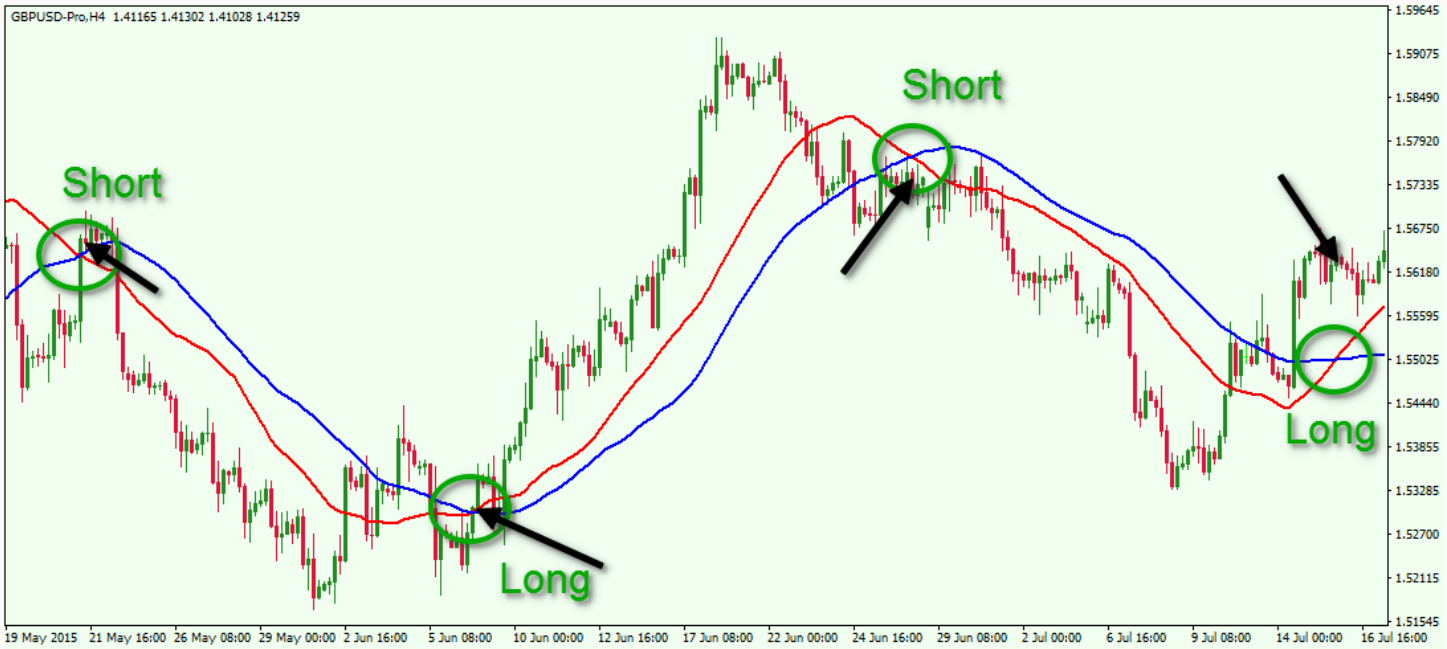
- The authors consider different commodity trading strategies to underline observed common trading failures
- Explain different investment profiles of CTA, namely discretionary and trend following
- Provide a comprehensive tour of the obscure side of commodity markets. They concentrate on two trading strategies: trend following and calendar spread strategies
- Discuss lessons from recent trading debacles such as the Amaranth case

Comments

- Nice and clear paper.
- The paper addresses highly important issues
- Described by a very experienced practitioner

