



**OIL PRICE CONTANGO – A TANKER OWNERS FRIEND?  
CAN EXTEND THE RUN OF A TANKER BULL MARKET  
BUT HISTORICALLY HAS LED TO STEEP MARKET CORRECTIONS  
WHERE IS THE CURRENT ENVIRONMENT LIKELY TO LEAD NEXT?**

(Oil Demand Growth, OPEC Behavior and Other Market Drivers)

**What Is Contango Pricing?**

Contango is a pricing description in which futures prices get higher as maturities get longer. The market impact when this type of pricing is in place is to provide the ability to lock in profit by buying the prompt price and selling the future period at a higher level. It is a word that has become attached to oil prices recently – not only have spot crude prices been consistently rising since 2003, but futures prices during much of this time period have been greater than the corresponding spot price. In fact during 96 of the 99 weeks leading into the end of September of this year the price of West Texas Intermediate one month forward has been greater than prompt month price.

**Executive Summary:**

Oil futures pricing and U.S. crude inventory levels are related; contango pricing is connected to high inventory levels and low stock levels are tied into backwardated pricing. This has been true 78% of the time over the last 10 plus years. However, rising tanker earnings have been associated with low inventories and vice versa; what can be good about contango oil pricing? Earnings are related to oil movement frequency as well as other variables; contango pricing provides financial incentive to buy and transport oil during periods of high inventories and can result in more oil being transported than would be expected. In the extreme as storage capacity issues arise tankers are chartered for storage, cargo discharge efficiency decreases as ullage becomes an issue and some vessels may miss dates for their next cargo loading. These all combine to effectively reduce supply and provide further support for tanker earnings (occurred Spring/Summer '06 as well as latter part of 1998)<sup>1</sup>. The market is in its third extended contango period since January 1995; the previous two ended during OPEC production cutbacks in 1999 and 2002 that coincided with periods of severely reduced tanker earnings. There have

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<sup>1</sup> Note different environments this occurred in – '98 had low nominal oil prices vs. current high level. It's the impact upon tanker requirements/logistics that is critical. Very different environments can result in similar impacts upon tanker impact



also been three periods of extended backwardated pricing that were accompanied by growth in tanker earnings (following the earnings collapse driven by reduced production that lowered the inventory levels). A significant difference between the current contango period and the prior two, late '97 into mid '99 and '01 into early '02, they both featured substantial drops in oil prices during the middle of the period resulting in substantial contango pricing as future pricing did not fall as precipitously as the spot price. The current contango has featured steadily rising oil prices nearly throughout (occurring in conjunction with surging oil demand growth, which is also in contrast to the prior two contango periods); the exception to this pattern occurring recently as prices have dropped since peaking during July '06 easing into October.

The tanker industry is a service sector in support of the oil industry; if something can impact the oil industry it can also impact the tanker industry. However, oil pricing in isolation does not have a definitive impact on tanker earnings; it is the behavior of the parties involved that impacts earnings – simplistically increased oil movement increases tanker demand and therefore earnings. This is further impacted by distance transported, efficiency/predictability in the utilization of the tankers, etc... Contango or its converse backwardation can impact the volume of oil that is moved as well as the behavior and attitude of those involved in the industry and the efficiency of tanker utilization.

Historically tanker earnings can be shown to be correlated to U.S. crude inventory levels and it can be shown statistically that the relative level of U.S. crude stocks and corresponding contango or backwardated oil pricing are not random occurrences – translation inventory levels and the front/future month oil price relationship are related. However, the predictability of the level of tanker earnings basis contango/backwardation of oil prices is not as accurate as its directional predictability – in other words it gives you a good idea of the direction earnings are headed, but not necessarily the magnitude. During an extended period of market uniformity the issues involved in oil pricing can provide otherwise unseen insight into the likelihood of a change approaching for tanker earnings.



During the last decade the players involved in the setting of oil prices have, to say the least “evolved”. In addition to a huge increase in the volume of paper barrels (that effectively set the price of crude) traded on the NYMEX and other exchanges the players involved in the trading have changed. Non-commercial activity has increased over ten-fold since 1995 basis the CFTC<sup>2</sup> categorization of future contracts traded while overall volume has also grown, although at less than half the “non-commercial rate”. It is also important to remember that most of the volume is done OTC (over the counter) and that the CFTC volumes are just the “tip of the iceberg” of overall activity.

