



Stockpiling and Oil Industry Fundamentals

UBS Investment Research

Integrated Oils

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Analyst certification and required disclosures begin on page 13.

Stockpiling & Oil Industry Fundamentals

Stockpiling & Oil Industry Fundamentals:

Overview

While many drivers can impact oil prices (exchange notes, finishing costs, etc.) longer-term oil prices are impacted by demand/supply. Since inventory measures the balance or imbalance of demand and supply, inventory fluctuations are of primary importance in determining oil prices.

Primary inventory level (i.e., inventory kept by commercial entities, especially refiners) is a key driver for oil macro. However, other factors that are opaque to the market can influence primary inventory. This has been true especially in the past few years as international events encouraged entities (such as government organizations) to stockpile. US stockpiling data is widely disseminated, but other nations' stockpiling is not as transparent. This competition with primary inventory tends to depress primary inventory level, exerting upward pressure on prices. In addition, stockpiling may have other unintended effects influencing the light/heavy & sweet/sour differentials, at the margin.

Lastly, how is stockpiling affecting oil investors' view of oil fundamentals? What are some areas where government entities can help to remove some of the data-opaqueness associated with global stockpiling?

Stockpiling & Oil Industry Fundamentals **UBS Research**

- I) The Role of Inventory/Stockpiling & Oil Prices
- II) Stockpiling & Downstream
- III) Oil Price Premiums & Stockpiling
 - 1. What causes the premiums?
 - 2. Premiums due to speculators?
 - 3. Impact of stockpiling and premiums?
- IV) Brief “Wish List”

Empirical Relationship of Various Factors to Oil Prices

	<u>R²</u>
Oil Price vs. \$/Basket of Currency	0.10
Oil Price vs. Interest Rate	0.06
Oil Price vs. 3 year average F/D cost	0.04
Oil Price vs. Inventory	0.70
Oil Price vs. Speculative Net Long (2002-2004)	0.21
Oil Price vs. Speculative Net Long (1994-1998)	insignificant

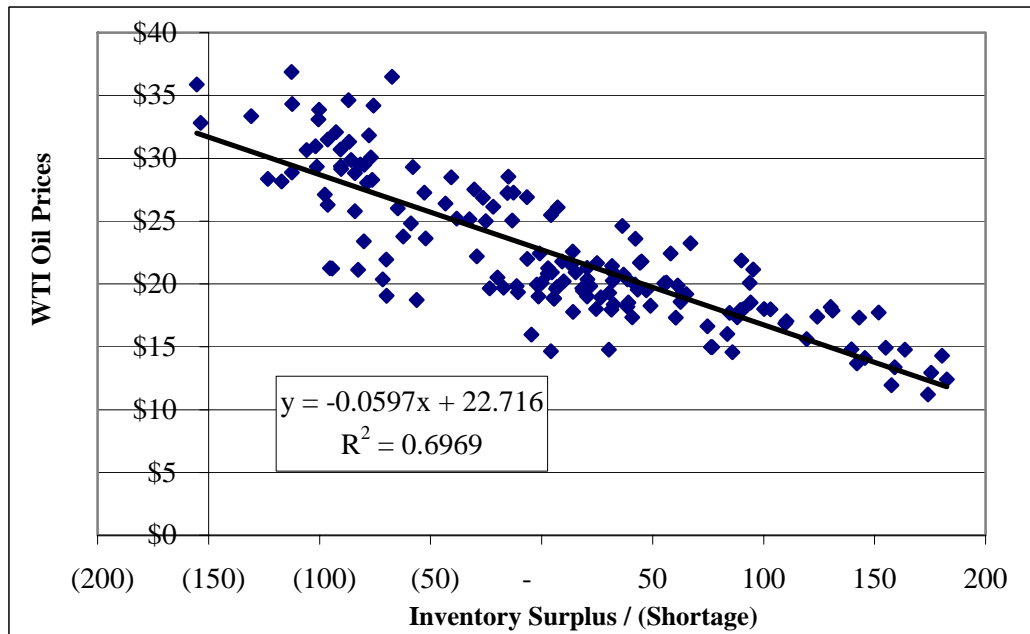
Source: UBS

Oil Prices Implied by Inventory Levels

Oil Prices Implied by Inventory Levels

Current Inventory Shortfall	(62) millions of barrels
Implied WTI Oil Price	\$26.33 /bbl
Actual Oil Price	\$46.40
<i>Oil Price Premium</i>	<i>\$20.07</i>