Trading Methodologies: Trend followers

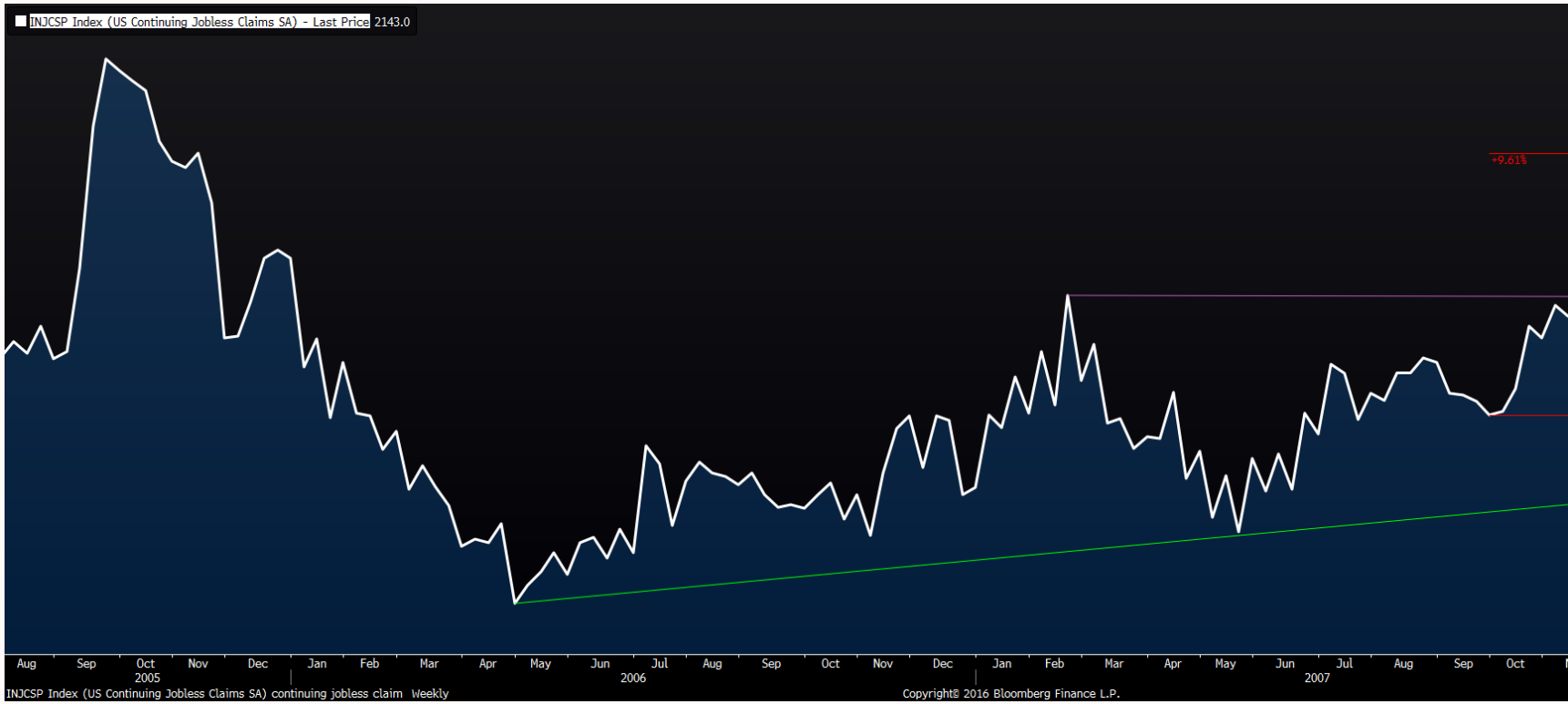
- Traders may be trend followers or discretionary
- Trend followers use automated programs to screen the markets using various technical factors to determine the beginning or end of a trend across different time-frames