In the current environment in which demand growth (U.S. & OECD that is) is low to negligible and inventories are high, basis the previous 5 year inventory range the future oil being priced in contango provides financial incentive to buy and transport the crude as a profit can be locked in when pure supply and demand fundamentals indicate a reduction in activity is warranted. **In other words at some point or for an extended period during a period of contango pricing, its existence is likely to prolong the strength of a tanker market or to dampen its weakness.** The concern that tanker owners should have with regards to oil priced in contango revolves around what happens when the fundamental supply and demand gains dominance over the financial incentives provided by contango pricing or disincentives provided by backwardated pricing. If this happens gradually the tanker earnings adjustment will likely be gradual, but the inverse is also true (and historically the more common outcome). In order to anticipate what may happen, this report will attempt to understand how oil pricing has impacted oil production and its transport in the past and how this information can be used in the current environment to anticipate what is likely to happen next. The caveat to the fundamental supply/demand comment is that that type of phrase is used the word “fundamental” can be replaced with the words “historical norm”.

The question that immediately arises is that since relative inventory levels and oil pricing are not discreet occurrences, how are tanker earnings integrated into this picture? Part B. of this question is how has the oil market changed during the time period that is being

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<sup>2</sup> CFTC – Commodity Futures Trading Commission  
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focused upon is it driven by the same factors in 2006 as it has been over the last 10 years and finally; what are the implications of these drivers for the market going forward? What caveats/requirements would we site in conjunction with our outlook?

*The current market drivers most closely resemble the environment that preceded the 1999 OPEC cutbacks and tanker earnings retrenchment with some key exceptions:*

- ✦ *Nominal prices are high*
- ✦ *Demand has softened, but only in the OECD; Non-OECD oil demand growth has not collapsed (YTD September it is 3%+)*
- ✦ *Spare capacity for both production and refining is tight.*
- ✦ *The orderbook is very robust (medium to longer term issue) – expect nominal supply pressure to be balanced by market differentiation between D/D and Non-D/D vessels in short-term. This will reduce the “effective supply” of the fleet vs. the nominal supply. Not a near-term concern, but by decades end this likely dominant issue → 2009 deliveries 50+ VL’s, 40+ Sz & approximately 80 Afra could overwhelm any ability to absorb supply through market differentiation<sup>3</sup>.*

None of these differences are likely to prevent a market correction, which is likely to occur during the first half of 2007 (basis announced OPEC production cuts), but they will likely lessen the severity and shorten the duration of this correction. Unspoken is the importance of an average winter in terms of heating requirements to maximize the inventory reduction ability of the OPEC cuts. When high inventories are inevitably corrected – unless there is a surge in demand it must come from reduced production. Reduced production implies reduced tanker demand, but continued oil demand growth in nominal terms tempers the impact of the production cuts and the length they are enacted and needed to reduce inventories (Non-OECD nations, particularly China are now providing significant incremental additions as well as “attention getting” percentile growth). The critical factor needed to facilitate continued Non-OECD demand growth is growing OECD economies. The nominal oil prices are largely responsible for the softening OECD demand, but the Non-OECD nations have been able to neutralize the impact of rising oil prices upon their

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<sup>3</sup> The scheduled deliveries equate to approximately 12% of the Jan. '06 fleet size for each of the 3 sectors



economy and oil demand growth by utilizing their balance of payments surplus with the OECD. If the OECD economies slow down then the amount that is purchased from the Non-OECD will be reduced diminishing the ability of their governments to subsidize the cost of oil. The implications of this factor cannot be overstated – if the Non-OECD (China in particular) has to face world oil prices, demand will crater, prices will flip into contango and the tanker market will be hit hard.

The issue of lack of spare capacity lowers the desire to reduce inventory level while maintaining the value of producing, refining and transporting oil; this will likely reduce variance in the amount being transported. This issue also supports a continued contango oil market. Barring a change in the perception of spare capacity in the market or the failure of OPEC to act as stated to lower global inventories we do not see the current contango flipping to backwardation unless:

1. A mild winter in Northern Hemisphere results in less than typical oil demand during Q4/Q1 season muting the impact of the OPEC cuts and necessitating their continuance.
2. As stated in the preceding paragraph a drop in Non-OECD demand which at the current time would essentially eliminate global oil demand growth – this would signal an implicit easing in spare capacity in the short to medium term