Source: UBS, DOE

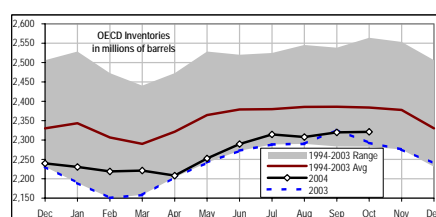
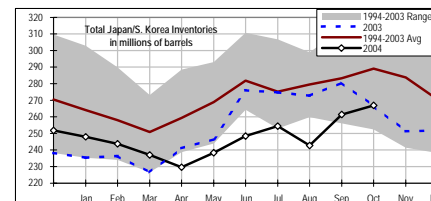
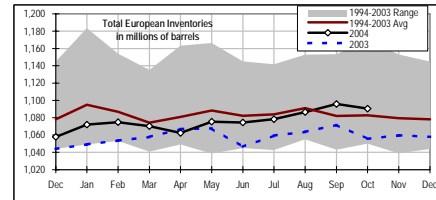
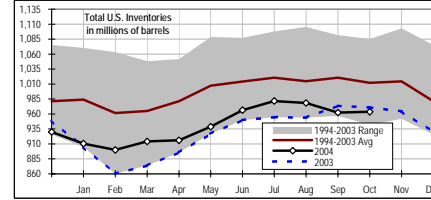