- Trend followers (system traders) are rule based

Trading Methodologies: Discretionary traders

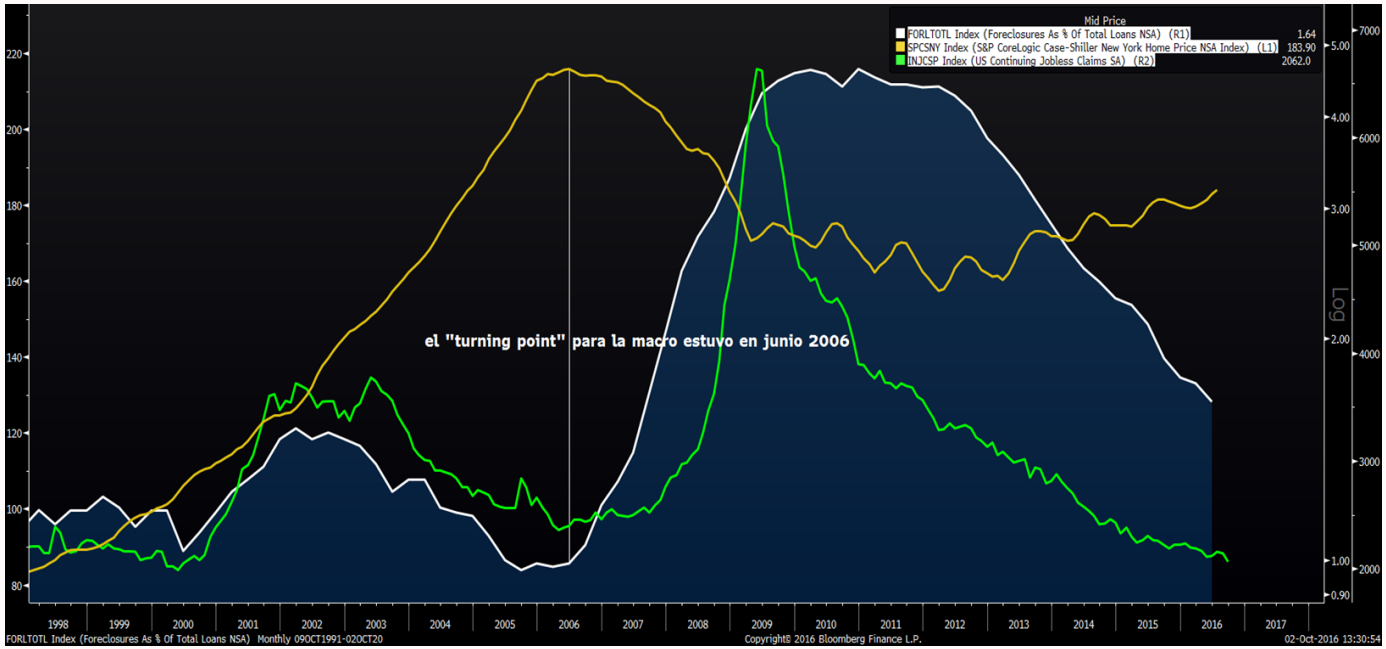
- Discretionary trading is a decision based trading
- The trader decides based on
  current market conditions reflected in fundamental data



of US initial jobless claims

Discretionary traders and US fundamental data

- They tend to trade more concentrated portfolios and use fundamental data to assess the markets
- For instance, US macro data can be used to design strategies or to take short positions when the data signals deterioration of market conditions.



Us jobless claims, mortgage foreclosures, Shiller index

Discretionary traders and the Business Cycle

- And this can be combined with technical analysis to improve the timing
- For instance traders use technical analysis to determine the stage of a give trade within the US business cycle

Discretionary traders and the Business Cycle

- According to Burns and Mitchell, the business cycle is a type of fluctuation found in the aggregate economic activity of nations that organize their work mainly in business enterprises:
- A cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals, which merge into the expansion phase of the next cycle.

Momentum based strategies

- Is momentum really persistent?

Table 20.1. Hypothetical Performance of Time Series Momentum

The table shows the "strategy performance after simulated transaction costs both gross and net of hypothetical 2-and-20 fees."