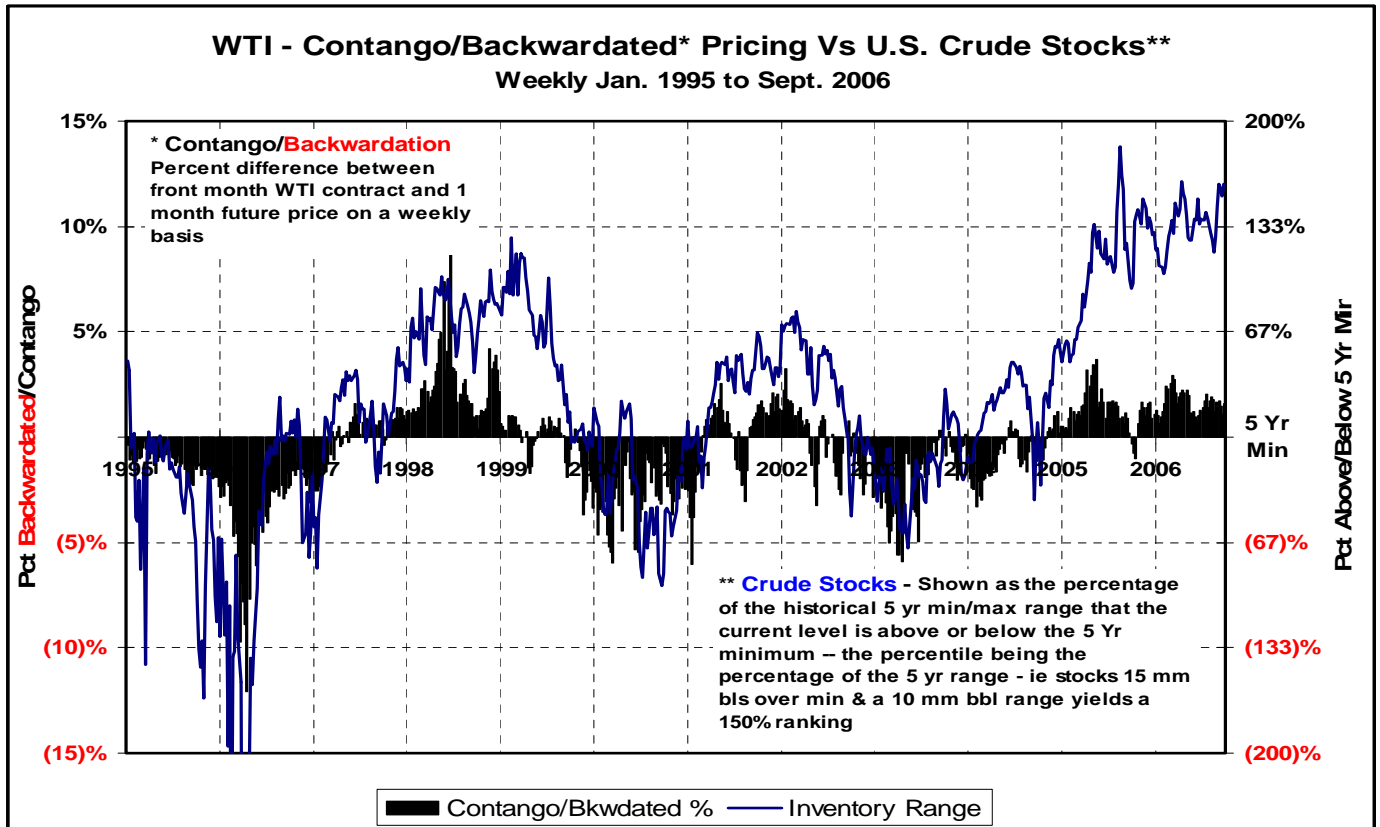
The issues raised by the size of the orderbook, which is discussed in greater depth within this report is likely countered by regulatory issues that have given rise to tanker differentiation (reduced utilization for Non-D/D vessels). Incremental D/D tankers that will continue to be delivered will facilitate increased dis-utilization of those that aren't → we expect the growth in effective supply (vs. the larger growth in nominal supply) to not overly depress the market in the near to medium term.

### **Contango/Backwardation and Inventory Levels**

As noted in the summary there is an historical relationship between contango/backwardation pricing and the relative level of U.S. crude inventories. The graph below visually demonstrates that when inventories are historically low prices are usually backwardated and when inventories are above the historically minimal levels prices are likely to be in contango. This occurred during approximately 78% of the 611 weeks from January 1995 through the end of September this year; the chances of these



occurrences not being related are remote. The likelihood of this being a random/unrelated event is similar to the chances of flipping a coin 1,000 time and getting heads 780 times (or the inverse of this -- 220 times).



A notable exception to the inventory/pricing alignment previously described occurred in 2004; commencing in mid-February through early November oil was priced predominately in backwardation, yet U.S. crude stocks were above the “5-year minimum range” and built until the impact of Hurricane Ivan was felt. Part of the explanation is that inventories never rose that high. In addition there are 2 more issues that likely delayed a change in the relative level of future prices for crude; (1) spot prices were perceived as being high (mid \$30’s – about 10% higher than the prior year average, which were the highest level since the first Gulf war) and (2) expected growth in demand likely lagged the rate of growth that was occurring/about to occur. Prior to 2003 the market had experienced a 5-year period in which global oil demand grew by about 0.8% p.a.<sup>4</sup>. The 2003 growth rate of about 2% was probably viewed with some skepticism and was likely seen as priced into the spot prices, but the forward market was logically approaching the situation with caution.