Source: UBS, DOE



OECD Inventories by Region

OECD Inventories By Region (in millions of barrels)									
	2003/ 2004	1994-2003 Avg	Current Month - Yr Ago	% over- hang vs. Yr Ago	Current Month - Avg	% over- hang vs. Avg	Avg MMb/d Change	Current MMb/d Change	Relative Build/ (Draw)
(1) U.S. Inventories									
January 2003	905	984	(131)	-13%	(79)	-8%	0.09	(1.47)	(1.55)
September 2003	974	1,021	(13)	-1%	(47)	-5%	0.19	0.66	0.48
October 2003	971	1,012	(13)	-1%	(41)	-4%	(0.28)	(0.09)	0.19
November 2003	965	1,015	(18)	-2%	(50)	-5%	0.08	(0.21)	(0.29)
December 2003	930	981	(19)	-2%	(51)	-5%	(1.11)	(1.16)	(0.05)
January 2004	910	984	6	1%	(73)	-7%	0.09	(0.65)	(0.73)
February 2004	900	961	40	5%	(62)	-6%	(0.75)	(0.35)	0.39
March 2004	914	965	40	5%	(51)	-5%	0.11	0.47	0.36
April 2004	916	981	20	2%	(65)	-7%	0.55	0.07	(0.48)
May 2004	939	1,007	12	1%	(69)	-7%	0.86	0.75	(0.11)
June 2004	966	1,014	17	2%	(48)	-5%	0.24	0.93	0.69
July 2004	982	1,020	27	3%	(39)	-4%	0.20	0.51	0.30
August 2004	978	1,015	25	3%	(37)	-4%	(0.18)	(0.11)	0.07
September 2004	962	1,021	(11)	-1%	(58)	-6%	0.19	(0.53)	(0.72)
October 2004	964	1,012	(7)	-1%	(48)	-5%	(0.28)	0.04	0.33
(2) European Inventories									
January 2003	1,049	1,095	(8)	-1%	(46)	-4%	0.57	0.17	(0.39)
September 2003	1,072	1,082	13	1%	(10)	-1%	(0.30)	0.27	0.57
October 2003	1,056	1,083	(8)	-1%	(27)	-3%	0.02	(0.54)	(0.56)
November 2003	1,060	1,079	3	0%	(20)	-2%	(0.11)	0.14	0.25
December 2003	1,058	1,078	14	1%	(20)	-2%	(0.04)	(0.06)	(0.02)
January 2004	1,072	1,095	23	2%	(23)	-2%	0.57	0.47	(0.09)
February 2004	1,075	1,087	21	2%	(12)	-1%	(0.27)	0.10	0.37
March 2004	1,070	1,074	13	1%	(4)	0%	(0.43)	(0.16)	0.27
April 2004	1,062	1,081	(4)	0%	(19)	-2%	0.23	(0.26)	(0.49)
May 2004	1,076	1,088	8	1%	(13)	-1%	0.24	0.43	0.19
June 2004	1,075	1,082	28	3%	(8)	-1%	(0.20)	(0.03)	0.17
July 2004	1,078	1,084	19	2%	(6)	-1%	0.05	0.13	0.07
August 2004	1,087	1,091	23	2%	(5)	0%	0.24	0.27	0.03
September 2004	1,096	1,082	24	2%	14	1%	(0.30)	0.31	0.61
October 2004	1,091	1,083	35	3%	8	1%	0.02	(0.17)	(0.19)
(3) Japanese & S. Korean Inventories (a)									
January 2003	235	264	(3)	-1%	(29)	-11%	0.21	(0.10)	0.12
September 2003	281	283	24	10%	(3)	-1%	0.12	0.26	0.14
October 2003	267	289	14	6%	(23)	-8%	0.19	(0.47)	(0.66)
November 2003	251	284	10	4%	(32)	-11%	(0.18)	(0.51)	(0.33)
December 2003	252	270	14	6%	(19)	-7%	(0.44)	0.02	0.46
January 2004	248	264	13	5%	(16)	-6%	(0.21)	(0.13)	0.08
February 2004	244	258	7	3%	(14)	-6%	(0.20)	(0.14)	0.06
March 2004	237	251	10	5%	(14)	-6%	(0.24)	(0.23)	0.02
April 2004	230	259	(11)	-5%	(30)	-11%	0.28	(0.24)	(0.53)
May 2004	238	269	(8)	-3%	(31)	-11%	0.32	0.29	(0.03)
June 2004	248	282	(28)	-10%	(33)	-12%	0.43	0.34	(0.10)
July 2004	254	275	(20)	-7%	(21)	-8%	(0.23)	0.20	0.42
August 2004	243	280	(30)	-11%	(37)	-13%	0.15	(0.39)	(0.54)
September 2004	261	283	(19)	-7%	(22)	-8%	0.12	0.62	0.50
October 2004	267	289	0	0%	(22)	-8%	0.19	0.18	(0.01)
(4) U.S., Europe, Japan & S. Korea Inventories									
January 2003	2,189	2,343	(142)	-6%	(154)	-7%	0.44	(1.39)	(1.83)
September 2003	2,326	2,386	24	1%	(60)	-3%	0.01	1.19	1.18
October 2003	2,293	2,384	(6)	0%	(91)	-4%	(0.07)	(1.10)	(1.03)
November 2003	2,276	2,378	(5)	0%	(102)	-4%	(0.21)	(0.58)	(0.37)
December 2003	2,240	2,330	9	0%	(90)	-4%	(1.60)	(1.20)	0.39
January 2004	2,230	2,343	41	2%	(113)	-5%	0.44	(0.31)	(0.75)
February 2004	2,219	2,307	68	3%	(88)	-4%	(1.22)	(0.39)	0.83
March 2004	2,221	2,290	63	3%	(69)	-3%	(0.55)	0.09	0.64
April 2004	2,208	2,322	4	0%	(114)	-5%	1.06	(0.44)	(1.50)
May 2004	2,252	2,364	11	0%	(112)	-5%	1.42	1.48	0.05
June 2004	2,290	2,379	17	1%	(89)	-4%	0.48	1.23	0.76
July 2004	2,314	2,379	26	1%	(65)	-3%	0.03	0.83	0.80
August 2004	2,308	2,396	18	1%	(78)	-3%	0.21	(0.22)	(0.45)
September 2004	2,320	2,386	(6)	0%	(66)	-2.8%	0.01	0.40	0.36
October 2004	2,321	2,384	28	1%	(63)	-2.6%	(0.07)	0.05	0.12



