

**Statement of Adam E. Sieminski
for the
U.S. Senate Committee on Governmental Affairs**

World Oil Market Outlook

March 24, 2000

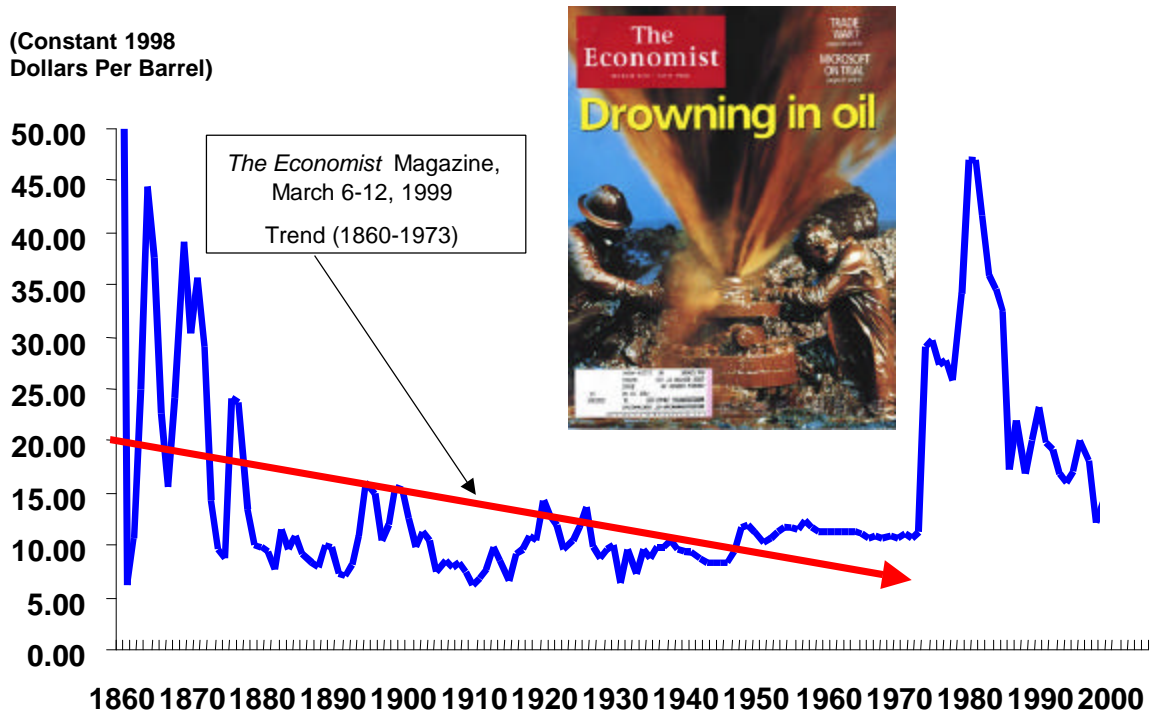
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The opinions expressed in this testimony are those of the author
and do not necessarily reflect the views of Deutsche Bank or DB Alex. Brown**

Highlights:

In my view, oil prices are likely to come back down toward \$20-\$22 WTI but it may take until the second half of 2000 to get there. We do not believe there is a new \$25-\$30 oil price paradigm now any more than there was a \$5-\$10 paradigm in 1998. However, **OPEC and Saudi Arabia may not have the desire or the will to bring the oil market quickly back into equilibrium.**

- Markets have been extremely volatile but tend to be self-correcting.
- Current high prices stem from a reaction to a period of low prices caused by an ill-timed OPEC output increase in November 1997. This supplemented rampant quota cheating just as Asian demand plummeted during its contagious financial crisis.
- OPEC has staged a dramatic comeback but it remains highly sensitive to the 1997 failure. It does not want to repeat past mistakes, and is thus being overly cautious, in our view.
- Crude oil and product inventories are low but companies have probably realized efficiency gains that enable them to operate the supply system on lower inventories. The heating oil price spike in late January showed the sensitivity of prices to the low level of inventories. Low gasoline inventories have left the U.S. highly susceptible to a gasoline price spike this spring.
- Although the outlook for Iraqi output is unclear, a recovery from recent lows could occur. Political maneuvering in an effort to gain concessions from the UN may result in lower exports. Alternatively, the need for cash may cause Baghdad to maximize production despite reports of damaged wells following last year's high output levels.
- Substantial disagreement within OPEC has left markets guessing about the level of production increase likely to be agreed by the OPEC ministers at their March 27 meeting. Some countries, namely Algeria, Libya and perhaps Iran, want to extend current output quotas. Saudi Arabia, Venezuela and non-OPEC Mexico support a near-term increase but the volumes are uncertain.
- Longer term, OPEC's agreement on quotas could become more difficult to achieve due to the uneven spread of spare capacity among the cartel members.
- Petroleum demand is definitely rising with higher economic growth. Although the full economic impact of high oil prices won't be known until after the fact, oil is not as influential in the economy now as it was in 1980. And, nevertheless, we expect that there will be some impact on demand from higher prices.
- Although non-OPEC supply has been slow to respond to higher prices, there should be substantial gains in 2000. Higher company spending on exploration and production in this year's second half could impact production in 2001-2002.

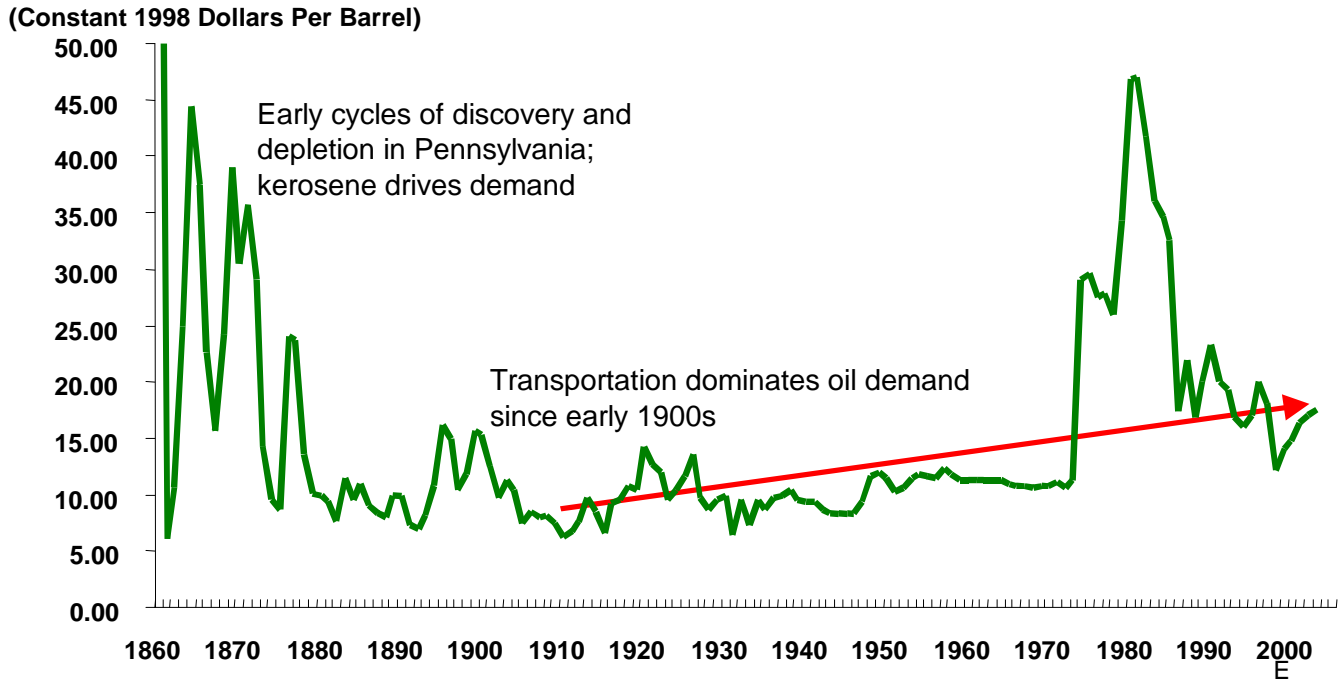
US oil prices since 1860 ...long term decline theory



Source: API, DOE, and Deutsche Banc Alex. Brown estimates

U.S. oil prices since 1860 ...long term decline theory. This chart shows U.S. oil prices since 1860, and was used to illustrate a magazine article in the March 1999 issue of *The Economist* titled “Drowning in Oil.” **It seems amazing that less than a year ago, many analysts believed that oil prices were headed down to \$5 or \$10 a barrel and were likely to stay there for some time.** The long-term decline theory in prices was being influenced by the low prices of 1998. There was a lot of discussion and concern that technology had lowered the cost of finding oil, and that the lack of discipline in OPEC would be impossible to overcome. This combination was seen as virtually “guaranteeing” low oil prices.