<sup>4</sup> As per Energy Intelligence Group (EIG) historical information



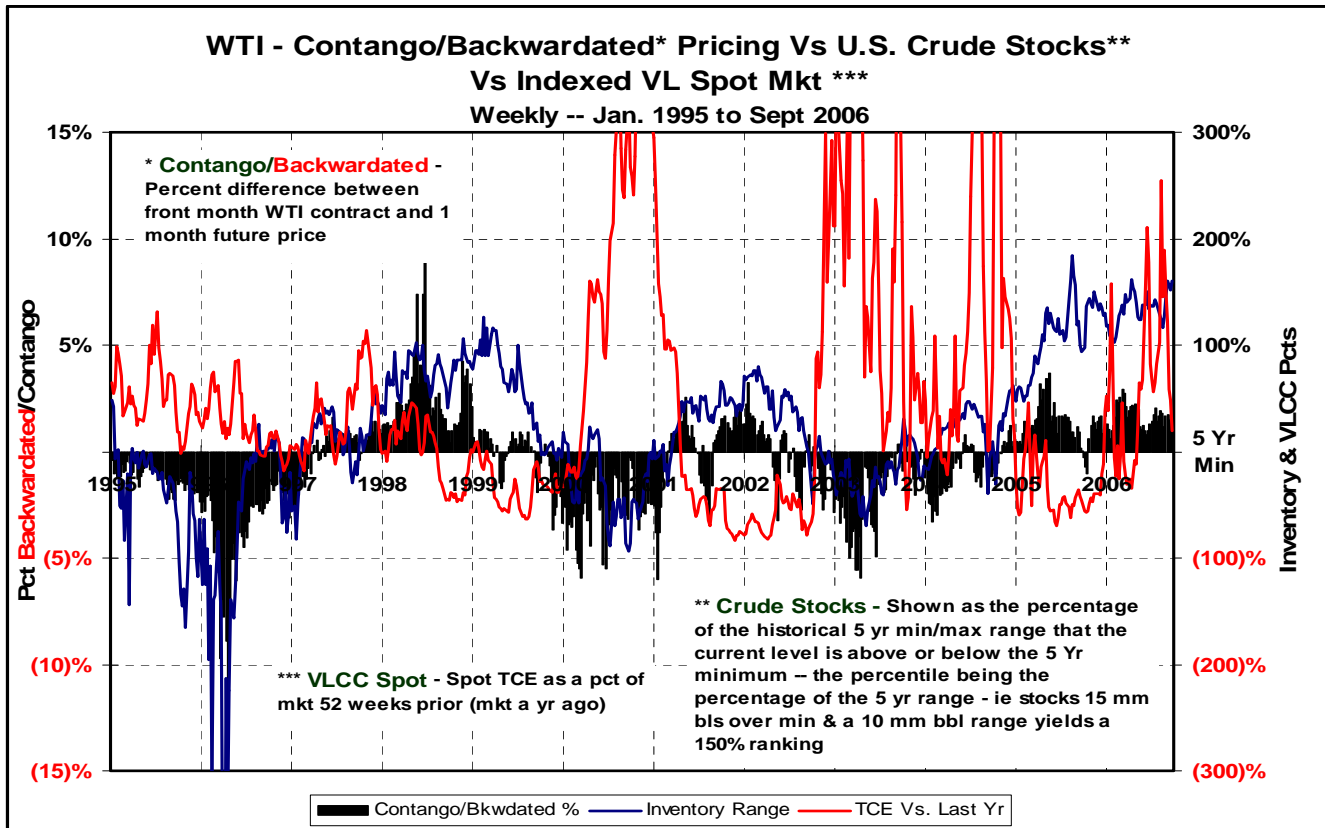
However as the 2004 oil demand growth rate of 4%+ became known the futures pricing flipped into the contango that the market has experienced almost ever since (brief flip during Sept-Oct '05). This is interesting in that it demonstrates that there is/will usually be a “**but**” (“XYZ” theory implies “ABC” result/relationship but ...). It is important to remain cognizant that business analysis is not a scientific proof; scientists require in lay terms a 95% certainty at a minimum. In our environment we hope for a cause/effect relationship, but a co-variant<sup>5</sup> one provides useful information as well.

The Immediate Question: Changes in tanker earnings overlain upon the Contango –  
Backwardated U.S. crude stock relationship

The graph below starts with the previously shown Contango/Backwardation vs. relative inventory level and superimposes change in VLCC earnings as a proxy for the tanker market as a whole. Simply put when inventories are low (prices likely backwardated) tanker rates are usually rising vs. prior year levels (more oil moving – more demand for tankers), but this increase will likely be from a low base (nominally low rates). When inventories are above historically minimum levels tanker earnings are not necessarily going to rise dramatically more, but 2 points should be made – baring an extreme period like 2004 preceding the period in question (1) tanker earnings should stay in a strong neighborhood as a high level of product is being moved and (2) in the later stages of contango when inventories are getting very high a bull tanker market will be somewhat extended as oil movements that wouldn't otherwise take place do because of the financial incentive of contango pricing

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<sup>5</sup> Expressed more simply – co-variant implying that the variables involved move for similar reasons versus one causing the other



It is during the “inflection periods” from contango to backwardated pricing that tanker earnings fall precipitously. This is due to the change in the amount of oil being moved. In the short-term tanker earnings are about tanker demand, which is based upon the transportation of oil. Supply is inelastic in the short-term additions require construction and deletions are even slower as scrapping of tonnage that isn’t very old requires dire market conditions.