Source: UBS, DOE

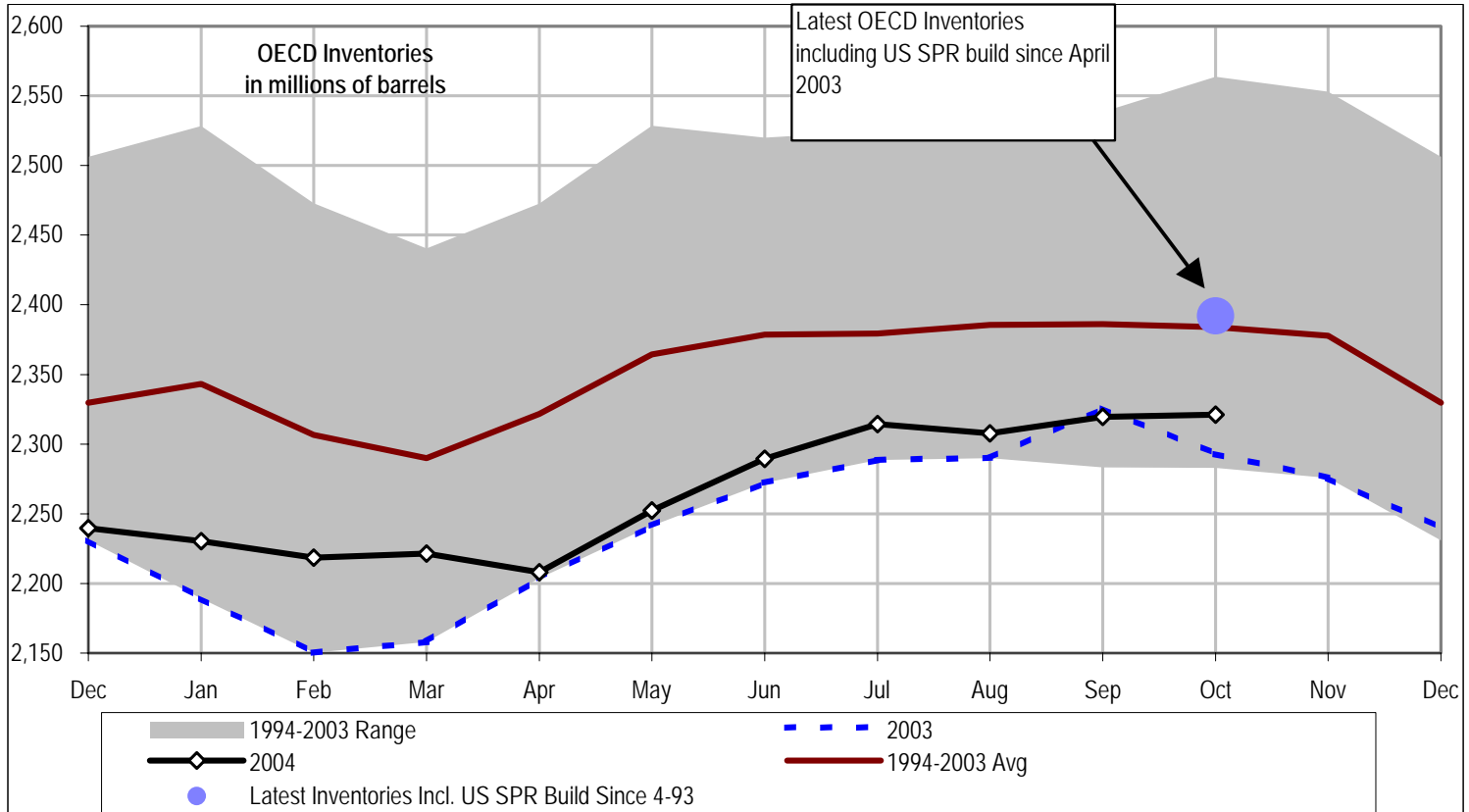


OECD Inventory Analysis

Inventory Shortfall Relative to Normal Levels

	<u>US Inventories</u>		<u>European Inventories</u>		<u>Japan/S Korean Inventories</u>		<u>Total OECD Inventories</u>		<u>WTI Oil Prices</u>
	%	in MMbbls	%	in MMbbls	%	in MMbbls	%	in MMbbls	
January-03	-8%	(79)	-4%	(46)	-11%	(29)	-7%	(154)	\$32.80
October-04	-5%	(48)	1%	8	-8%	(22)	-3%	(63)	\$53.39