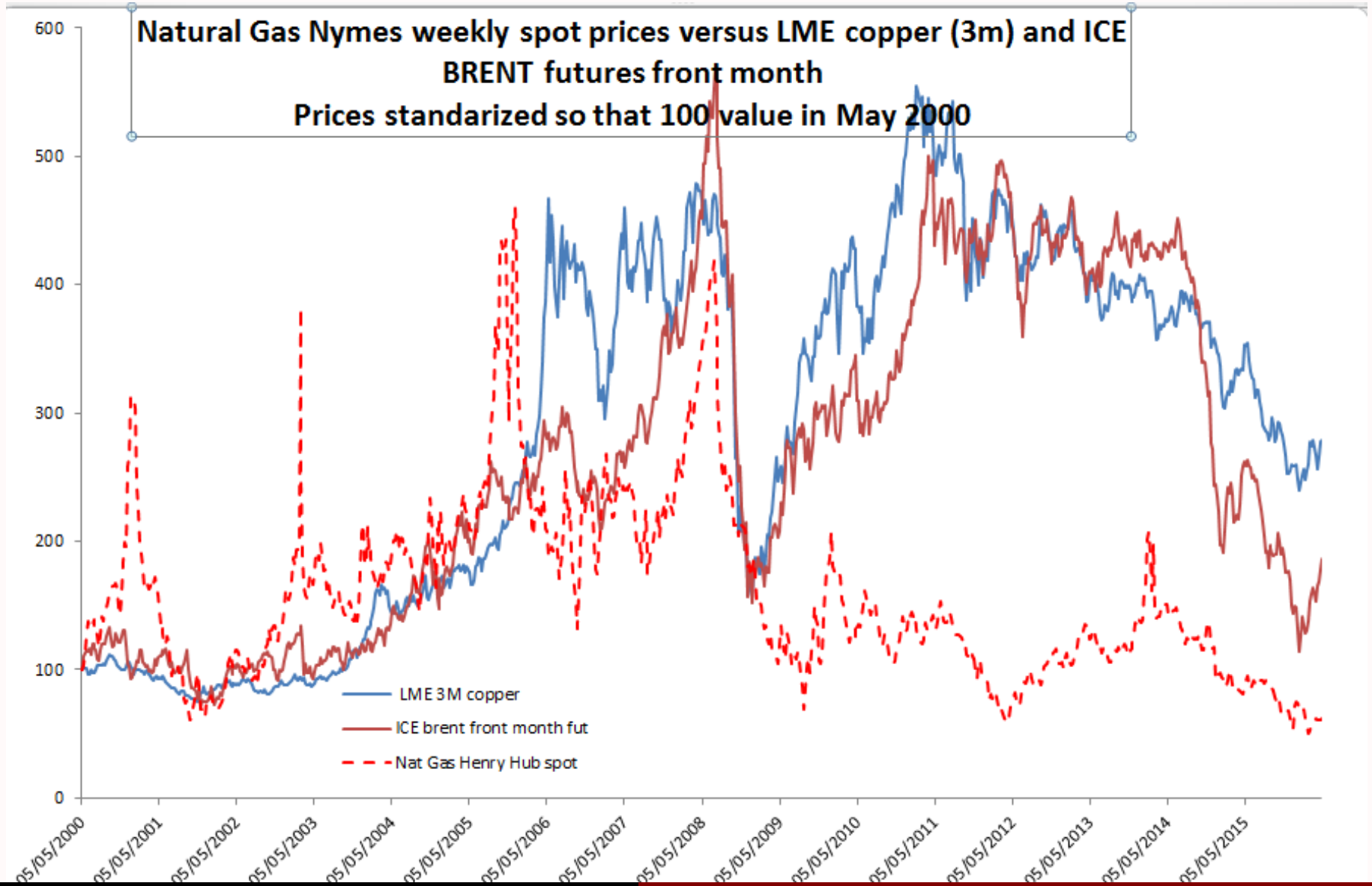
Time Period	Gross of Fee Returns (Annualized)	Net of 2/20 Fee Returns (Annualized)	Realized Volatility (Annualized)	Sharpe Ratio, Net of Fees	Correlation to S&P 500 Returns	Correlation to US 10-year Bond Returns
Full Sample:						
Jan 1903 - June 2012	20.0%	14.3%	9.9%	1.00	-0.05	-0.05
By Decade:						
Jan 1903 - Dec 1912	18.8%	13.4%	10.1%	0.84	-0.30	-0.59
Jan 1913 - Dec 1922	17.1%	11.9%	10.4%	0.70	-0.12	-0.11
Jan 1923 - Dec 1932	17.1%	11.9%	9.7%	0.92	-0.07	0.10
Jan 1933 - Dec 1942	9.7%	6.0%	9.2%	0.66	0.00	0.55
Jan 1943 - Dec 1952	19.4%	13.7%	11.7%	1.08	0.21	0.22
Jan 1953 - Dec 1962	24.8%	18.4%	10.0%	1.51	0.21	-0.18
Jan 1963 - Dec 1972	26.9%	19.6%	9.2%	1.42	-0.14	-0.35
Jan 1973 - Dec 1982	40.3%	30.3%	9.2%	1.89	-0.19	-0.40
Jan 1983 - Dec 1992	17.8%	12.5%	9.4%	0.53	0.15	0.13
Jan 1993 - Dec 2002	19.3%	13.6%	8.4%	1.04	-0.21	0.32
Jan 2003 - June 2012	11.4%	7.5%	9.7%	0.61	-0.22	0.20