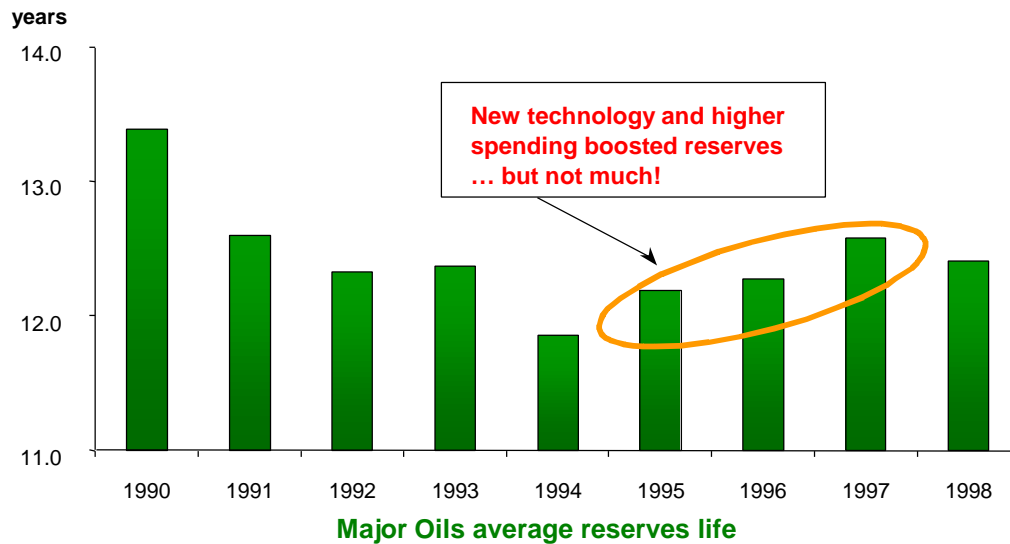
US oil prices since 1860 ...no downward trend in post-1900 data



Source: API, DOE, and Deutsche Banc Alex. Brown estimates

U.S. oil prices since 1860...no downward trend in post-1900 data. It seems to me that there were several things that *The Economist* missed. **The first big mistake was to rely on too much history.** The first 50 years of the oil industry from 1860 to the late 1800s -- when prices were actually quite high in today's dollars -- was the age of kerosene. Oil was being used for lighting. The world entered the transportation age in the early 1900s, and I believe we are still in that mode. Transportation uses dominate current petroleum consumption. In the US, for example, almost 2/3 of oil is used in transport. I think that you could argue just as easily -- looking at the chart since 1900 -- that oil prices have been on a slight rise in real terms rather than on the long-term decline that *The Economist* magazine and others forecast.

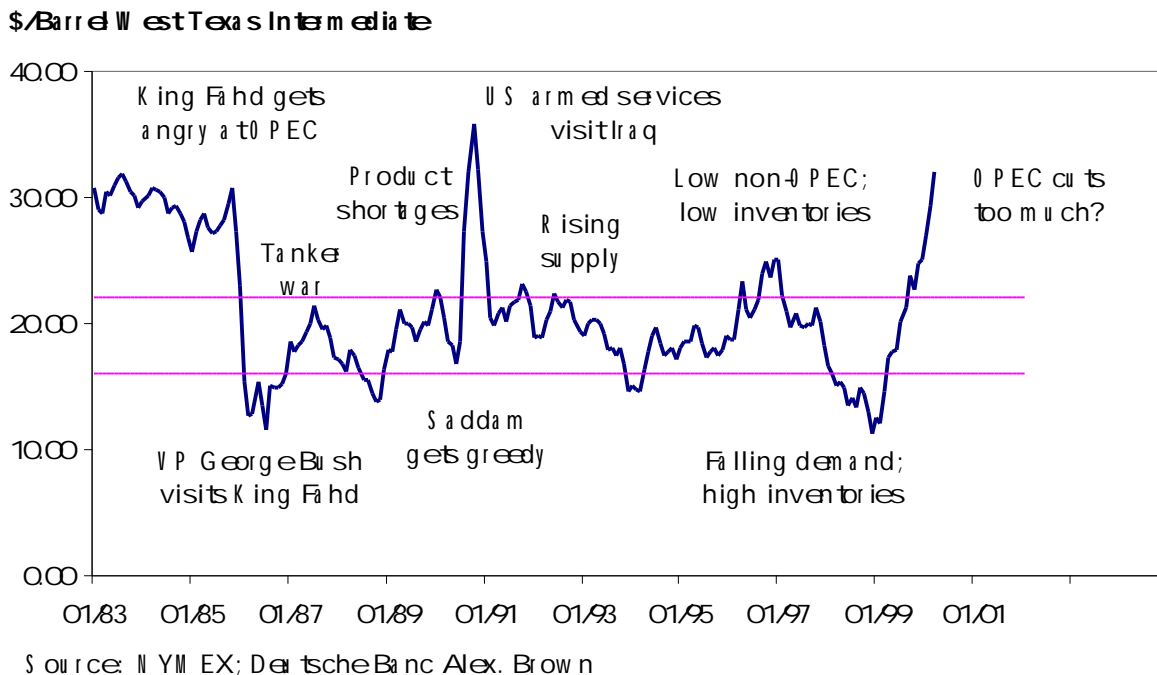
Reserve lives responded only sparingly to new technology and massive spending



Source: Deutsche Bank estimates

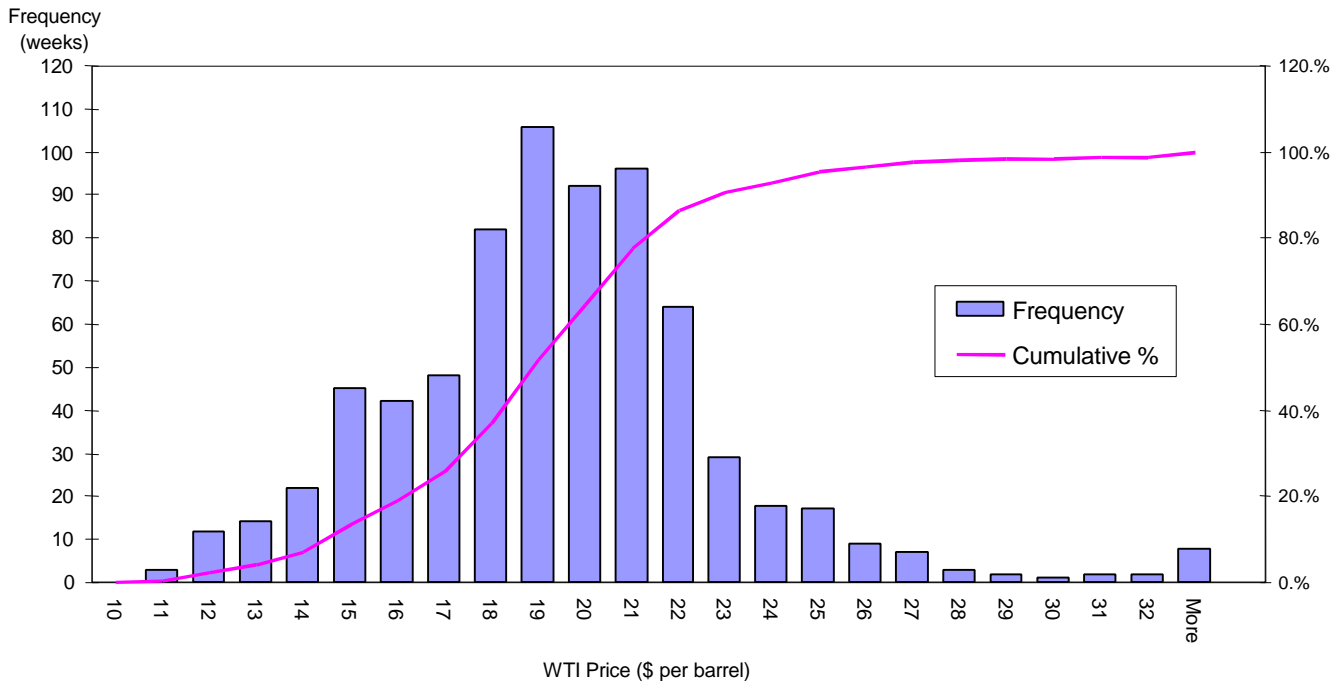
The arguments about technology and cost, I think, are quite valid but limited. Technological improvements did lower finding costs, but if you look at production profiles for the companies, as well as reserves and finding rates, the story is less compelling. Over the last decade, producers have been finding and developing more of the oil that was already in place but they have not really been adding to reserves with an overwhelming amount of new discoveries. On the issue of OPEC's discipline, I think that was answered in March of 1999. There is always the potential for OPEC to lose control of the market as they did in 1998. However, the economic losses of the producing countries in 1998 created an enormous incentive to band together and we believe that discipline is still fresh in the oil ministers' minds.