### Historical Development

The graphs below separate the preceding graph into three time periods to better view market developments. Note that each graph overlaps from the preceding period; the periods shown are 1995 to 1999, 1998 to 2002 and 2001 thru Sept 2006. Additionally each graphs has market commentary discussing the period embedded into the graphs

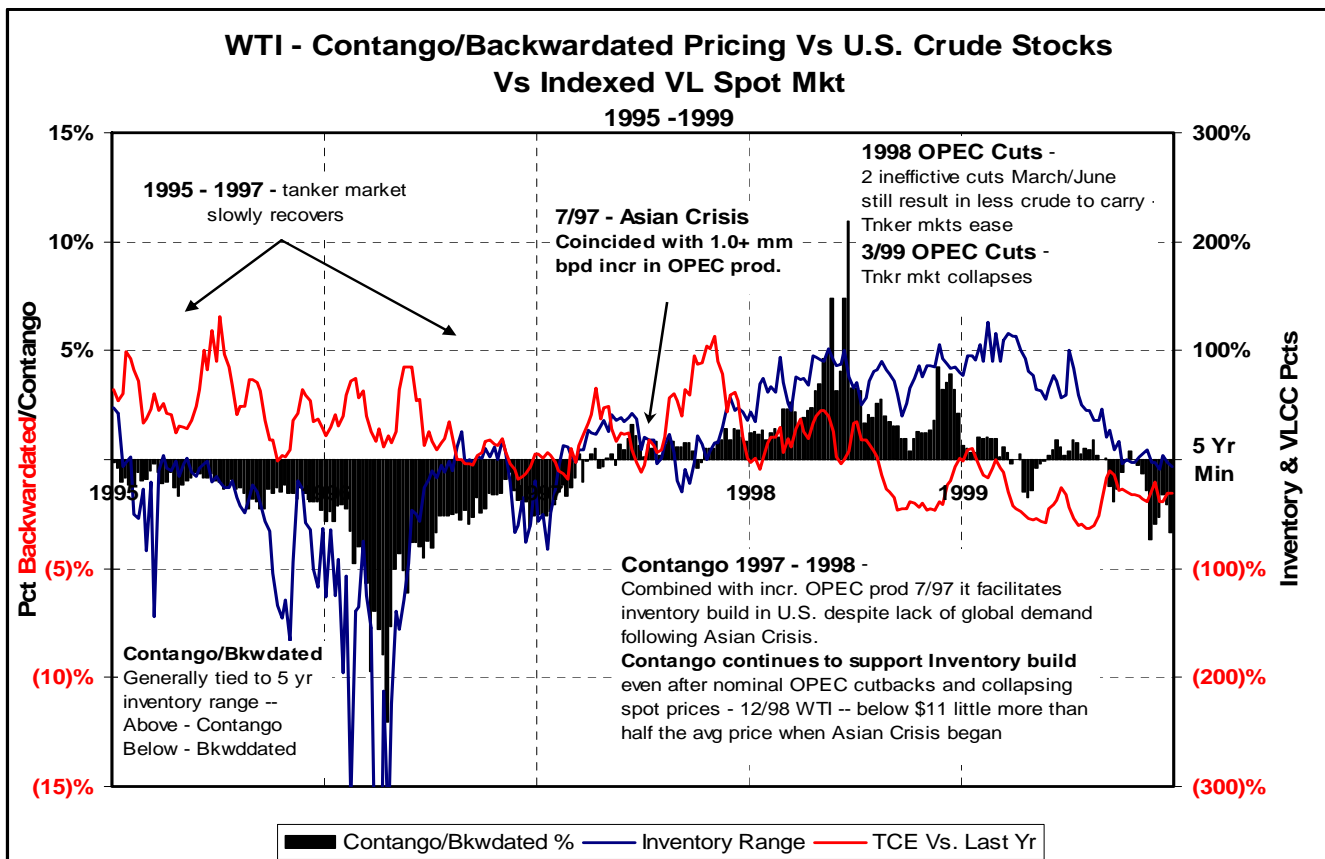
#### 1995 -1999

The tanker market appears to slowly recover from the low levels of the early ‘90’s during the 1995 to 1997 period. Global demand growth surges during the first half of the period