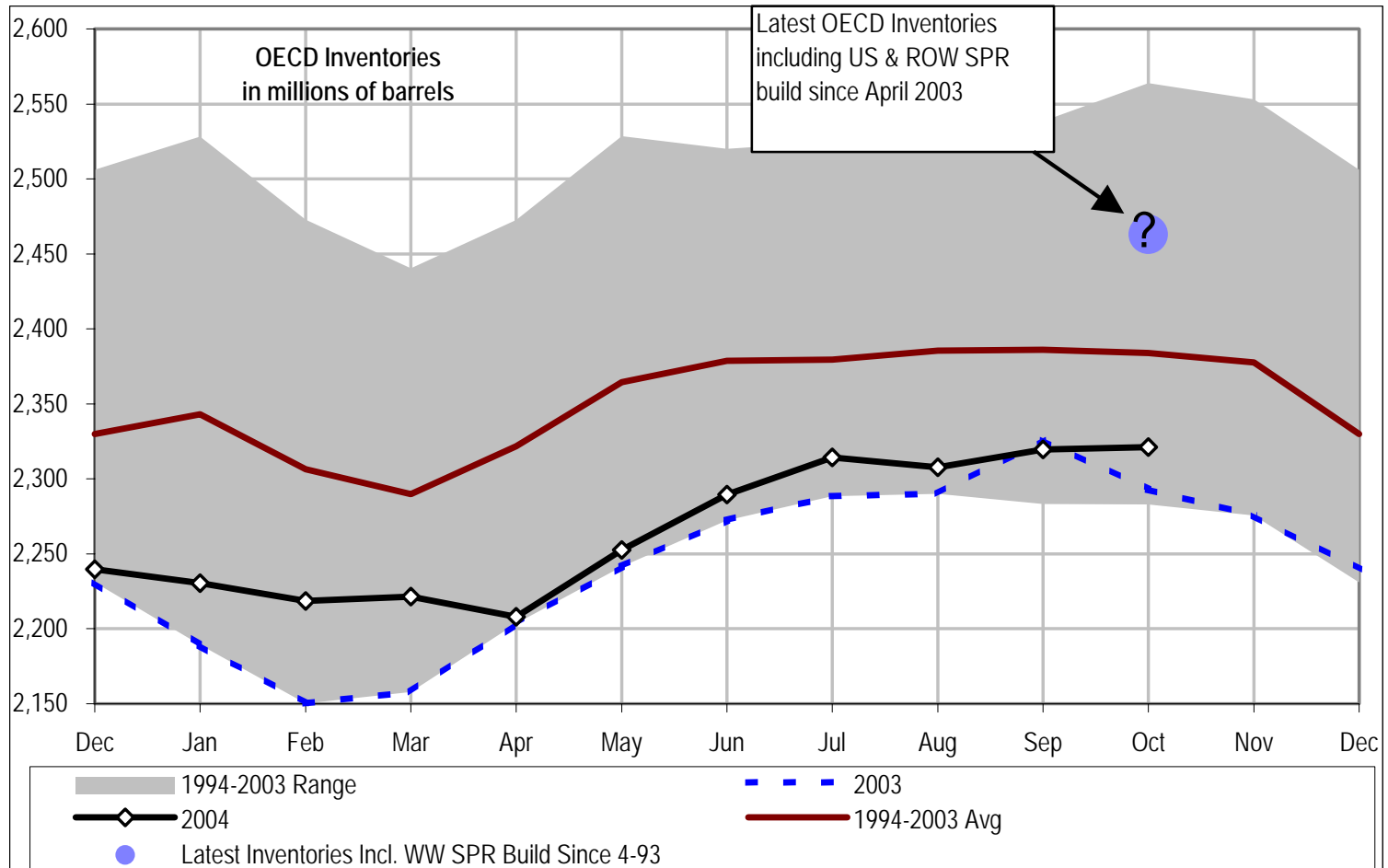
OECD Oil Inventories



Source: UBS, DOE



OECD Oil Inventories (2)