Oil prices 1983-2000: OPEC compliance induces a recovery



Oil prices 1983-2000: OPEC compliance induces a recovery. This illustration depicts some of the economic and political issues that tend to drive oil prices up and down. The pricing band shown here runs from \$16-\$22 in nominal terms for WTI. **In my view, prices tend to remain in that band unless there is something extraordinary that drives them out of the range – Shocks and Counter-Shocks.** In 1998 we had a number of extraordinary developments, and we may be seeing some new ones in 2000.

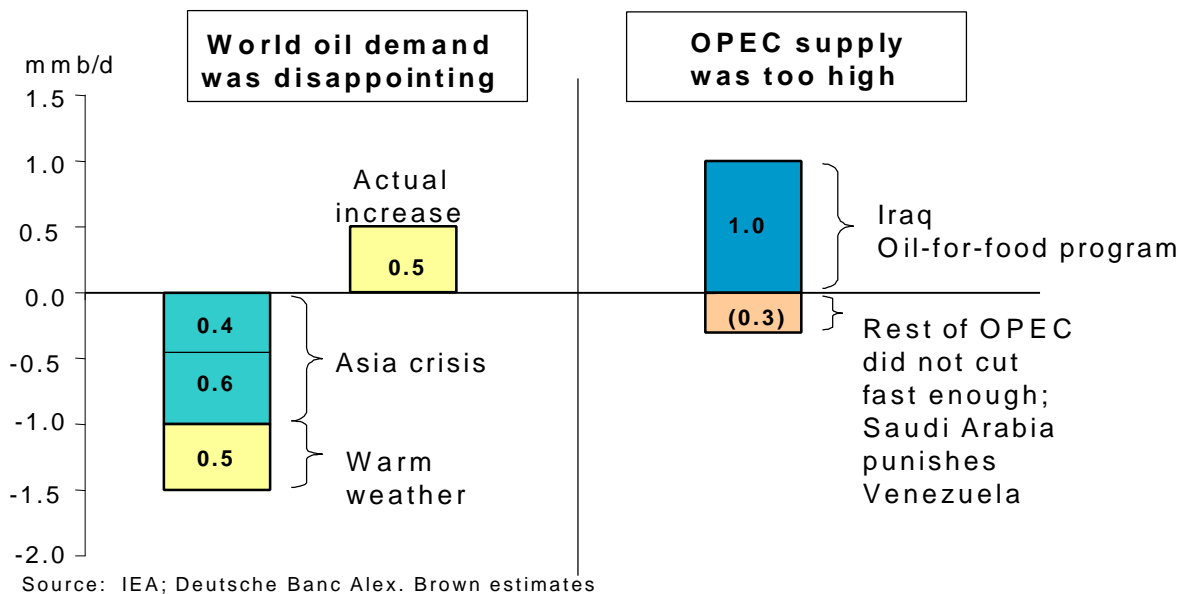
Frequency distribution of crude oil prices (1986-Present)
...the central tendency for oil prices has been \$18-\$22



Source: NYMEX and Deutsche Banc Alex. Brown

Frequency distribution of crude oil prices (1986-Present). This graph shows the frequency distribution of weekly WTI prices since 1986. We picked 1986 because that is the year the Saudi Arabian government changed its method of oil market management from “price targets first” to “volume targets first.” What I find especially interesting about this illustration is that most of the prices fall in the \$18-\$22 a barrel range, with \$19-\$21 predominating. **The \$18-\$22 range was frequently mentioned by the OPEC ministers during much of 1999 as being the oil price target.** Notice that there are few weekly observations below \$15 and there are not many over \$25. One standard deviation on this data is about \$2. WTI at \$28 is four standard deviations from the mean and substantially out of the historical range of prices that the market -- and I think Saudi Arabia -- has preferred.

What went wrong in 1998?



What went wrong in 1998? Why did oil prices fall so low? **It turns out that 1998 was a very unusual year.** The Asian Economic Crisis took 1 million barrels per day away from demand projections for 1998 made in late 1997. The actual demand decline in Asia during 1998 was something on the order of 400,000 b/d. Prior to 1998, however, it was expected that Asian demand would grow about 1 million b/d. Warm weather took away 500,000 b/d of demand.

The United Nations, at the end of 1997, changed the Oil for Food program and 1 million b/d more Iraqi supply entered the market in 1998. The rest of OPEC did very little in 1998, on balance, to reduce production. During 1998 there was still a major political dispute ongoing between Saudi Arabia and Venezuela over the future of OPEC and the "rights" to the downstream products markets in the United States. It wasn't until the election of Hugo Chavez in late 1998 and his inauguration in February of 1999 that Saudi Arabia and Venezuela struck a political deal. In return for assurances of higher prices, Venezuela agreed to reduce its production. Mexico agreed to a "standstill" on sales to the U.S., and Iran agreed to provide supporting rhetoric in return for a higher quota. It did not help that the ruble crisis encouraged Russia to boost exports in an effort to get hard currency and that China reduced its oil imports in order to conserve its dollar holdings.

Missing Barrels: The Sequel

mmb/d	1998	1999	2000E	
Demand	74.0	75.3	76.8	
Non-OPEC supply	44.7	44.6	45.6	
OPEC NGLs	2.8	2.8	2.9	
OPEC crude needed	26.5	27.9	28.3	
OPEC crude sold	28.0	26.6	28.0	
Implied stock change	1.6	(1.3)	(0.4)	
	Shock!	Countershock!		

Assumes OPEC adds at least 1.6 mmb/d in 1Q00 and 1.0 mmb/d more in 4Q 2000 -- and implies that inventories still decline

Still not in balance!

Source: IEA and Deutsche Banc Alex. Brown estimates 14-Mar-00

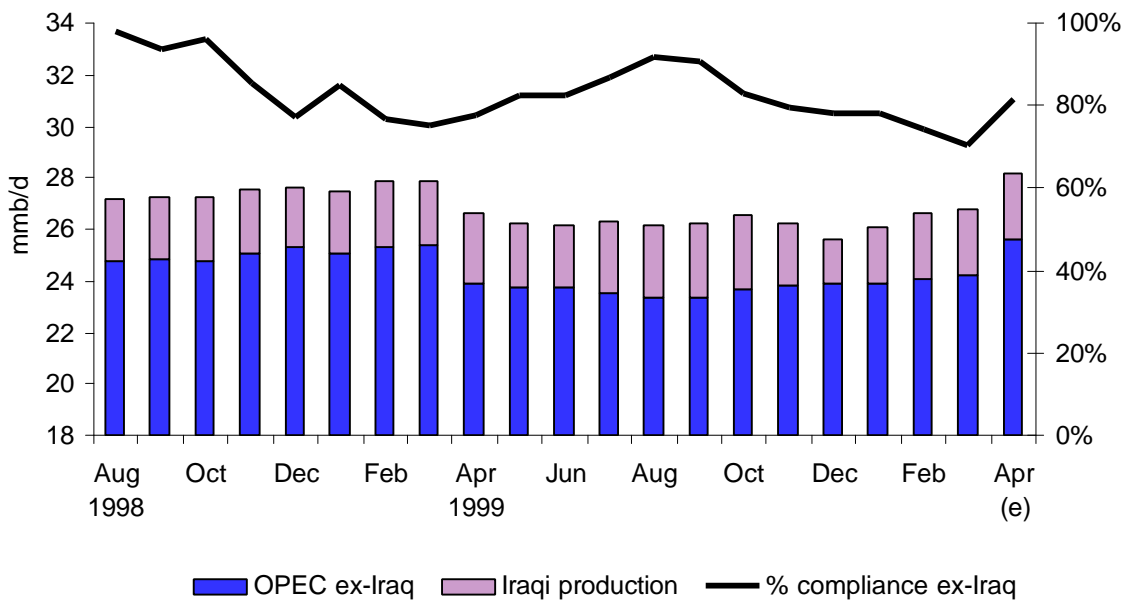
Missing Barrels: The Sequel. In late 1998, the discrepancies between reported high supplies and lower reported demand fueled worries that “Missing Barrels” might flood back into the market at any time and suppress prices. What you can see in these numbers is that in 1998 there was a fairly large build in “implied stocks.” The “implied stock change” is derived from the difference between supply and demand estimates. Nothing is put in for actual inventory change or the “balancing item” that is often used by analysts to try to make the supply and demand numbers agree.