Adapted from Hurst et al. (2012), Exhibit 1.

Calendar spreads in the gas market

- Seasonality implies that summer and fall gas contracts trade at discount to the winter contracts (one year term structure is in contango)
- The markets provide a return for storing natural gas. An owner of the storage facility can buy the summer natural gas and simultaneously sell winter natural gas via the futures markets
- The paper discusses the drawbacks from taking the other side of this strategy **bear calendar spread**

Natural Gas Prices

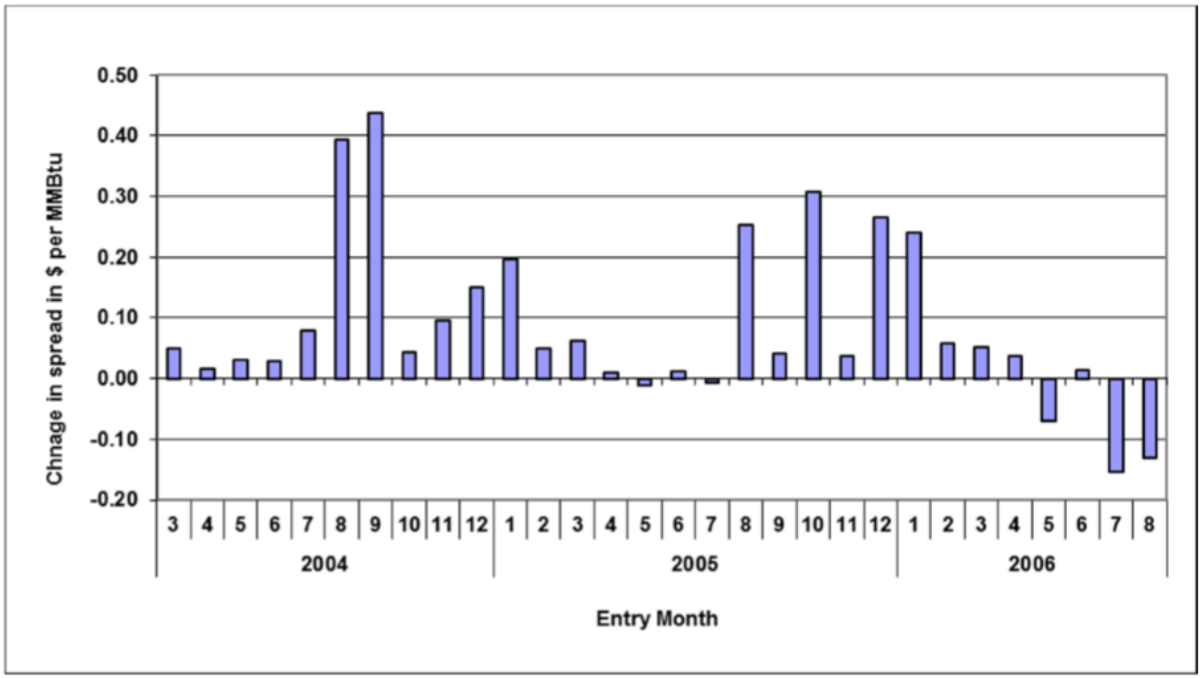


Bear Calendar Spreads

- The authors underline that "how consistent the bear calendar spread has been between 2004 and 2006

Figure 20.3 Natural Gas Bear-Calendar Spread P/L, 1-Month Horizon, January 2004 through August 2006

This figure illustrates how consistent a strategy of trading natural gas using bear calendar spreads was between spring 2004 and spring 2006, after which its performance degraded.