Source: UBS, DOE



Other Impacts of SPR - Downstream

- US SPR tends to be light & sweet
- US SPR accumulation, at the margin, can exert upward pressure on light sweet grades of crude

	API Gravity	Sulfur Content
SPR Oil	34	~1%
Average Crude Refined in the US	30.5	1.4%

Source: UBS

Other Impacts of SPR - Perception of US SPR

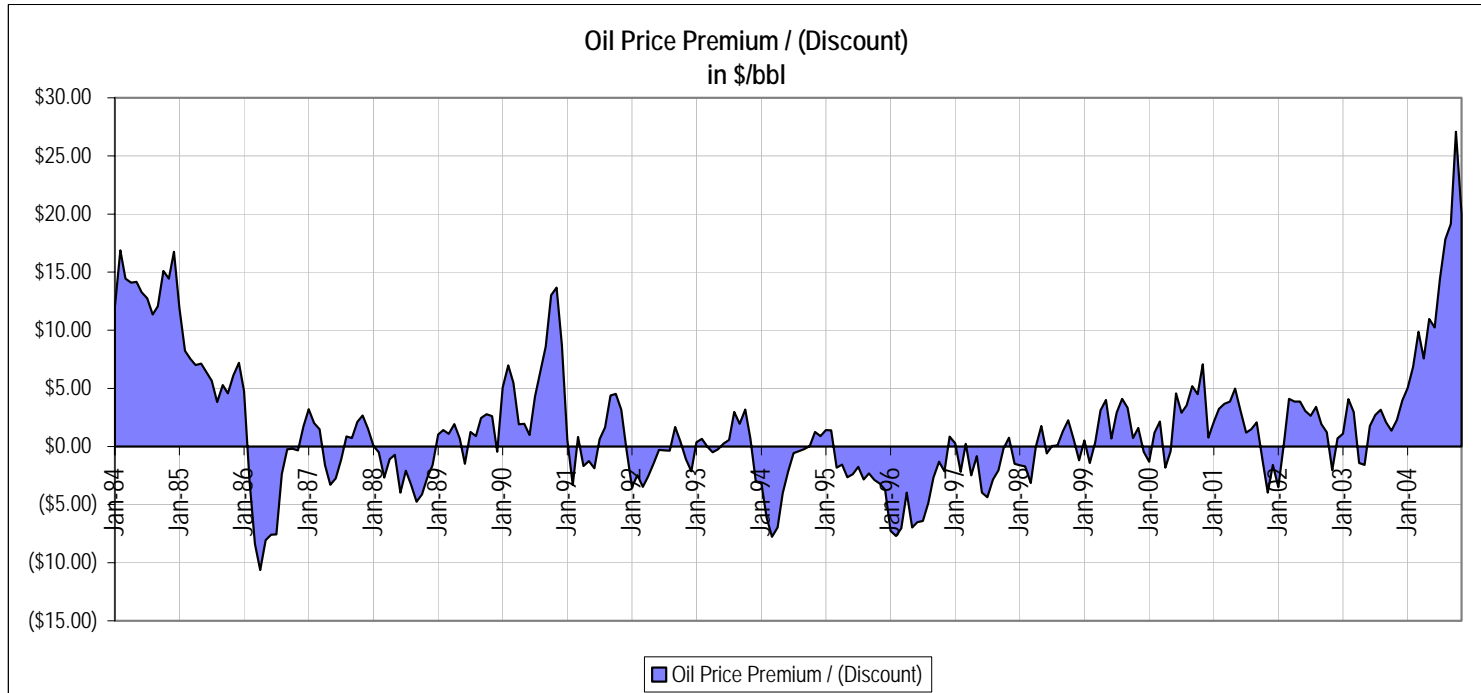
I. One-way street

- Nigeria, Venezuela outage of 2003
- Iraqi outage of 2003; partially made up by Saudis/others
- SPR used for supply crisis only

II. Even after reaching 700 million barrel capacity, Administration/Congress likely to authorize increase in capacity to 1 billion barrels