In 1999 implied stocks fell. Somewhere in the world, inventories were being drawn down in 1999 by about as much as was built up in 1998 or maybe even a bit more. **The counter-shock that is hitting the system now, in our opinion, is this: Demand is rising in 2000 to about 77.0 million b/d, non-OPEC supply is to rise about 1.1 mmb/d, and OPEC natural gas liquids (NGLs) are somewhat higher than they were in 1999 at 2.9 mmb/d.** All this suggests that the amount of OPEC crude oil needed in 2000 is somewhere near 28.4 mmb/d. The problem is that OPEC is only producing about 26.4 mmb/d.

The total implied stock change for 2000 is about 1.7 mmb/d or over 600 million barrels. In my view, this is a physical impossibility. There is no way that the oil inventory system can supply 700 million barrels. Even if you assumed that some of the hidden barrels that generated such concern in 1998 are still out there and could appear via the balancing item to help align supply and demand -- maybe 400,000 b/d -- that would still leave 1.3 million barrels of stock draw unless OPEC produces more than the 26.6 mmb/d average of 1999. That is simply not workable, in our opinion. OPEC's supply to the oil market must rise.

If OPEC increases production by 1.6 mmb/d in April and another 1.0 mmb/d in October, as some OPEC ministers have suggested may occur, the average output for the year would rise to 28.0 mmb/d. This would come close to balancing the markets – as long as some of the non-OECD inventory (missing barrels) are available. Absent the missing barrels, OPEC's supply increase would have to be 0.4 mmb/d higher or demand would have to be 0.4 mmb/d lower.

OPEC production has declined significantly
...but compliance has slipped as market has tightened



Source: IEA; Deutsche Banc Alex. Brown estimates

OPEC production has declined significantly...but compliance has slipped as the market has tightened. A few months ago I thought compliance was holding somewhere near 90%. But it is apparent now that December production rose in Saudi Arabia and elsewhere following encouragement by the U.S. government, not only because of high prices in early December, but also because of a fear of Y2K shortages. The International Energy Agency has also revised upward some of its earlier OPEC production estimates. **Compliance is now closer to 70%, rather than the 90% we had been assuming earlier.** That's a difference of about 850,000 b/d. This leakage is not enough to destroy current pricing but it could grow and cap prices -- or eventually bring them down.

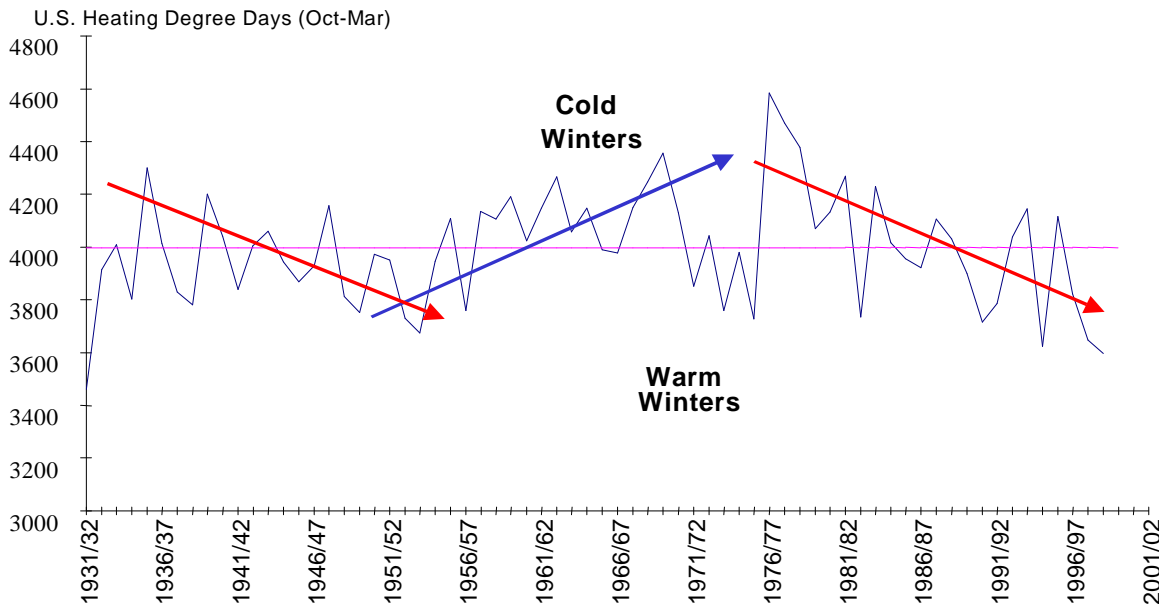
In my view, to get oil prices to really fall from where they are now, OPEC has to add a significant amount of new production on top of this existing level of quotas plus cheating. Our calculations suggest that an increase in actual output of 1.5 to 2.0 mmb/d is necessary to get inventories moving back towards normal levels. **My belief is that this is either going to be done officially at the March 27 meeting -- or in "gray market" cheating by some of the countries that can add production such as Saudi Arabia, Kuwait and the UAE.**

What could go wrong with a forecast that says supply and demand are out of balance? The following factors could influence our forecast the most:

- weather
- the economic outlook
- Iraqi exports
- non-OPEC supply
- OPEC compliance

A Recent Warm Winter Trend?

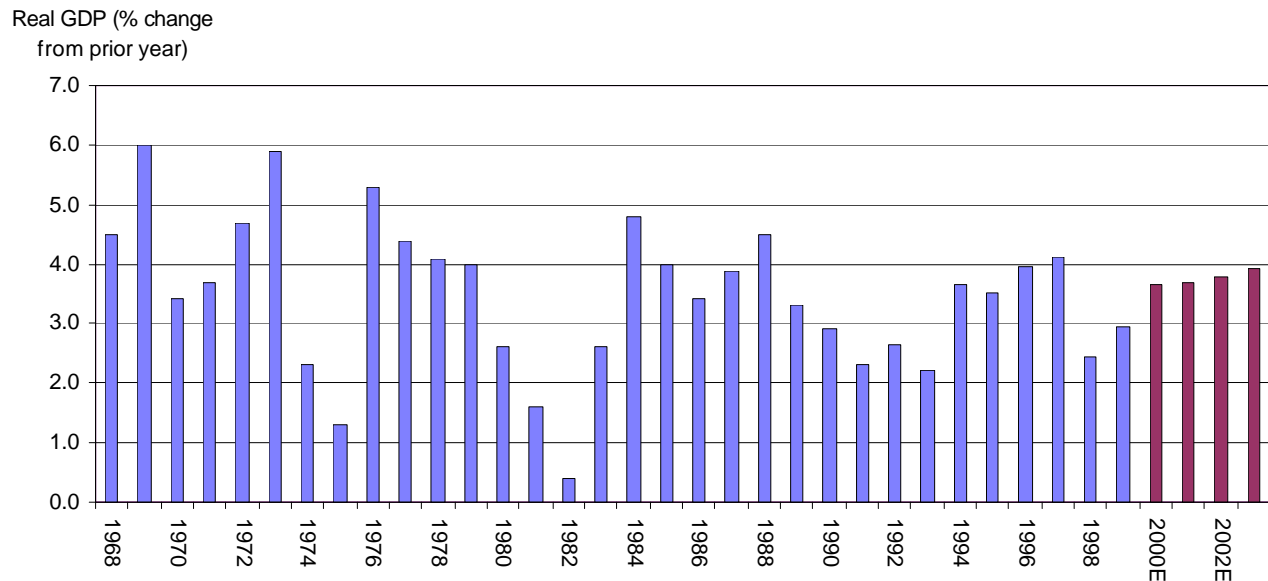
...or are we due for a “countershock” reversion to the mean?