- This strategy works well if the curve is in

Bear Calendar Spreads

- The term structure in 2006 moved from backwardation to contango

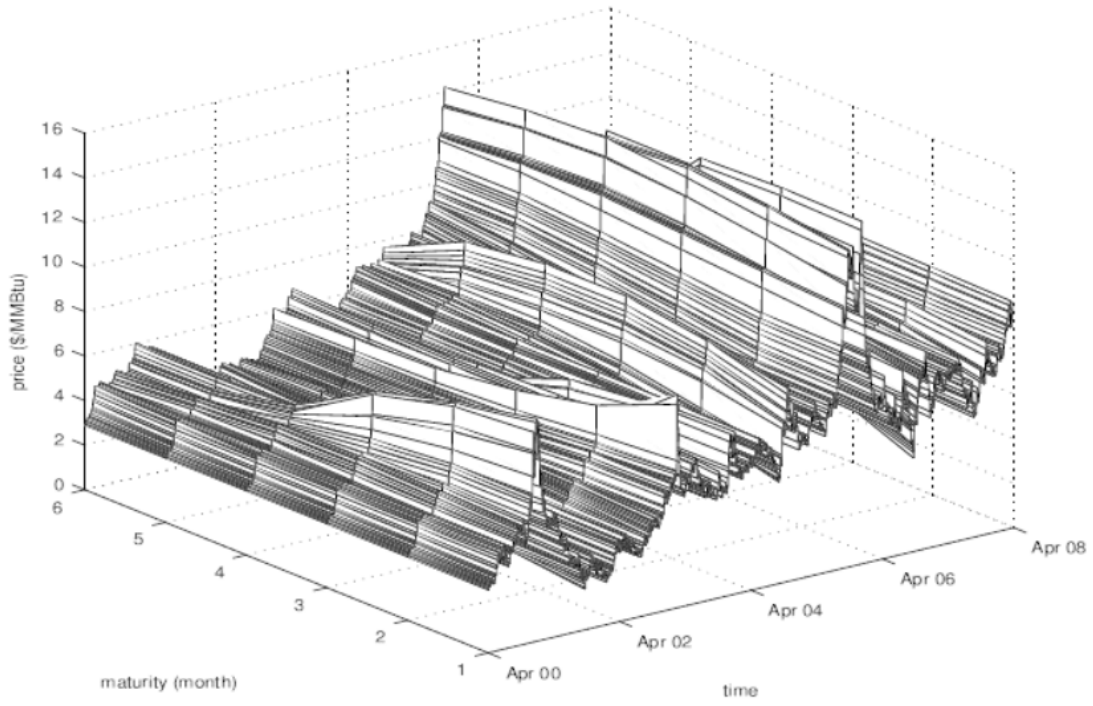
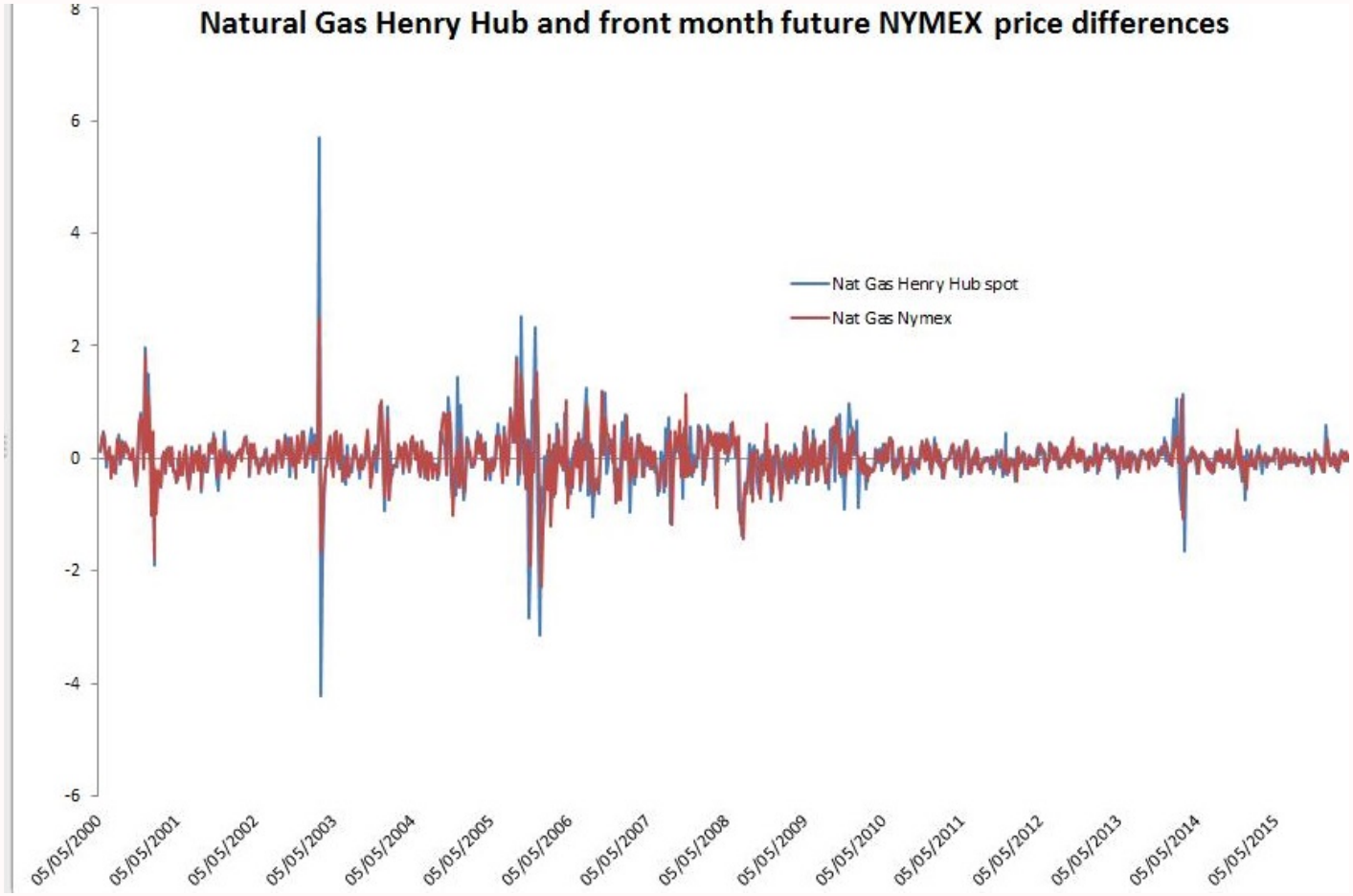