– nominal demand growth in 1995 was nearly a third greater than the cumulative total of the 5 preceding years (1990-1994). This change was particularly acute in the developing world – Non-OECD consumption in 1994 was about 1.5 mm bpd less than in 1990<sup>6</sup>, but this drop was more than reversed in 1995 by a near 2 mm bpd increase in Non-OECD consumption. This grew by another 2 mm bpd by 1997. Tanker earnings followed the increased oil flow Aframax and Suezmax earnings grew by about 50% from 1994 to 1997 and VL earnings grew by nearly 2.5x during this period, but the Asian Crisis, led to a collapse in oil demand growth and prices → and after a number of false starts the beginning of coordinated OPEC production policies is seen → March '99 output cuts. The reduced oil flow cratered tanker earnings for a portion of 1999, but the annual averages for the VL and Suez segments still exceeded 1994 levels; only the Aframax sector had earnings below the '94 level<sup>7</sup>.



<sup>6</sup> As per EIG historical information

<sup>7</sup> Basis assessments published in Clarkson Weeklies – Afra assessment is avg of CBS, North Sea and AG/East markets



It is noteworthy that the 1995 to 1997 surge in oil demand growth occurred within the framework of a classic economic recovery. During the 1990 to 1994 period that preceded there was the global recessionary period following the first Gulf War, a period of low world oil demand growth – averaging about 0.5% p.a. for the 5-year period with the Non-OECD portion of the world actually contracting by over 1% p.a. (in 1994 Non-OECD oil demand shrank by over 4%). While global oil demand increased by near 3% p.a. from 1995-1997, Non-OECD growth topped 5% p.a. “Paper” trading of crude contracts expands<sup>8</sup> -- the reported exchange traded volumes for both long and short positions essentially double during the period. The Non-Commercial<sup>9</sup> volumes increased more rapidly – long positions increase 2.5x and their short positions nearly triple. It is not surprising then that paper trading interest by both industry and non-industry participants grew during this period as the underlying economic activity of this commodity increased.

#### 1998 – 2002

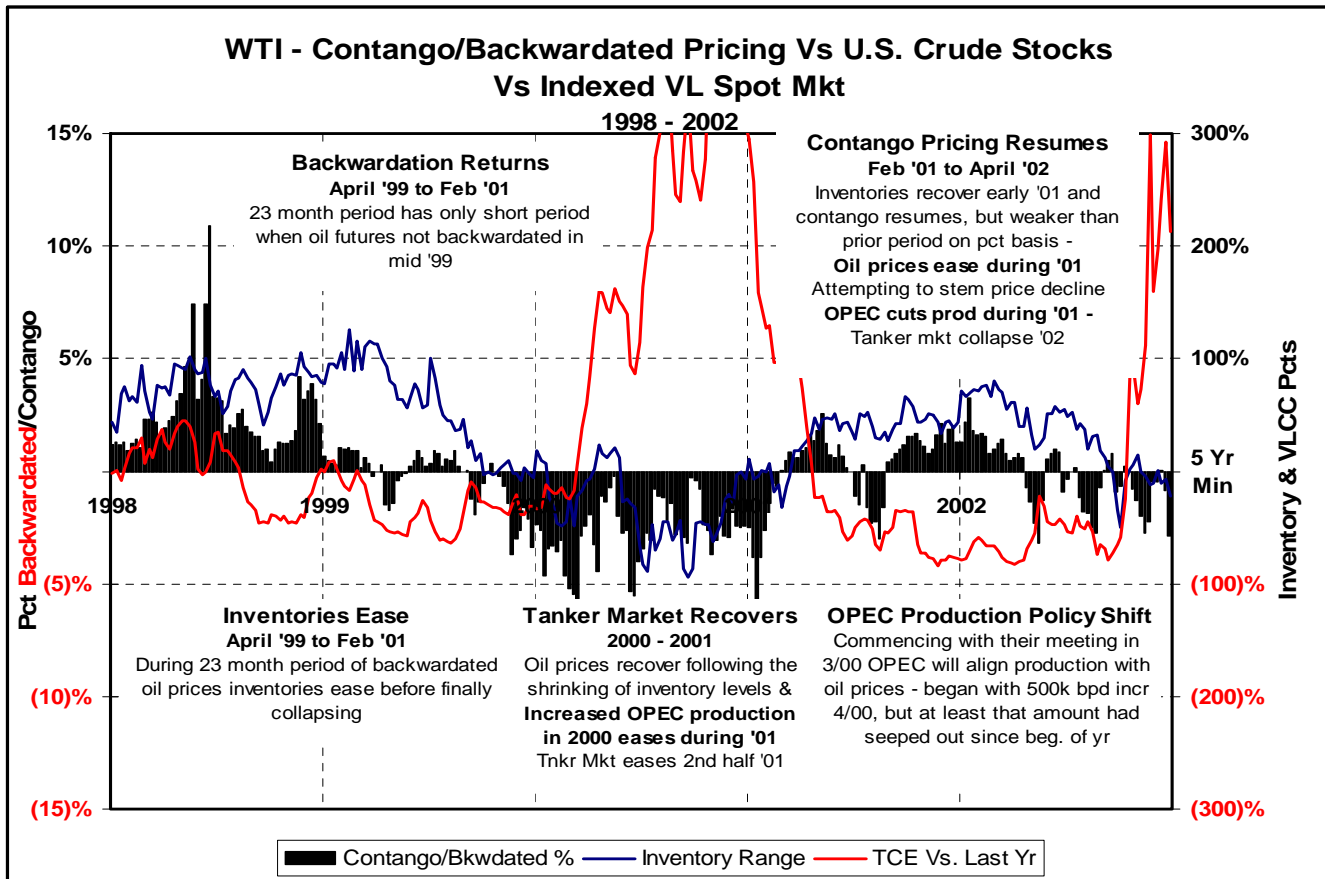
This period can be referred to as the Global Oil Demand Growth Holiday Period (5-year average of 0.8% p.a. growth rate)<sup>10</sup> -- Asian Crisis, 12-months of OPEC production cuts, upon production resumption the Bull Market of 2000/2001, but effectively a lack of oil demand growth leads to inventory growth and a drop in oil prices resulting in a second coordinated OPEC cut and the tanker market correction of 2002. The 2002 level of paper trading is essentially flat versus 1999 following an approximate 20% drop during 2000/'01 as compared to 1999. However, the importance of the “Non-commercial” player increased as the percent of long positions held by this group rose by nearly a third, while the short positions grew by about half. This growth resulted in approximately 1 in 3 of the long positions traded and 1 in 4 short positions traded being done by “Non-industry” players. In 1995 “Non-Commercial activity” averaged 1 in 5 for long positions and 1 in 8 on the short side.