Source: NCDC, Deutsche Banc Alex. Brown

A Recent Warm Winter Trend?...or are we due for a “countershock”? This shows US weather trends. Looking at the October-March heating degree-day data for the United States, it does seem that a warming trend has been underway since the mid-1970s. This is not global warming -- a phenomenon that deals with a gradual warming over a very long-term period (50-100 years). **Rather, it appears to be a cyclical pattern that involved a similar warming trend from the mid 1930s to the early 1950s followed by a cooling trend to the late 1960s.** In fact, there are meteorologists who now believe that temperature cycles may be related to sun-spot activity. Because of the recent warming, the definition of “normal” has been revised to be somewhat warmer than the old values. But even assuming warmer weather, on average, and therefore lower demand, this doesn't seem to be enough to balance the system. In 1998, extremely warm weather cut 500,000 b/d of demand. That's still not enough to balance the supply deficit we have now.

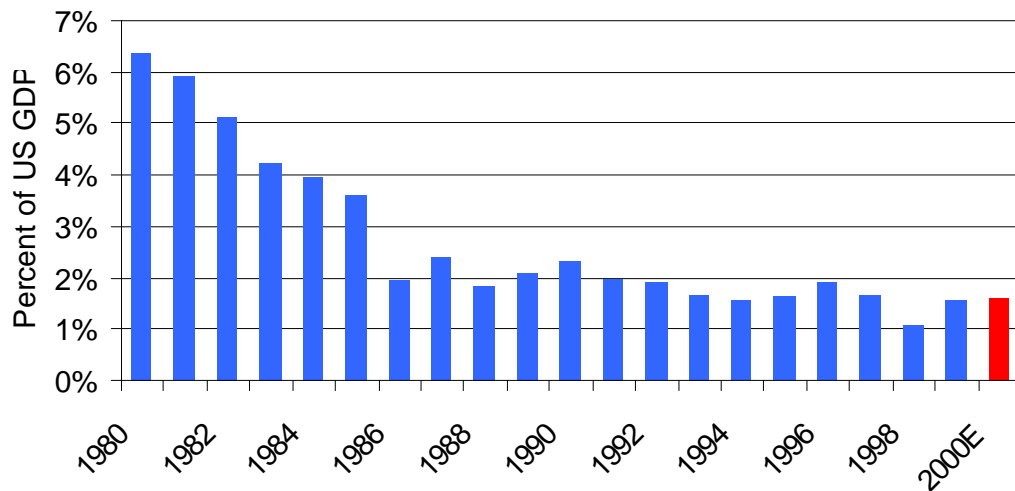
The economic cycle drives demand
...world GDP growth x 0.7 gives estimated oil demand rise



Source : IMF, Deutsche Banc Alex. Brown estimates

The economic cycle drives demand. Could the economy stumble and lead to lower oil demand? That's certainly possible, **but the consensus forecast for 2000 calls for world economic growth of about 3.5%.** The forecast for 2001 is a little higher. We are seeing economic improvement in Asia, Europe is doing okay, and the United States is doing remarkably well. This translates into an oil demand increase of something like 2.5 percent in the year 2000, or about 1.5 million b/d. Oil demand should rise by even more than that in the year 2001.

Value of Oil as a Percent of GDP
...oil's importance to the US economy has declined

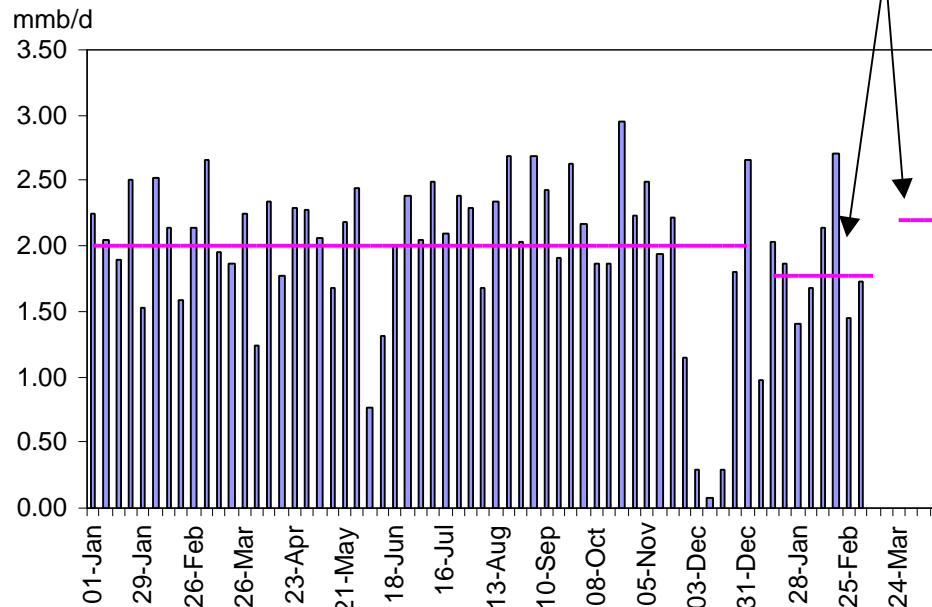


Source: US EIA/DOE and Deutsche Banc Alex. Brown estimates

Oil's importance to the U.S. economy has declined since 1980. The expansion of the economy -- particularly the expansion of the services sector -- plus the decline of the real cost of petroleum and petroleum products are the major contributing factors to this downward trend. In 1980, the value of oil in real terms amounted to over 6% of GDP. We estimate that figure has dropped to less than 2% at the present time.

Iraq's weekly oil exports since January 1999 (mmb/d)

In 1999, Iraq's oil exports averaged about 2.0 mmb/d...we believe export capacity is currently about 2.2 mmb/d...but exports have only averaged about 1.8 mmb/d so far in 2000



Source: UN Office of the Iraq Programme; Deutsche Banc Alex. Brown

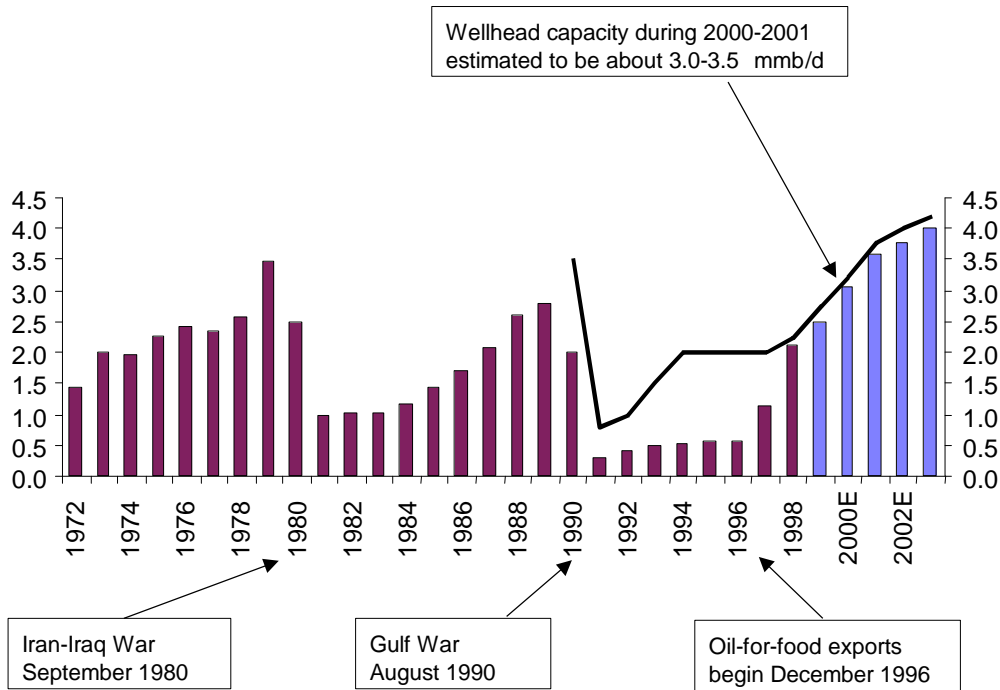
Iraq's weekly oil exports since January 1999. What about Iraq? **Iraqi production could make a sharp comeback.** Iraq has already boosted exports from virtually nothing in mid-1997 to an average of about 2.3 mmb/d in October and November 1999. Production is about 500,000 b/d greater than exports. The United Nations is clearly moving towards allowing more Iraqi oil exports, in my view. However, Iraq itself is not yet cooperating with the UN Security Council's new plan for weapons inspection. Until Iraq complies with this new program, it's going to be very difficult to get the level of foreign capital from the French, the Russians or the Chinese to enable production development to take place along the lines of what is illustrated in this slide.