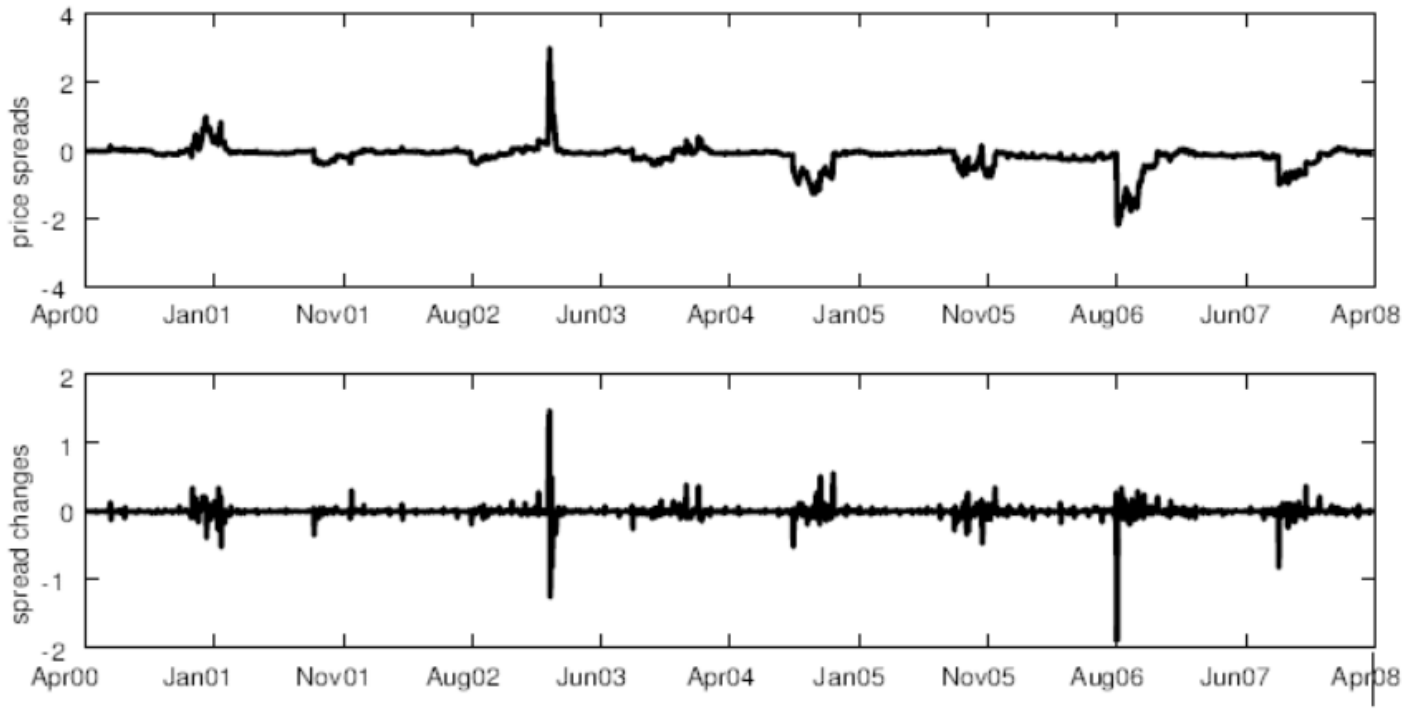
Figure 1. NYMEX Natural Gas Futures Curves