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<sup>8</sup> Information basis CFTC website reporting positions of WTI traded on NYMEX

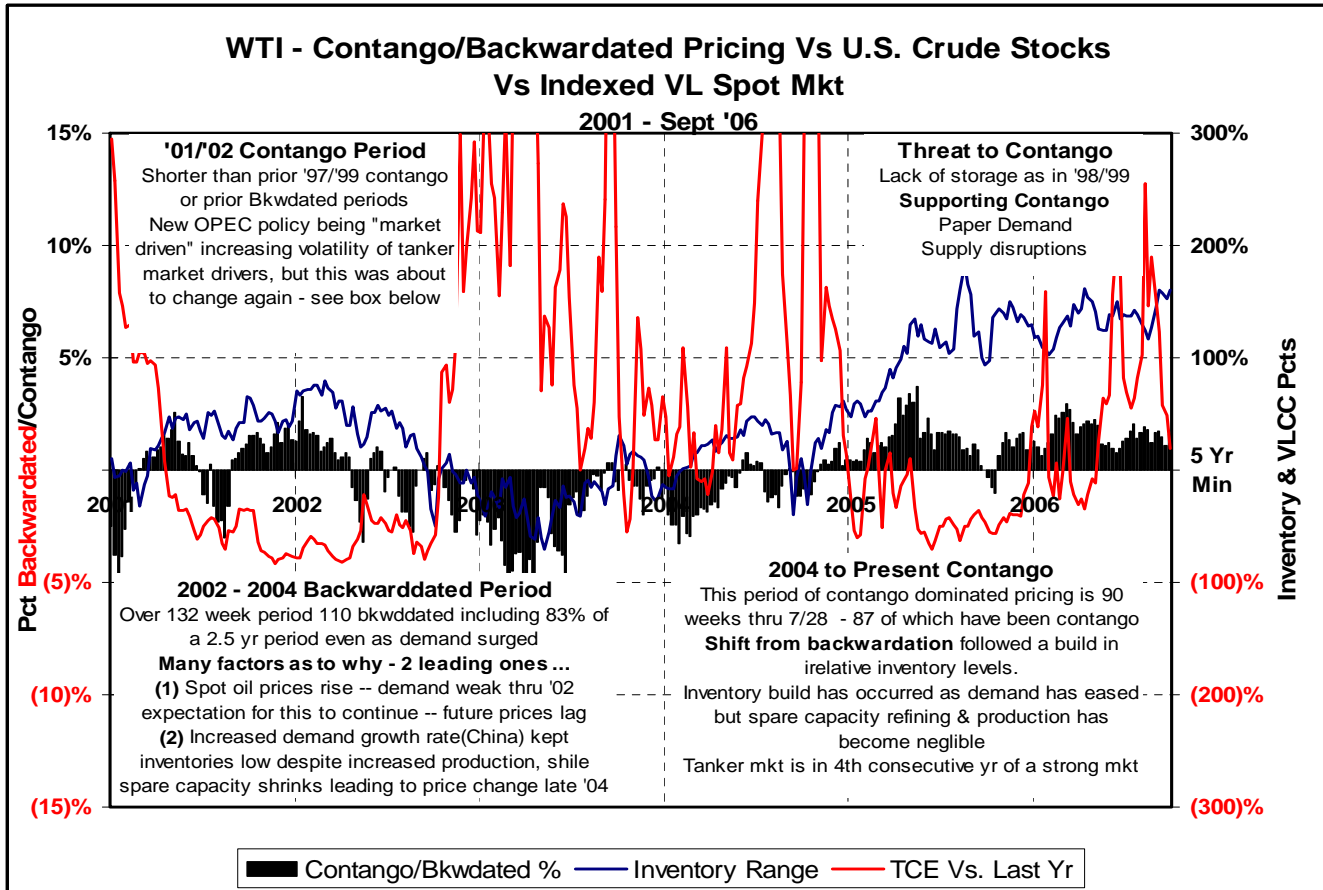
<sup>9</sup> As classified by the CFTC – meant to quantify non-physical participation -- i.e. traders and various paper investors