Iraq's low January output rates seem to stem from a mixture of both politics and technical problems. Technically, Saybolt, the U.N.'s engineering consultant, claims Iraq's wells are severely damaged from last year's high rates. Not surprisingly, Iraq sticks to this line as well. Other signals, however, point toward political gamesmanship. Iraq is annoyed that the UN has put spare-parts contracts on hold. When Iraq projected total production of 3.1 early this year and 3.5 in mid 2000, it was relying on the arrival of spare parts - dehydration and desulfurization units. It could produce 2.6 or so now, the thinking goes, but it does not want to further damage its reservoirs.

Also, another important element is high prices. Although the UN ended the \$5.26 billion ceiling on Iraqi exports, Iraq has informally claimed to maintain its adherence to this cap under the theory that acceptance of this change would imply an acceptance of the new resolution in total. If Iraq holds this line, it would bump up against the \$5.26 billion ceiling by mid March. An export cut could both buy Iraq time to export through the end of March while simultaneously pressuring the U.S. to allow the procurement of more spare parts.

Other evidence suggests this is simply political gamesmanship. First, there is now no ceiling, regardless of Iraq's acceptance or denial. Second, in its distribution plan, Iraq has already committed to \$6.3 bln in sales. Third, Iraq has no say in the rescindance of the resolution. We stress, however, that Iraq has not formally stated a policy of continued obedience to the old export ceiling. Further, the drop in exports in January was caused not by well damage, but a weather- and Y2K-related pipeline problem at Ceyhan in early January, weather at Ceyhan in mid January, and weather at Mina-al-Bakr in late January. In short, Iraq seems to be adopting an intentionally-vague posture during its recent drop in exports to show the world, not just the US, that it needs spare parts.

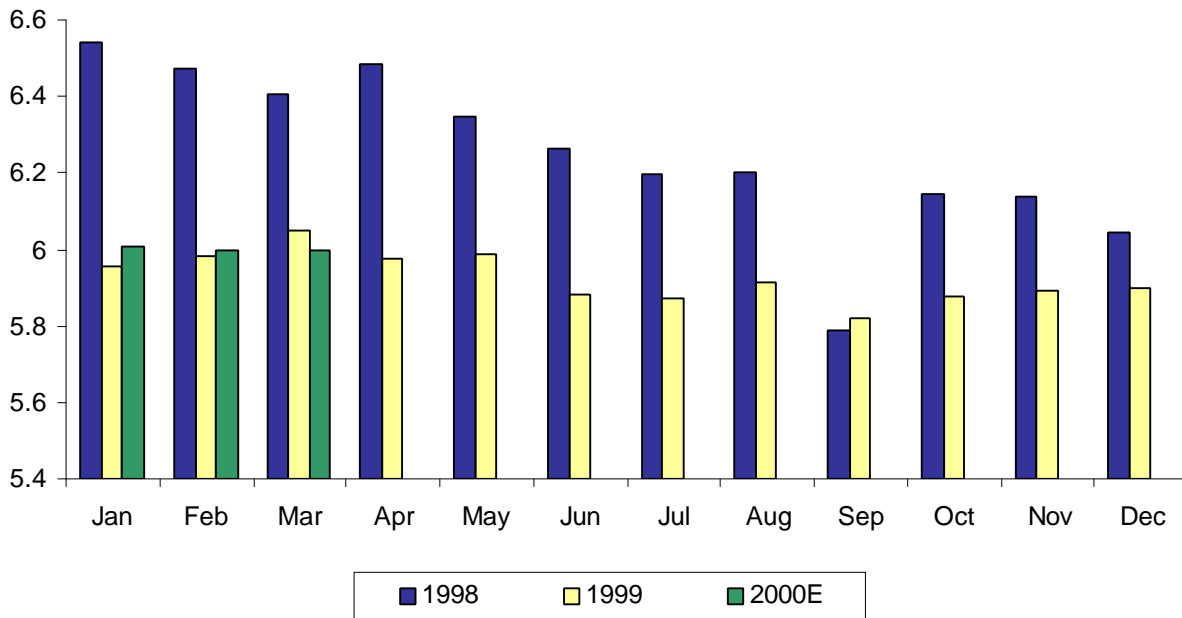
Iraq's production seen moving above pre-war levels
...if investment flows are allowed by the UN



Source: U.S. DOE and EIA; Deutsche Banc Alex. Brown

Right now, with the U.S. presidential elections under way, it would seem that the U.S. government has every incentive to try to remain as tough as it can be on Iraq -- making the regime in Baghdad adhere to weapons inspection before allowing them to push substantially more oil onto the world markets. In the meantime, on a short-term basis, Iraq is capable of exporting 2.3-2.5 million b/d. By the end of this year, it might be able to increase production to 3.5 mmb/d, and thus exports to 3.0 mmb/d, but even this may be a struggle in terms of engineering and repair activity.

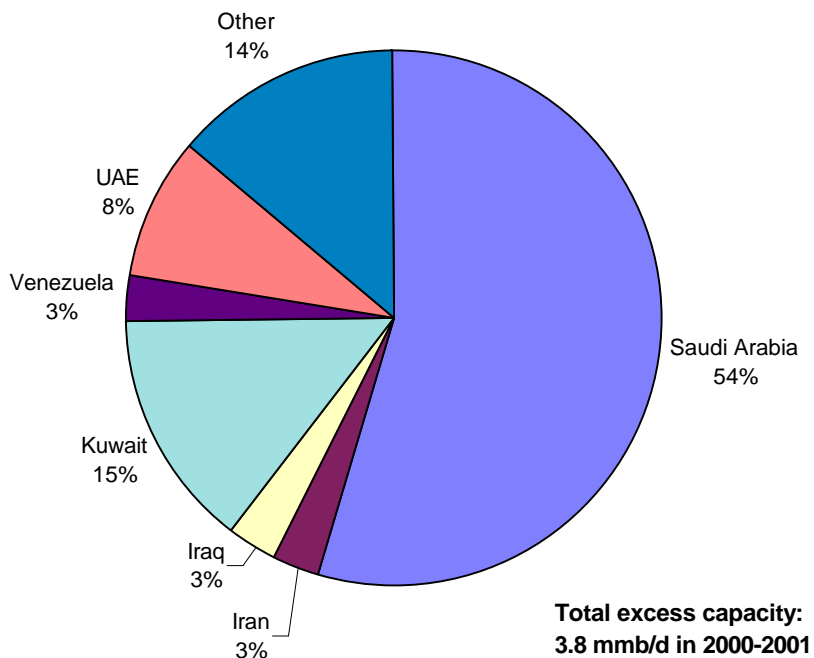
U.S. crude oil production responds to prices
... but DOE reports steadier output recently vs. drop in 1998



Source: U.S. DOE/EIA and Deutsche Banc Alex. Brown estimates

US crude oil production responds to prices. What about non-OPEC production? In this illustration, for example, you see the big decline in U.S. production that took place in 1998 when prices fell. However, in 1999, production flattened out quite a bit. Towards the end of 1999, based on the Department of Energy estimates, U.S. production looks like it actually recovered somewhat from earlier in the year. **In addition to new fields in the Gulf of Mexico, this probably suggests that output from stripper wells and heavy oil in the U.S. does respond to prices.** I would think that there would be a similar response in Canada and some other regions. Eventually, with prices remaining at a reasonable (\$20?) level, drilling budgets would undoubtedly rise and overall production would respond.

