



20 MINUTES: Fund Flows, Fundamentals and the Price of Oil

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Agenda

- I. Where do fund flows into the energy markets come from?
- II. How do they enter the market?
- III. What drives them?

- IV. What role did the flow of funds - specifically from commodity indices - play in the spectacular rise of oil prices in 2008?

- V. Is there a better, more fundamental explanation for the price extremes we saw last year?

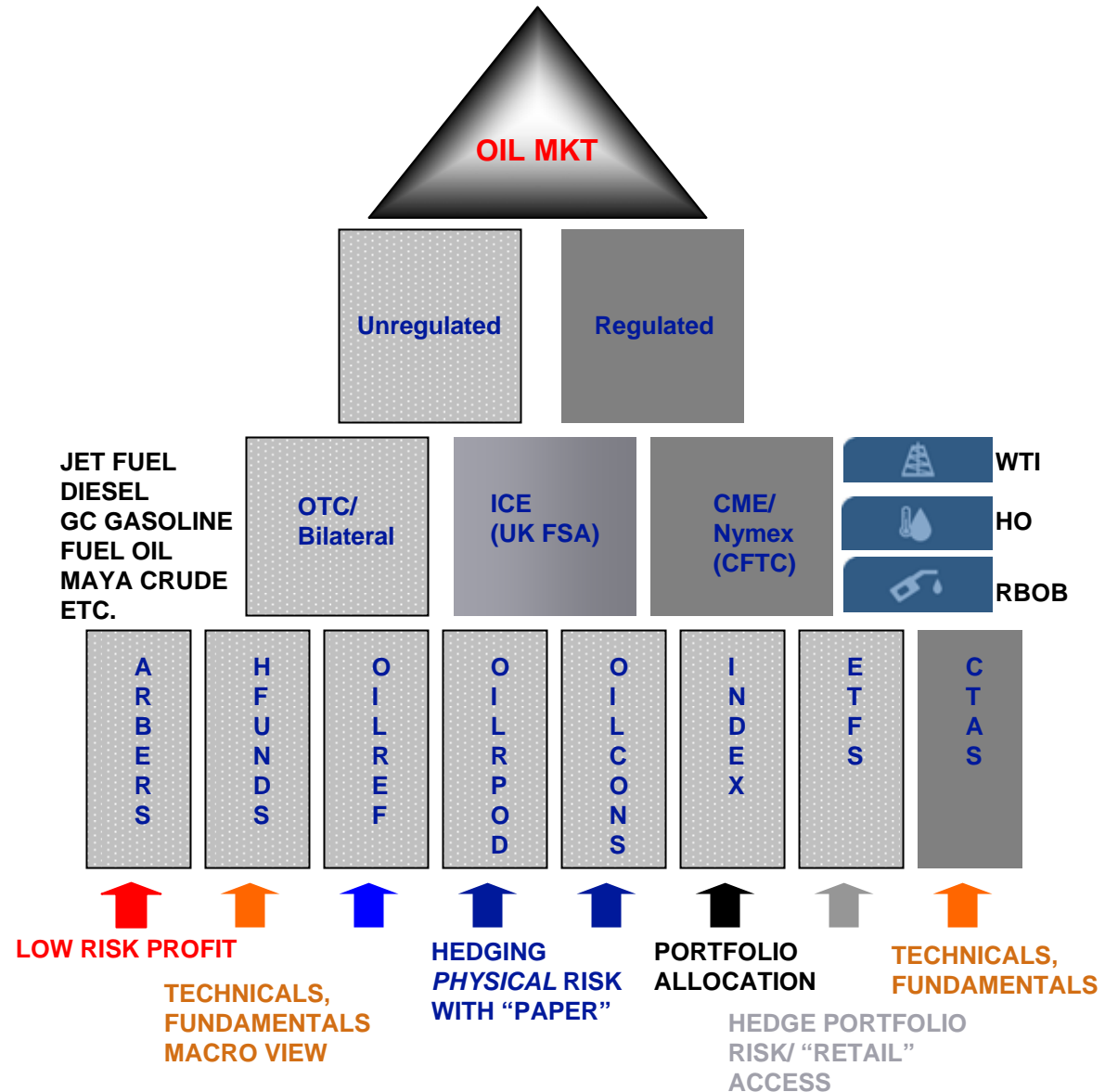
- VI. Another look at paper and physical flows

- VII. Conclusions

Tracing the Flows: Part One

A Few Key Points:

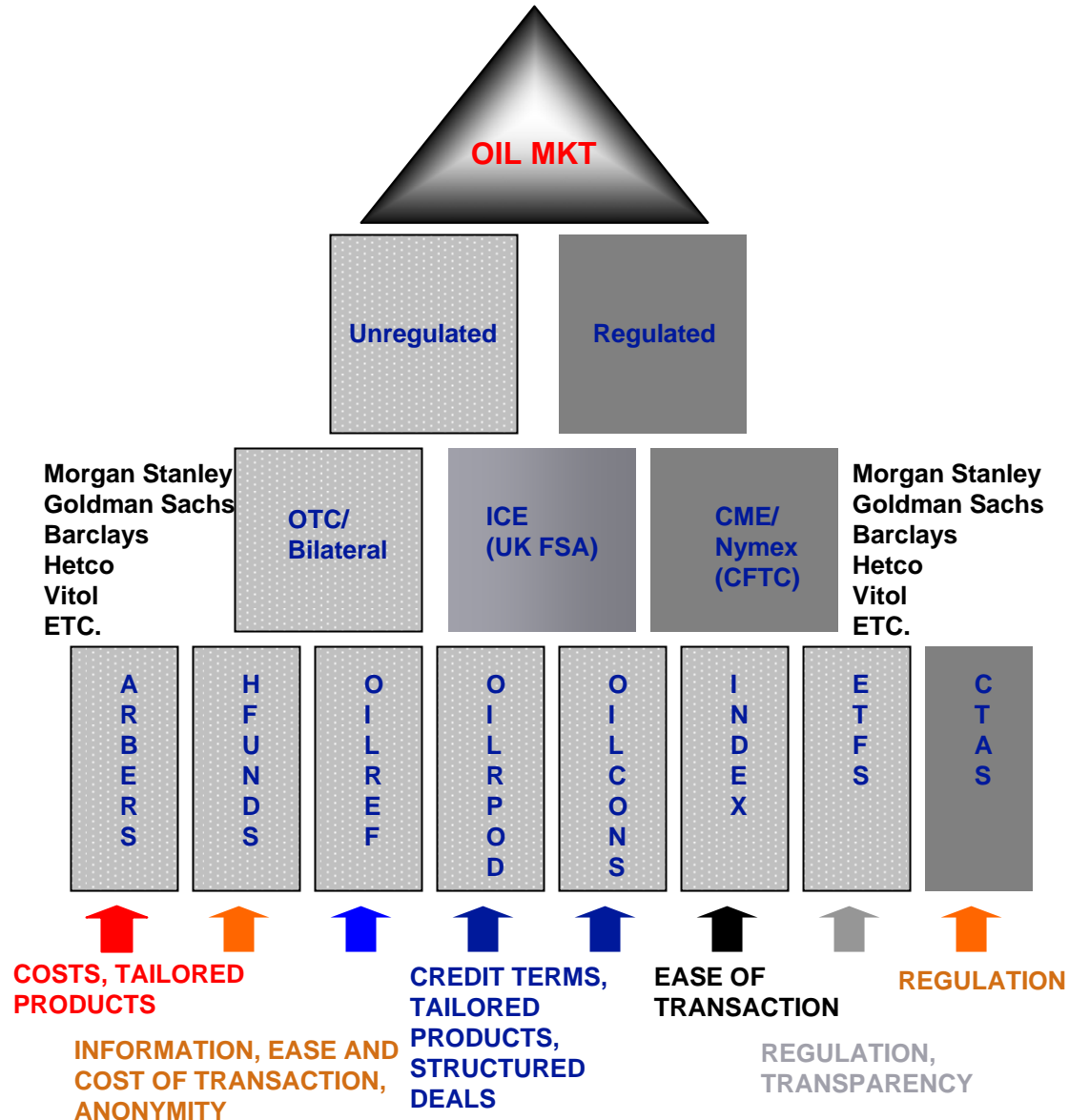
- There are only three ways that financial flows can enter the market, through one of two commodity exchanges that list Nymex-related products or over-the-counter.
- The flows come from a variety of players having a variety of motivations
- While some players may have physical assets or exposures, their flows are also “paper flows” resulting only infrequently in physical delivery.



Tracing the Flows: Part Two

A Few Key Points:

- CTAs are the only players typically constrained to regulated futures.
- Banks and other dealers are active on both the regulated and unregulated sides of the market.
- Hedgers - that includes oil consumers like airlines - may prefer OTC markets because of better credit/margin terms and tailored risk management products they offer.
- Indexers may prefer OTC markets because of the ease of transaction, as the standard commodity indices have many different components (the GSCI has 24).



There Are No Simple Answers

The picture of how funds flow into the oil market and why is not a simple one, as the preceding schematics illustrate. Yet the question of why oil prices in 2008 rose to \$140/bbl supposedly has one simple answer.

The main hypothesis is as follows: Index funds, one of only eight blocks at the base of the "Oil Market Pyramid," single-handedly drove up oil prices beyond any level explainable by fundamentals.

The corollary to the hypothesis is that because the index flows were largely over-the-counter, they were not only non-transparent, but were given added leverage by the investment banks and other dealers that operate in the OTC markets.

Interestingly, the two main commentators pushing this hypothesis are only tangentially connected to any of the blocks in the "Oil Market Pyramid."

In The Interests of Full Disclosure...

As of March 31st, 2008, the portfolio of Masters Capital Management LLC was heavily weighted in the equities of American Airlines, Delta, United Airlines, US Airways, Nucor Steel, and General Motors - all adversely affected by high oil prices.

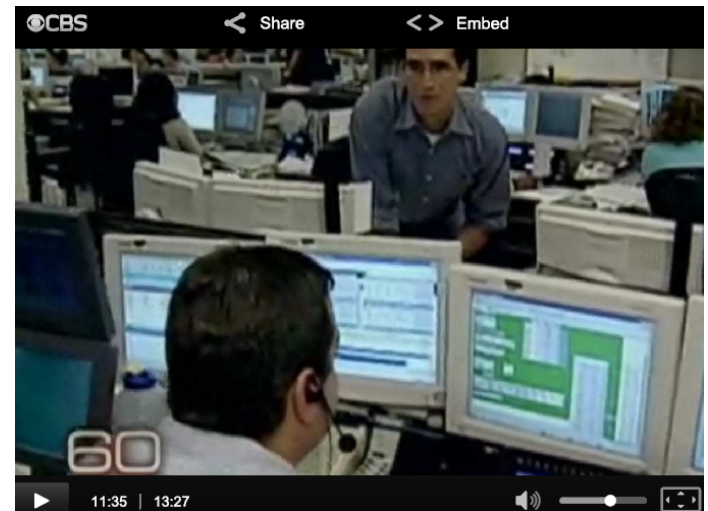
<http://www.secinfo.com/d11M9w.td.htm>

Michael Greenberger's testimony before Congress was, if not rebutted, sternly corrected by the Senate Permanent Subcommittee on Investigations.