Spot and future natural gas volatility



Calendar spread trading and pairs trading

- It would be interesting to shed light into the commodity pairs trading literature Fabozzi Kanamura and Rachev (2010)



NaturalGas Pairs trading profitability

- Pairs trading in the Nat Gas market outperforms the other energy markets

	mean	standard deviation	r	Sharpe Ratio
WTI	0.61	1.01	0.04	0.56
HO	0.74	1.27	0.04	0.55
NG	3.15	2.92	0.04	1.07

Table 11. Risk-adjusted Returns
We assume that a risk-free rate is 4 % to calculate the Sharpe ratio.

$$S_t = \kappa(\theta - S_t)dt + \sigma dW_t; S_t = y_t - x_t$$

Amaranth´s Debacle

- The company took short positions in nearby contracts and long positions on contracts for delivery far in the future (long in the spread)
- Long term futures prices collapsed and Amaranth had a loss of nearly $4 billion
- The authors discuss the problem of seizing. There is some evidence that Amaranth´s trading activities distorted market prices.
- The failure raised questions about how large a position and influence an individual entity should have

Amaranth´s Debacle

- Amaranth´s NYMEX natural gas futures equivalent positions in certain contracts exceeded 200 % of the Natural Gas open interest
- The case could be compared to Metallgesselsllshaft debacle 1993 due to change to contango (see Pirrong 1997). While the change in the curve in the MG case was incidental Amaranth distorted the market deliberately
- Amaranth ended up paying a fine of$750 billion
- Calendar spread spread related strategies in the gass market have negative skew

Amaranth´s Debacle: References

- Till H. (2008)
- Chincarini L.(2007)