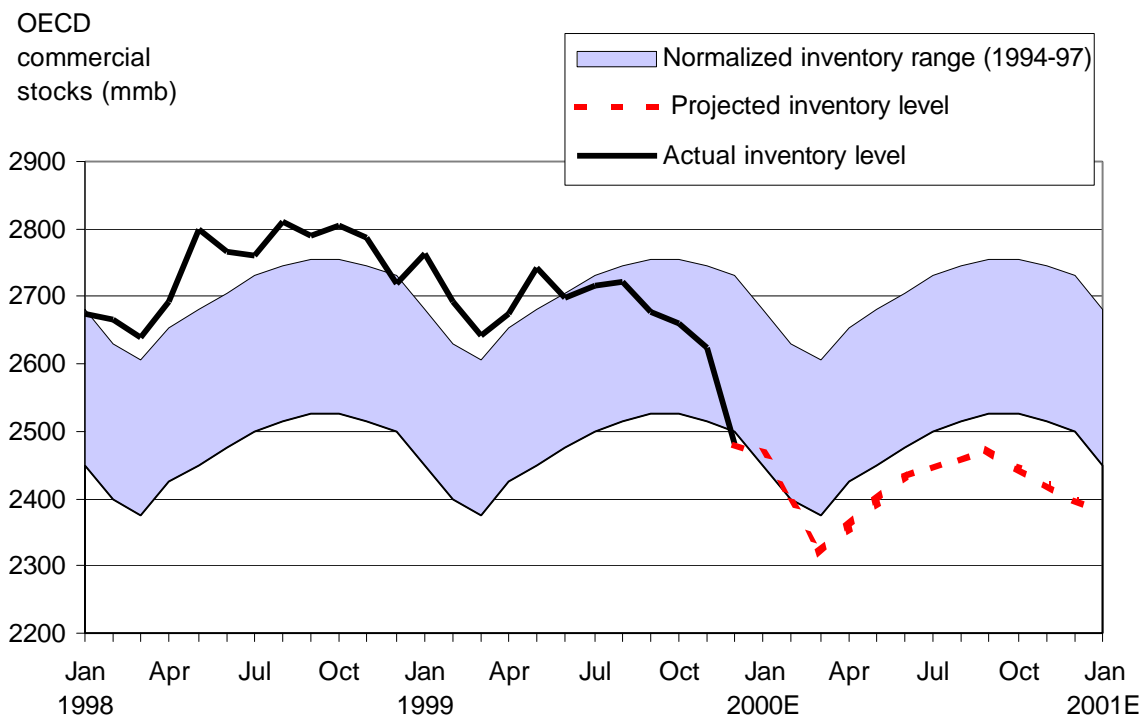
Unevenly spread spare capacity complicates OPEC output increase



Source: Deutsche Banc Alex. Brown estimates

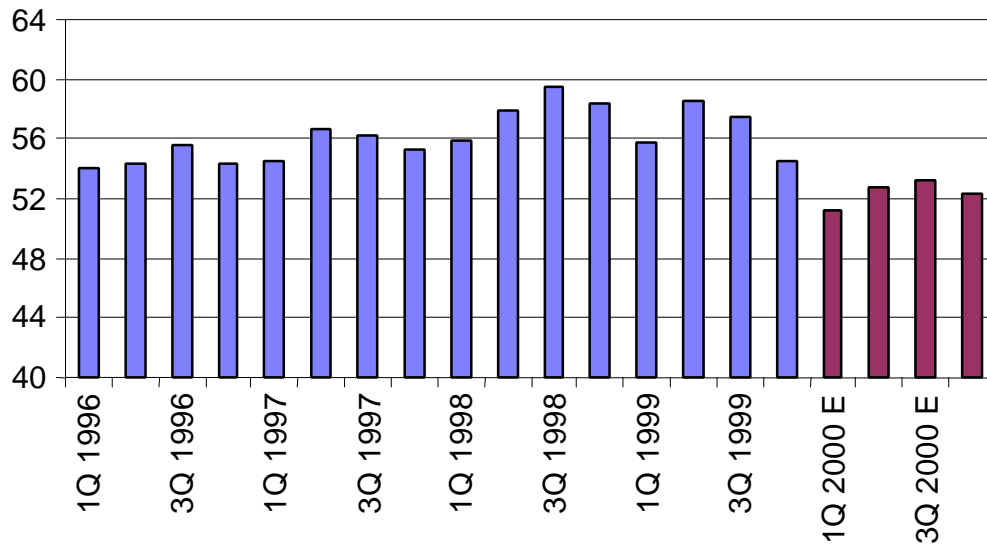
In our opinion, disproportionate spare production capacity may make it politically tough for OPEC to raise output in the timely and sizable manner that markets need. While Saudi Arabia accounts for an estimated 50% of total OPEC spare production capacity of 5 mmb/d, followed by Kuwait at 15%, **other countries would struggle to satisfy even a small quota increase** spread evenly across the cartel above current production levels. Should OPEC go for an incremental approach to output increases throughout the year, as is likely, smaller producers would be hard pressed to meet these new levels later this year, in our view. In our opinion, these varied strategic positions make for political challenges to OPEC's quota policy at the March 27 summit, increasing the possibility that supply remains inadequate to meet demand even in the second quarter, when stocks usually build in preparation for summer demand for transportation fuels among major consuming countries.

OECD inventories remain key to next move in prices
...the base case forecast would push inventories to low levels



OECD inventories remain key to next move in prices. Considering all of these supply and demand factors, what do they say about inventory trends? **As illustrated here, OECD inventories have already declined appreciably and we believe they are headed down further.** On March 10, the International Energy Agency (IEA) reported the January estimate for OECD inventories of 2467 million barrels. By our calculations, that figure will be down closer to 2300 sometime in April or May. And if demand is a little bit stronger or OPEC fails to increase supply by enough -- as I think it should and eventually will -- we could be getting towards the very low end of the absolute inventory range as measured in barrels. In terms of demand coverage, this would be much lower than even the extreme tightness of 1996.

Days supply of OECD industry inventories
...forecast levels headed below 1996 lows



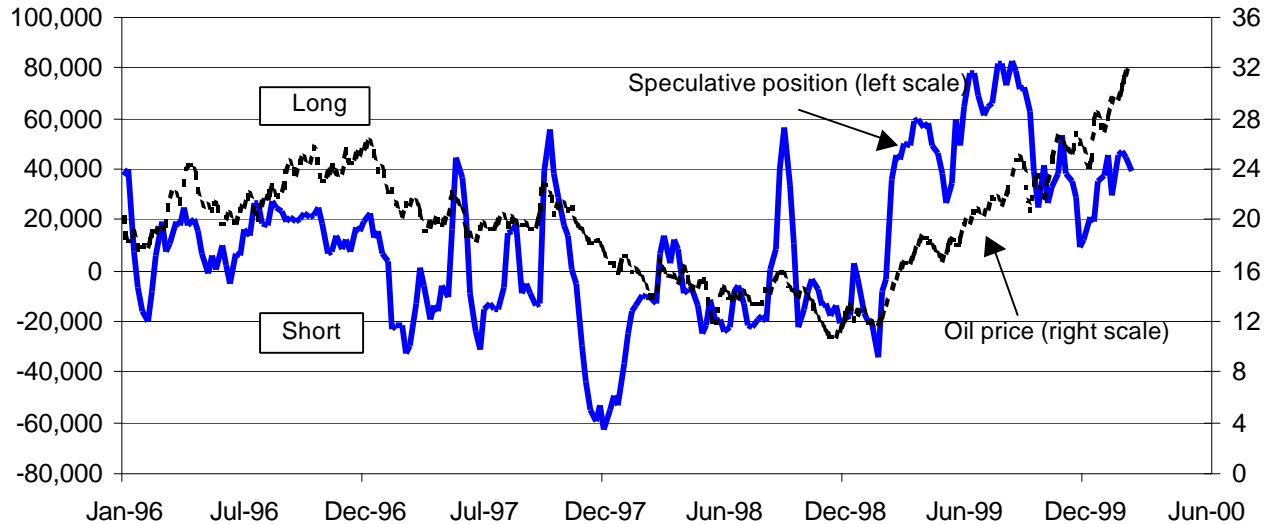
Note: Company-controlled stocks at start of period
 Source: IEA and Deutsche Banc Alex. Brown estimates

Days supply of OECD industry inventories...forecast levels headed below 1996 lows. If you do this on a days supply basis (absolute barrels divided by demand) as shown on this graph, the situation looks even tighter. Demand has increased since 1996, so the days of **demand coverage are actually lower right now for the first quarter than they were at the lows in 1996.** And again, this is why oil prices are so high.