<http://hsgac.senate.gov/public/ files/PSIJtSTAFFANALYSISGREENBERGERTESTIMONYONJUNE32008.pdf>

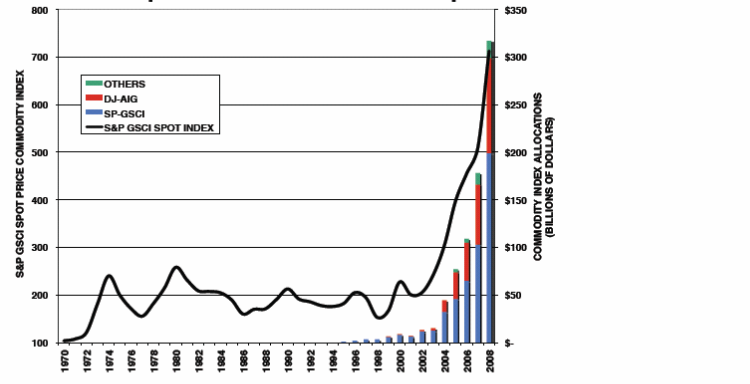
If he knew your speaker, Professor Greenberger might describe him as one of the former Enron employees who, in his own words (not mine!) became "the most valuable employees on Wall Street."

<http://www.cbsnews.com/video/watch/?id=4713382n>



Refuting the Main Hypothesis

S&P GSCI Spot Price Index vs. Index Speculator Assets



Source: Bloomberg, Goldman Sachs, CFTC Commitments of Traders CIT Supplement, calculations based upon CFTC COT/CIT report (see appendix). 2008 figure is as of 7/1/08.

A Few Key Points:

- The graph above supposedly shows that flows into commodity indices drove prices higher. What it actually shows is that as commodity prices rose, the value of a given investment in a commodity index also rose. Think of it like your stock portfolio - in the good old days, as stock prices rose so did the value of your holdings.
- The table to the right from the CFTC Staff Report shows that as oil prices rose from 12/31/2007 to 6/30/2008, the number of contracts held by commodity index players actually declined!
- There's at least one simple reason for this: because many index investors allocate a fixed portion of their overall portfolio to commodities, as commodity prices rose their portfolio became overweight commodities.

Source: The Accidental Hunt Brothers Report, July 31, 2008

TOTAL OTC AND ON-EXCHANGE COMMODITY INDEX INVESTMENT ACTIVITY

	December 31, 2007	March 31, 2008	June 30, 2008
Index Investments in Net Notional Value	\$146 billion	\$168 billion	\$200 billion
Index Investments in Net Notional Value – U.S. Exchanges Only	\$118 billion	\$133 billion	\$161 billion
NYMEX Crude Oil—Index Notional Value	\$39 billion	\$41 billion	\$51 billion
Crude Oil Index Values Measured in Futures Equivalents	408,000	398,000	363,000
NYMEX Crude Oil Price	\$96 bbl.	\$102 bbl.	\$140 bbl.
CBOT Wheat – Index Notional Value	\$8 billion	\$9 billion	\$9 billion
CBOT Wheat Index Values Measured in Futures Equivalents	185,000	188,000	194,000
CBOT Wheat Price	\$8.85 bu.	\$9.29 bu.	8.44 bu.
CBOT Corn—Index Notional value	\$8 billion	\$10 billion	\$13 billion
CBOT Corn Index Values Measured in Futures Equivalents	326,000	362,000	350,000
CBOT Corn Price	\$4.56 bu.	\$5.67 bu.	\$7.25 bu.
ICE-Futures Cotton—Notional Value	\$3 billion	\$3 billion	\$3 billion
ICE-Futures Cotton Index Values Measured in Futures Equivalents	72,000	73,000	73,000
ICE-Futures Cotton Price	\$.68 lb.	\$.69 lb.	\$.71 lb.

Refuting the Corollary

A Few Key Points:

- About 80% of the net notional value of commodity index trading on the dates listed was tied to commodities traded on what the CFTC refers to as Designated Contract Market (DCM).
- Only about 20% of the net notional value was tied to commodities traded on non-US markets. This includes, by inference, ICE which is regulated as an Exempt Commercial Market (defined as “an electronic trading facility that trades exempt commodities on a principal-to-principal basis solely between persons that are eligible commercial entities”).

A. Notional Value of Commodity Index Trading

For each of the above-mentioned quarterly dates, the net notional value³⁸ of commodity index trading, which includes the portfolios held by swap dealers doing index business with their counterparties, plus the notional value of positions held by index funds trading directly on exchanges, was reported to be:

December 31, 2007:	\$146 billion;
March 31, 2008:	\$168 billion; and
June 30, 2008:	\$200 billion.

Approximately 20 percent of the net notional value of commodity index trading on each of those dates was tied to commodities traded on non-U.S. markets, with the remainder tied to commodities traded on U.S. markets regulated by the Commission (DCMs).³⁹ As such, the net notional value of the portion of commodity index trading tied to commodities traded on U.S. markets was reported to be:

December 31, 2007:	\$118 billion;
March 31, 2008:	\$133 billion; and
June 30, 2008:	\$161 billion.