<sup>10</sup> As per Energy Intelligence Group (EIG) data



#### 2001 – YTD 9/06

The growth in oil demand during this period nearly eliminated spare capacity from both a crude production and refined product point of view. The value of all sides of the oil continuum surged. Oil has become an investment vehicle in addition to its traditional use as a source of energy. Trading activity has increased by over ten-fold on the NYMEX from 1995 to 2006 and during this time Non-commercial activity as a percent of total trading volumes has gone from less than 1 in 5 for long positions and 1 in 8 on the short side to 4 of 10 on both the long and short side. A caveat on all the trading information is that only exchange related activity is measured; there is a great deal of “over-the-counter” trading by the Non-commercial players that is not recorded in a systemic manner. The increase in this activity and its significance is no doubt understated



#### October 2006 and Beyond

During the last two weeks of October OPEC announced its intention to cut production output by 1.2 million barrels per day. The parallels to the cutbacks in March of '99 are striking; inventories are high globally and oil demand following several years of significant growth has waned<sup>11</sup>. However, there are some significant differences:

- Non-OECD oil demand growth has not fallen off as significantly as it did in 1998/1999
  - The YTD August Non-OECD demand growth rate appears to be nearly 3x the 1998 level
- Oil Prices – nominal levels are still over 5x the average December '98 level (basis WTI).
- Spare production/refining capacity & concern of unstable political environments – despite current inventory levels the ability of the market to meet supply disruptions is limited – spare capacity at about 3% is less than half the 1998/'99 level
  - Political instability is not new in the producing regions, but the potential impact from lost production is greater.

<sup>11</sup> Global demand averaged about 3% p.a. '95-'97 and '03-'06 prior to falling in '98/'06. In both periods Non-OECD demand growth was about 5% p.a. for the three year periods noted.



- Saudi would not be able to counter-act a loss of Venezuelan production as easily as was done during the December '02 to Spring '03 period.
- The orderbooks (incl. '06 deliveries) tops 30% of the Jan. '06 fleet vs. about 20% for the three major dirty sectors at the end of 1998.

### Tanker Supply

Despite the nominal increase in supply during 2005 into 2006 and continued deliveries in most tanker sectors (VL's being the '06 exception) supply has not effectively grown as Non-D/D discrimination has surfaced beyond the IMO mandates that went into effect April '05. The reduced utilization of Non-D/D has reduced the “effective tanker supply”; in addition all the logistical issues introduced by the contango market have reduced it further (port congestion, increased storage etc...) It is the belief that as more D/D are delivered the discrimination against Non-D/D will increase as it will be easy to “be noble” without financial ramifications.

### Other Issues:

The contango pricing does not show any signs of flipping at the moment. It has actually deepened as near-term prices have eased – the differential between the near month and 12 months further has grown from about \$2.50 average for January of 2006 to about \$5.75 in September and deepened further for the first half of October – the growth in spread was also true when looking at the near month vs. one-month out differential.

In 1998/'99 the Asian Crisis was a Non-OECD phenomenon and the primary source of the drop in demand. In 2006 the price of oil has surged resulting in softening demand in the OECD, but the shield from world prices that many Non-OECD nations provide their citizenry has grown in significance as oil prices have. This phenomenon is somewhat tenuous in that it relies upon the continued health of OECD economies – if the high nominal oil prices erode economic growth the imports purchased from the Non-OECD will ease and the ability of these nations to subsidize oil prices will also erode and oil demand/tanker earnings will follow.



The lack of spare capacity took years to suddenly appear and will take years to suddenly disappear if it were to. The consensus view of most projections is that spare capacity will remain tight at least through the balance of the decade as demand growth is anticipated to balance new production and refining capacity additions. In reality only actual events will answer this question. The anticipation of new capacity for both the crude and refining shapes one side of the equation and while demand growth can obviously be projected its reality is the more volatile component of this issue.