Speculative position of oil traders ...has now fallen well below prior highs

Net non-commercial
oil contracts

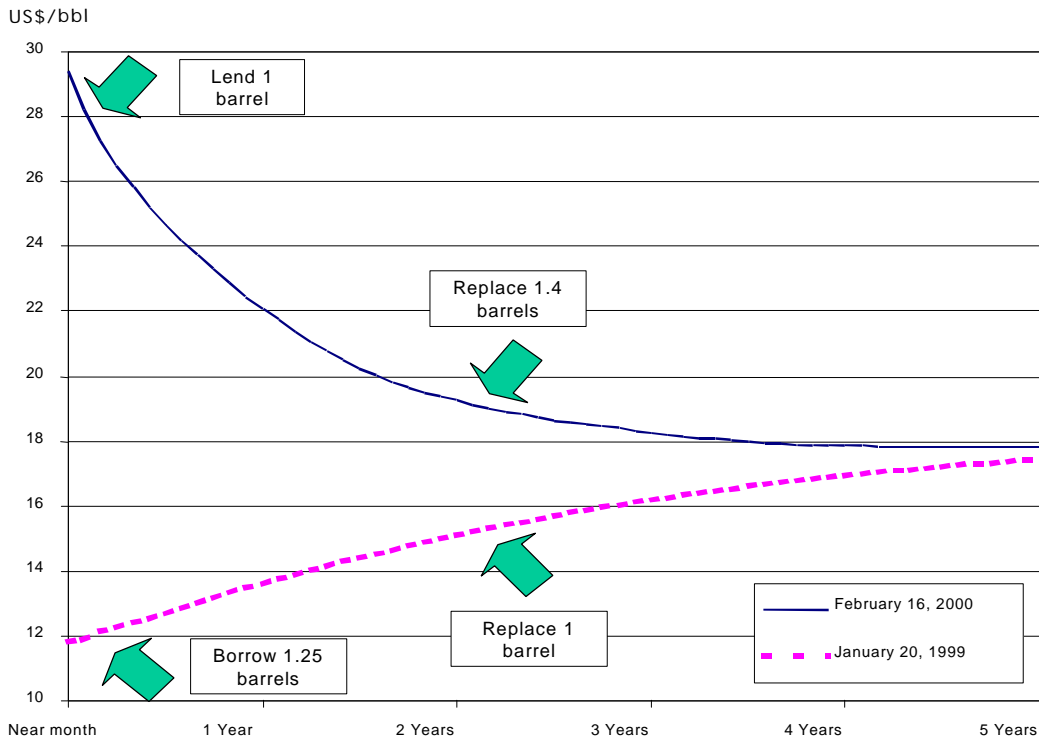
WTI \$/bbl



Source: NYMEX; US CFTC

Speculative position of oil traders. There is also the issue of speculative activity. This graph shows the net position of the paper barrel traders on the New York Mercantile Exchange. **At about 40,000 long contracts, as opposed to the 80,000 long contracts last summer, the positions held by NYMEX paper barrel traders, or non-commercial speculators, are actually nearer to a neutral position.** This suggests that the speculators are poised to go either way, buying back into the contract and taking the net speculative position up if they feel the market will remain tight, or possibly selling short if they think OPEC will add a significant amount of production. The level of paper trading, which has grown substantially over the last few years, has added volatility to oil prices.

Two uncommon opportunities to implement SPR “time swaps” adding oil to the SPR at no cost to the taxpayer



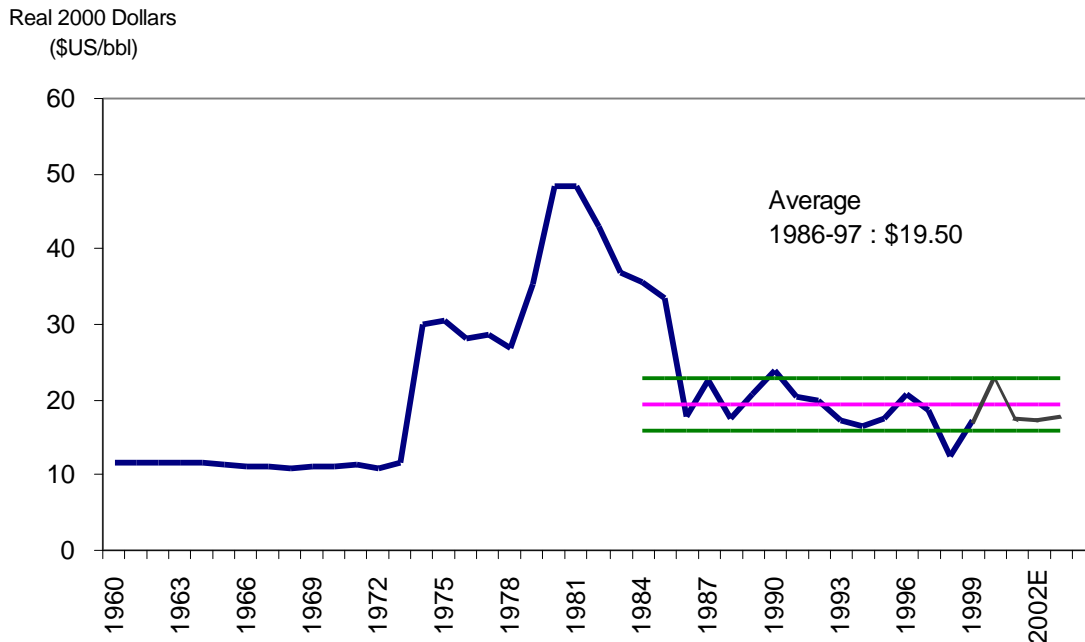
Source: NYMEX; Deutsche Banc Alex Brown estimates

High crude oil prices have sparked a government search for innovative ways to provide consumers relief. Due to the currently steep backwardation - or price premium of contracts for near-month delivery to those for future delivery - on futures exchanges, the U.S. could take advantage of the situation by **lending crude oil now in return for a larger amount later**. This kind of transaction, used successfully by other governments in the past, would put more oil onto the market now, in theory placing downward pressure on prices during this time of tight supply. Completing the swap, the U.S. would take delivery of supplies in the future as payment and thereby support the market at a time when the futures curve implies that demand, and therefore prices, will be lower.

At the same time, since through this time swap it would receive more crude oil in the future than it sells now, the U.S. would be able to **replenish the SPR**, stocks of which currently stand at 568 million barrels, out of 680 million barrels of capacity. In short, by using a combination of the physical and hedging markets, the U.S. could increase its strategic stock levels at no cost to taxpayers.

The key to this opportunity comes from the shape of the forward curve. Prompt prices have traded at a 35% premium, or a three-year high, to the year-forward price. The current level of backwardation has only occurred for 20 days in the last seven years. We believe such a discount in the forward price curve provides a rare chance for those with discretionary crude supplies. The swap idea would also work with markets in steep contango,

Oil prices expected to trade near \$19.50 RAC (\$21 WTI)



Source: US DOE/EIA; Deutsche Banc Alex. Brown estimates

What is OPEC going to do? How is it going to handle this? Clearly there are indications that the Saudis are being pressured to increase production. There is more talk coming from central bankers about the impact of oil prices on inflation, not just in our country but in Europe and in Asia as well. And I think the Saudi government recognizes that. In my view, there will be a decision at some point to add more oil to the markets. That will bring prices back down toward the higher end of the \$18-\$22 range. In the meantime, I think we are going to see more “gray market” oil. The OPEC compliance estimates are likely to remain relatively low compared to the compliance rates of six months ago. There will be a temptation on the part of the Saudis and a number of the other countries to bleed oil into the market and keep prices from getting too far out of line. If a true emergency occurs, the U.S. Strategic Petroleum Reserve could be used, but this is a sensitive political issue with numerous pros and cons.