By way of comparison, on June 30, 2008, the total notional value of all futures and options open contracts for the for the 33 U.S. exchange-traded markets that are included in major commodity indexes was \$946 billion.

Source: CFTC Staff Report September 2008

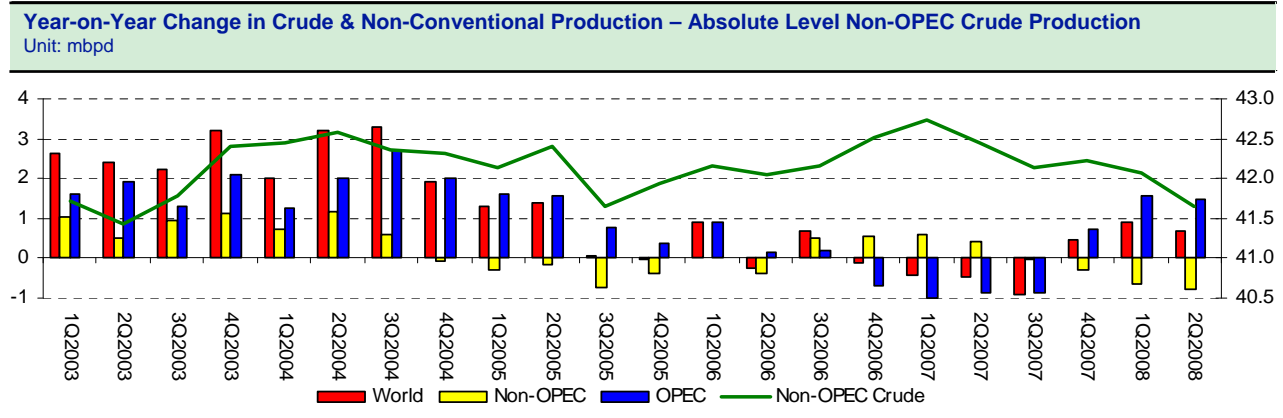
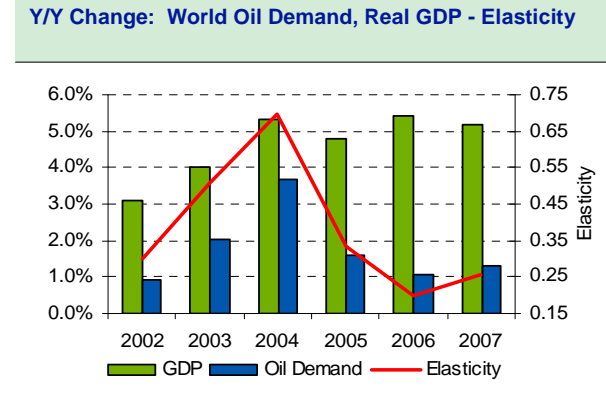
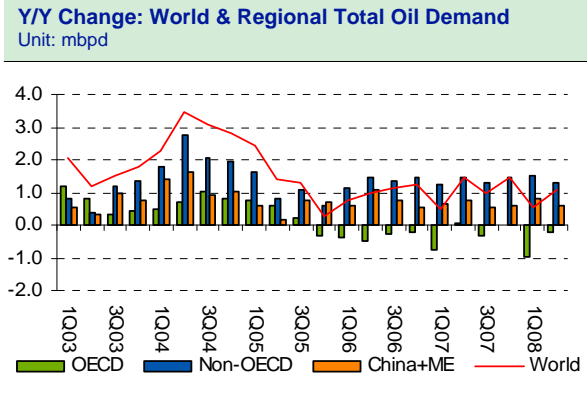
So now we know that:

- 1) Index investors were shedding oil contracts as prices rose and
- 2) ECM index activity accounted for only 20% of the total

If the commodity index investment didn't drive oil prices to record levels, what did?

Don't Listen To The Supply-Siders

- Non-Opec crude oil supply growth was anemic from 2005 onward, even as prices continued to rise. So much for supply-side economics.
- Over the same period, world oil demand continued to grow steadily, especially in non-OECD countries (i.e. China, India, Middle East, etc.)
- Oil demand re-linked with GDP growth – at this rate, only lower GDP growth - **or greater energy efficiency** - can slow it



Source: NE, IEA, IMF

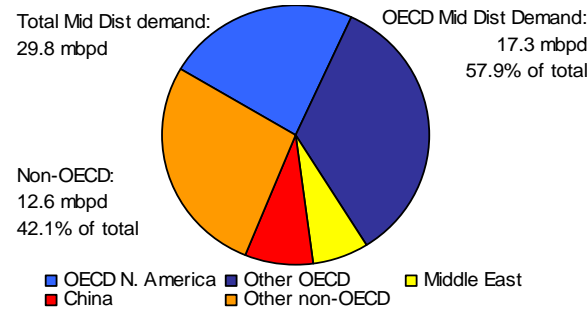
Note: Angola and Ecuador are included in OPEC, even for years prior to 2007

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Its About Demand For Middle Distillates

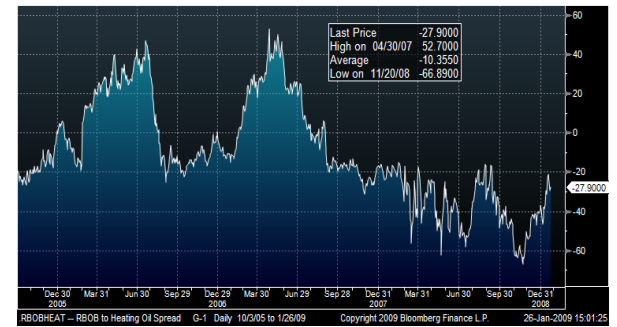
- People don't use crude oil; they use oil products.
- Demand for middle distillates – diesel, jet fuel, heating oil – has been driving the oil market for several years.
- The only gem in the otherwise misleading “60 Minutes” special was when the head of the Petroleum Marketers association noted that it was home heating oil distributors who first noticed “prices delinking from fundamentals.”
- What those distributors were missing was that it wasn't home heating oil demand driving the market, but diesel and jet demand – the fuels of globalization.