III. Geopolitical uncertainties in the oil industry encourages stockpiling.

Oil Price Premium/Discount



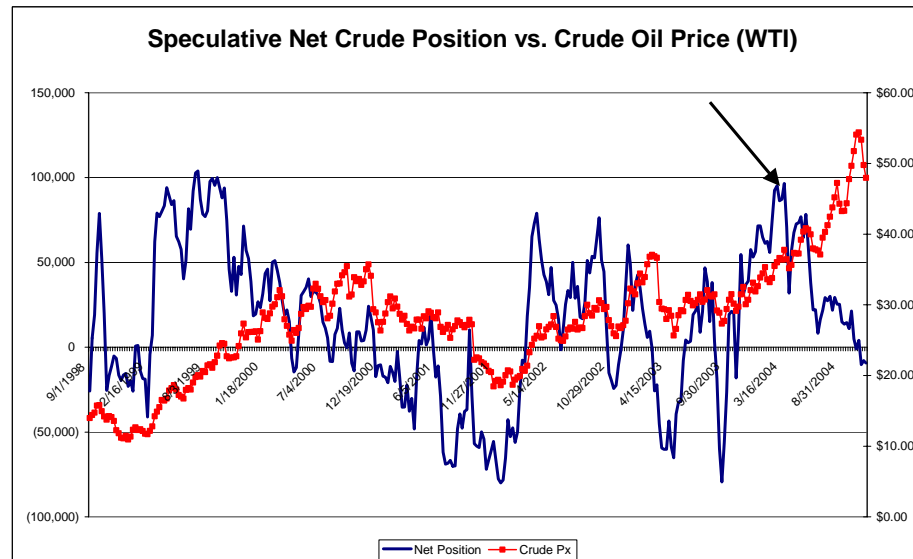
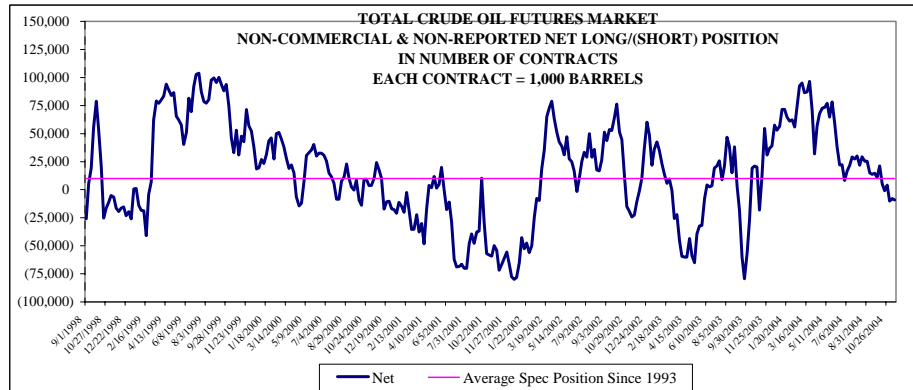
Source: UBS



Record High Oil Price Premium: *Speculation or Fundamentals?*

Current oil price premium is at record level because:

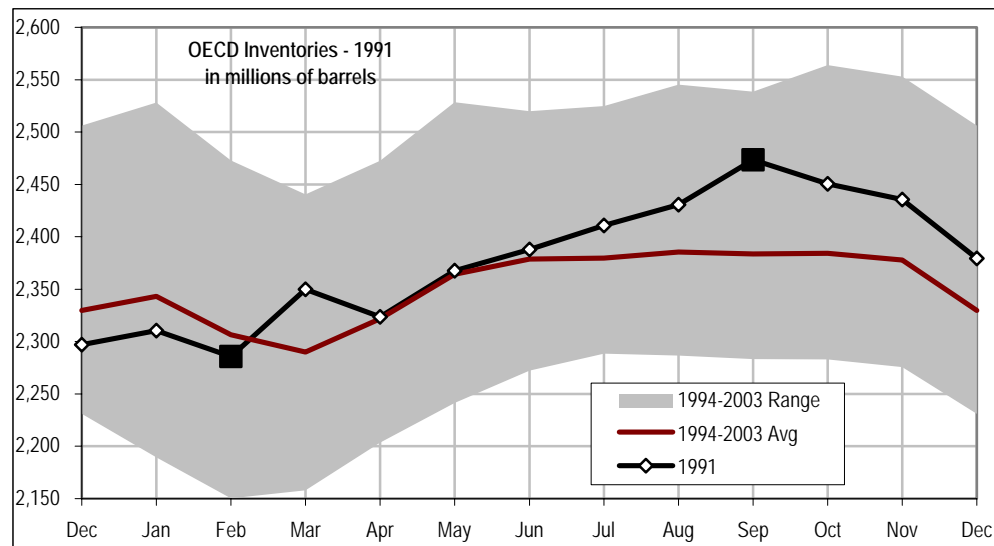
- I. Speculators are driving up oil prices; demand/supply/inventory fundamentals do not justify existing price level
- II.
 - A) Speculators can not keep prices high for such a long duration; supply/demand/inventory justifies current price level
 - B) Demand, however, includes effect of stockpiling
 - US SPR
 - Non US Stockpiling
 - Secondary Tertiary
 - C) Stockpiling can be transient
- III. Combination of I & II