Middle Distillate Demand by Region (2005)



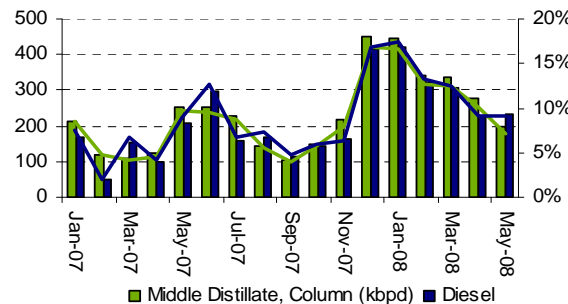
Nymex RBOB to Nymex Heating Oil

Unit: US Cents Per Gallon



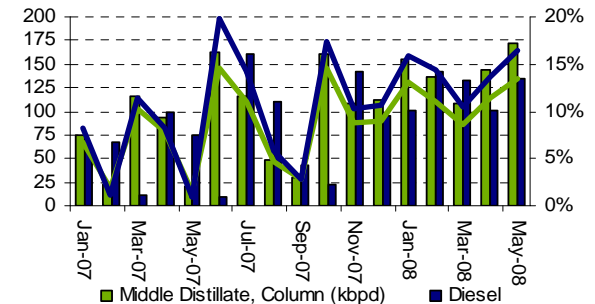
China Apparent Middle Distillate Demand Y/Y Increase

Unit: kbpd, %



India Middle Distillate Demand Y/Y Increase

Unit: kbpd, %



Source: IEA, EIA, Port Authorities, China State Statistical Bureau, Indian Ministry of Petroleum and Natural Gas

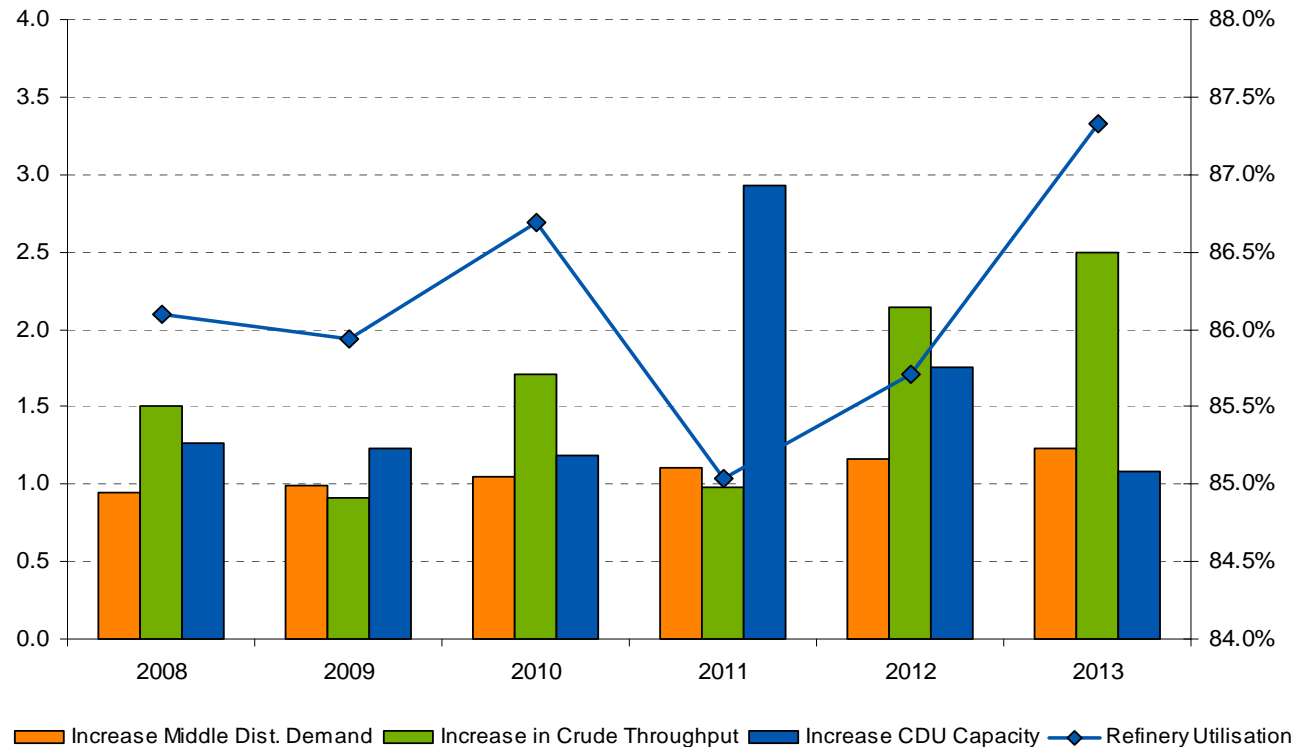
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Refiners Were “Under-Levered”

- The key to the oil price spike was middle distillate demand expectations relative to middle distillate production capacity.
- At a base case of ~3% growth per year – a reasonable assumption in 1H08, middle distillate demand increases would have required consistent increases in refinery crude oil throughput.
- It’s very important to note that biofuels do very little to help. Biodiesel is a small percentage of overall biofuels, and ethanol does nothing for middle distillate supply.

World, Refinery Utilisation Rates and Crude Throughput Given the Base Case Demand Scenario

Unit: mbpd, % (Base Case = ~3%/year middle distillates demand growth)



Source: NE

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Distillate Demand Growth Was Unsustainable

- The outlook in early 2008 was an unsustainable one.
- At its core was a contest between strong middle distillate demand growth and crude oil supply declines.
- The declines had proven hard to reverse, hence the fix had to come from the demand side.

Year-on-Year Changes in Global Supply, Demand and Spare Production Capacity

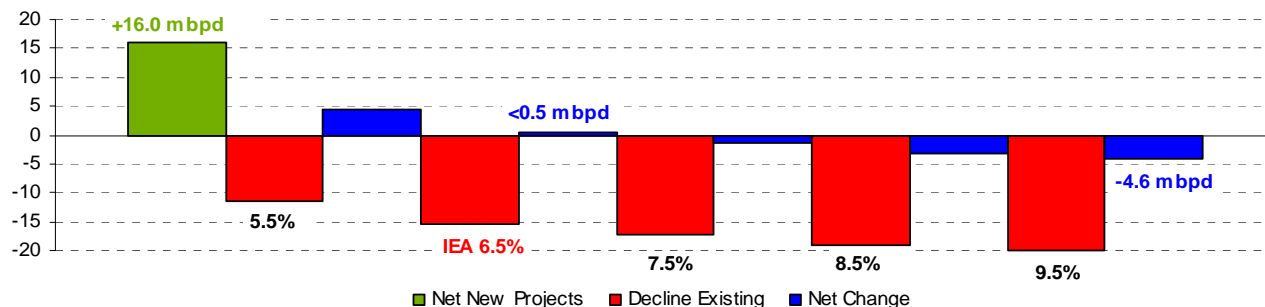
Unit: mbpd

	2008	2009	2010	2011	2012	2013
Global Refinery Demand	1.5	0.9	1.7	1.0	2.1	2.5
Non-OPEC Supply (1)	0.0	0.2	-0.1	0.0	-0.1	0.3
Call on OPEC Crude (2)	1.5	0.7	1.8	1.0	2.2	2.2
OPEC Crude Capacity	0.7	1.1	0.9	-0.1	0.3	0.3
OPEC (Global) Spare Capacity	-0.8	0.5	-0.9	-1.1	-1.9	-1.9
Absolute Spare Cap. (excl. OPEC NGLs):	1.9	2.3	1.5	0.4	-1.5	-3.4

(1) – Non-OPEC Supply excludes bio-fuels, refinery gains and OPEC NGLs (2) – Crude only, NGLs excluded

Non-OPEC Supply Change from 2007 to 2013 (6 Years), Various Decline Rates

Unit: mbpd



Source: IEA, NE

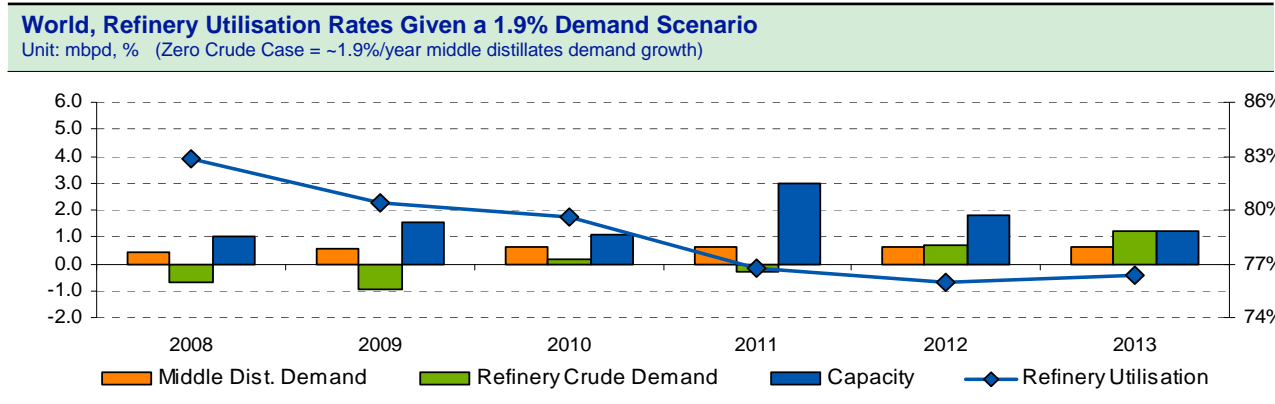
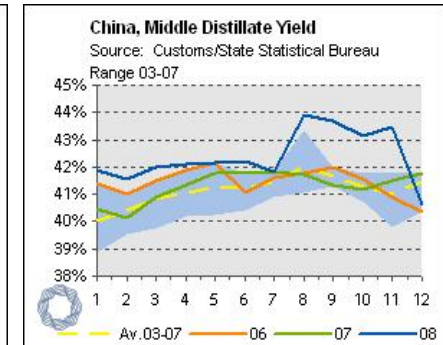
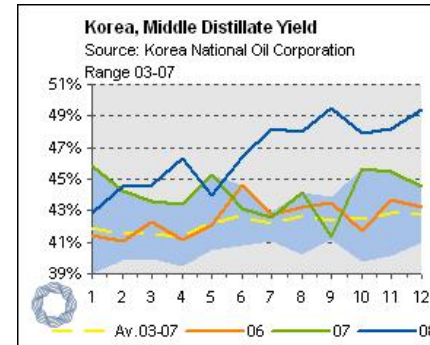
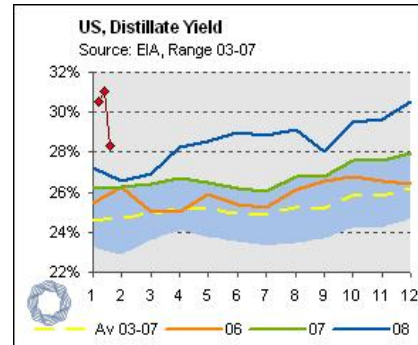
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Story Ends With A Bang & A Whimper