Source: CFTC, UBS



Stockpiling Can Be Reversed



Post Persian Gulf War Stock-Build	(MMB)
Sept-91 OECD Oil Stocks	2,474
- Feb-91 OECD Oil Stocks	<u>2,350</u>
=Stock Build	123
Relative Stock Build	72
Relative Build in MB/D	0.34
WW Supply - Demand (in MB/D)	(0.20)
Total Unexplained Inventories	114

Source: EIA, UBS



Wish List

- 1) Data on secondary/tertiary stocks**
- 2) More transparency – stockpiling data; standardization globally**
- 3) Demand/Consumption**

Risk Statement

The risk associated with investing in the Integrated Oils and Independent Refining & Marketing sectors include the inherent volatility of oil and natural gas price, as well as margins for refining, marketing and chemicals. In addition, companies with E&P operations incur normal exploration risk.

Disclosures

UBS Investment Research: Global Equity Ratings Definitions and Allocations

UBS rating	Definition	UBS rating	Definition	Rating category	Coverage ¹	IB services ²
Buy 1	FSR is > 10% above the MRA, higher degree of predictability	Buy 2	FSR is > 10% above the MRA, lower degree of predictability	Buy	41%	33%
Neutral 1	FSR is between -10% and 10% of the MRA, higher degree of predictability	Neutral 2	FSR is between -10% and 10% of the MRA, lower degree of predictability	Hold/Neutral	50%	33%
Reduce 1	FSR is > 10% below the MRA, higher degree of predictability	Reduce 2	FSR is > 10% below the MRA, lower degree of predictability	Sell	9%	27%

1: Percentage of companies under coverage globally within this rating category.

2: Percentage of companies within this rating category for which investment banking (IB) services were provided within the past 12 months.

Source: UBS; as of 30 September 2004.

KEY DEFINITIONS

Forecast Stock Return (FSR) is defined as expected percentage price appreciation plus gross dividend yield over the next 12 months.

Market Return Assumption (MRA) is defined as the one-year local market interest rate plus 5% (an approximation of the equity risk premium).

Predictability Level The predictability level indicates an analyst's conviction in the FSR. A predictability level of '1' means that the analyst's estimate of FSR is in the middle of a narrower, or smaller, range of possibilities. A predictability level of '2' means that the analyst's estimate of FSR is in the middle of a broader, or larger, range of possibilities.

Under Review (UR) Stocks may be flagged as UR by the analyst, indicating that the stock's price target and/or rating are subject to possible change in the near term, usually in response to an event that may affect the investment case or valuation.

Rating/Return Divergence (RRD) This qualifier is automatically appended to the rating when stock price movement has caused the prevailing rating to differ from that which would be assigned according to the rating system and will be removed when there is no longer a divergence, either through market movement or analyst intervention.



Disclosures (continued)

UBS Investment Research: Global Equity Ratings Definitions and Allocations

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UK and European Investment Fund ratings and definitions are: Buy: Positive on factors such as structure, management, performance record, discount; Neutral: Neutral on factors such as structure, management, performance record, discount; Reduce: Negative on factors such as structure, management, performance record, discount.

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Unless otherwise indicated, please refer to the Valuation and Risk sections within the body of this report.

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