- While the crude oil supply growth outlook was and is bleak, existing refinery distillate yields exploded with a bang just as new, complex refinery capacity – centered mainly in Asia – was poised to come online.

- Demand whimpered in the face of high prices, but note that even with moderately positive distillate demand growth, crude oil demand growth from refineries can be negative to flat.

- This is, perversely, creating a potentially larger problem for crude oil supply when global growth resumes.



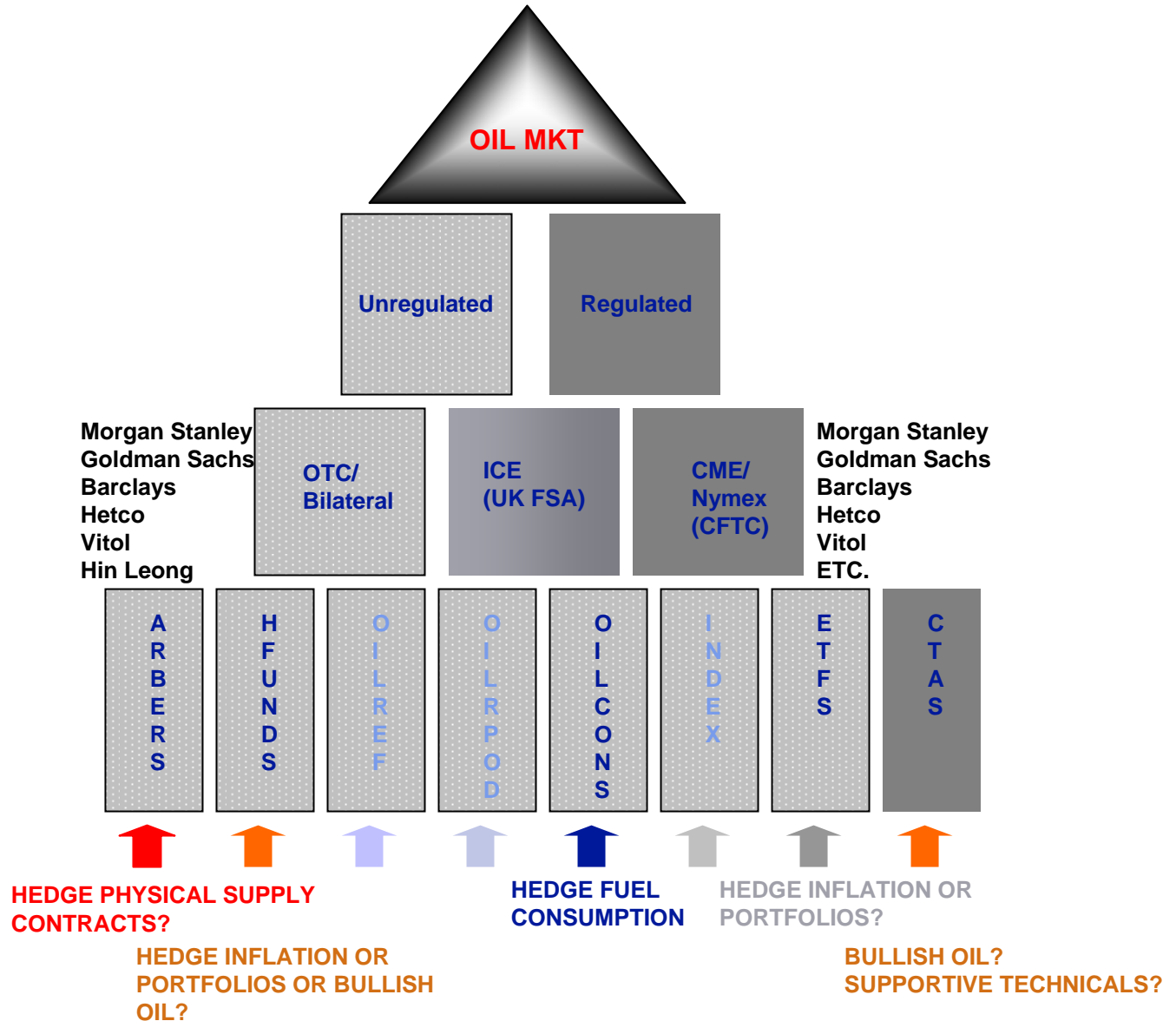
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A Second Look: Nuanced Conclusions

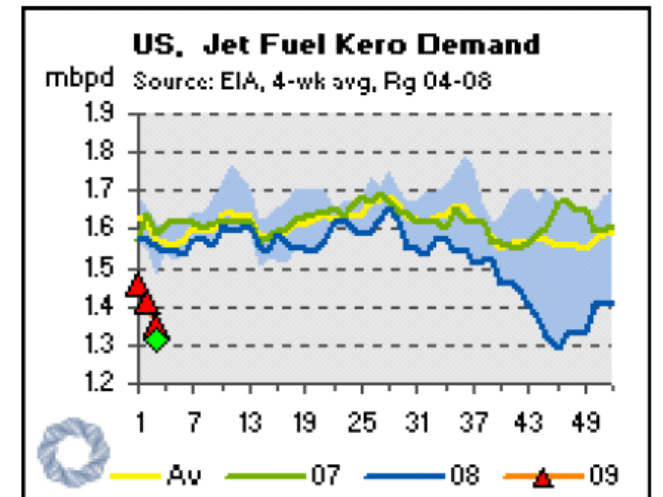
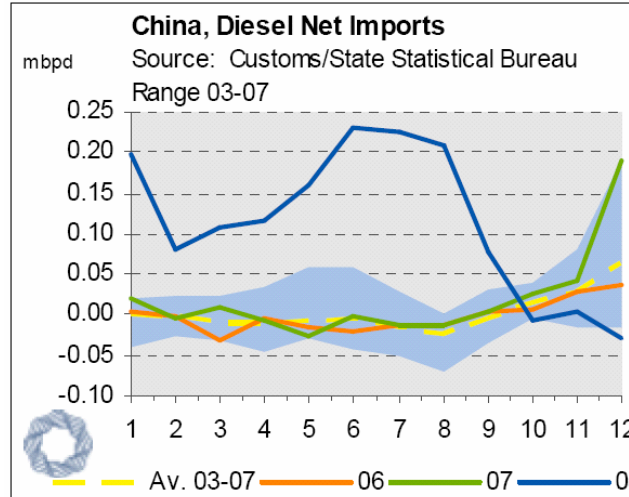
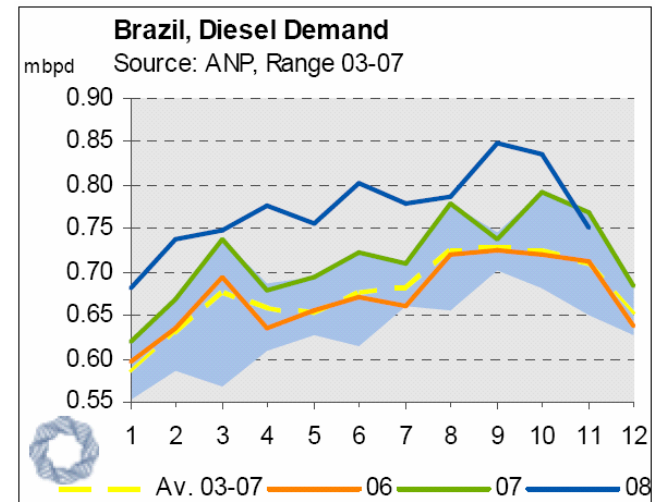
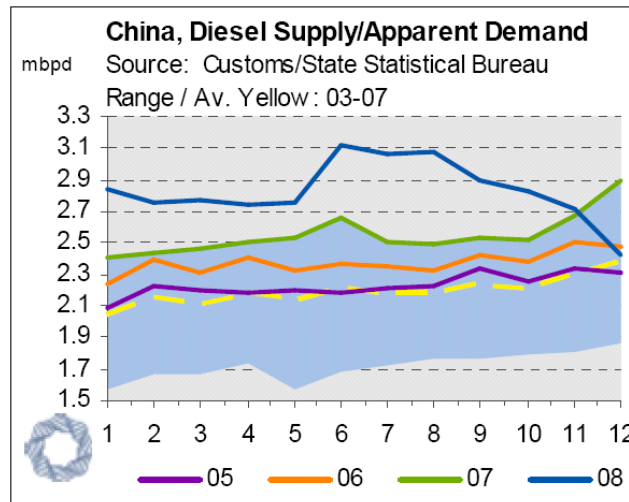
A Few Key Points:

- We know indexes shed oil contracts during 1H08. It's unlikely that oil refiners or producers were big buyers (besides hedge unwinds).
- Consumers clearly were buying (hedging) as their businesses were adversely affected by higher fuel prices.
- We know from public sources that:
 - Northwest, Delta and Southwest were over 65% hedged for Q408
 - Airfrance/KLM and Lufthansa were over 88% hedged for FY 2008
 - Cathay Pacific was 40% hedged for FY 2008



A Second Look: The Physical Market

- Physical flows are different from paper flows and it's worth reviewing them in 1H08.
- Non-OECD distillate demand was strong and growing, led by China (with roaring imports) but also in Latin America and South Africa, among others. That is, the physical flows were bullish.
- More recent data shows that trend reversing.
- OECD demand – here's there's a snapshot of US Jet Demand – has set new lows since the middle of 2008.



Conclusions

- I. Paper flows and price movements are driven by a wide variety of players with a wide variety of motivations.
- II. More transparency is generally in everyone's interest, as the September 2008 report based on the CFTC's "Special Call" showed.
- III. That transparency should extend to the physical side, with better data on physical stocks and flows (e.g. currently China publishes no stock data which overstates true demand).
- IV. A globalized trade model of long supply chains may be obsolete. When global growth resumes, the model must be different.