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Oil Prices: More 'Perfect Storm' Than 'Desert Storm'

Last month, we asked whether oil prices would show a 'pleasant surprise' or a 'damaging rise' in 2003. Our commodity strategists are firmly in the 'damaging rise' camp. They expect oil prices to stay high throughout the year, reflecting the risk of war in Iraq and, more importantly, the Venezuelan strike and the consequences of sustained underinvestment throughout the industry

Last month we flagged oil prices as the year's biggest wild card. Below we outline our commodity research team's outlook for oil prices and discuss our global economics team's view of the economic implications.

We Seem to Be at Odds With Consensus

There is a (to us, suprisingly) widespread view that the current conflict with Iraq will be resolved quickly and with little damage to oil demand or supply. Holders of this view expect oil prices to fall sharply later this year, stimulating growth and profits and providing relief to equity markets. This may be based in part on the experience of the 1991 Gulf war, during which oil prices spiked briefly and then collapsed.

Our commodity research team does not expect a repeat of that experience, because the current conflict is taking place in a much different environment.

The strike in Venezuela already represents one of the largest shocks in oil market history. Importantly, we think the market has underestimated and thus underpriced this disruption. Although we would expect to see prices fall with any resolution to the Iraq crisis, we think a sell-off would be short-lived once the magnitude of the Venezuelan problem became more widely recognized.

Moreover, the supply/demand dynamics of the oil market are broadly unfavourable. A very cold winter in the Northern Hemisphere and a nuclear power crisis in Japan are boosting demand for oil, while the oil market faces severe supply constraints and limited demand flexibility. The speed with which supplies can be increased later in the year is slower than many realise.

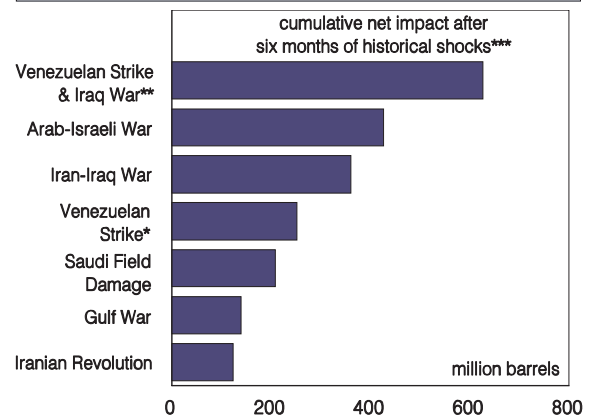
This tight environment suggests extreme price volatility is likely. While we forecast prices to

average \$36/bbl in the first quarter, price volatility may lead to spikes significantly above and below this level. We expect prices to end the year at \$28/bbl, around the levels where they ended 2002. Even this assumes use of the Strategic Petroleum Reserve (SPR). The longer-term path is subject to greater uncertainty, for reasons we discuss below, but the bottom line is that we think the market view of oil price risks is too benign.

We do see one scenario in which oil prices might fall sharply later this year—but it is not a comforting one. Higher oil prices and shortages could destroy demand, pushing it below supply. Although this would allow lower prices, these would come about by weakening already anaemic economic activity. Our economic models also suggest that the demand damage from even

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Venezuela and Iraq Together Could Be the Biggest Oil Disruption in History



* Assumes Venezuela strike ends in April.

** Assumes Venezuela strike ends in April and war with Iraq occurs in March/April 2003.

*** Assumes in the current shock that OPEC adds 1,250,000b/d and non-OPEC adds 100,000b/d.

Source: Goldman Sachs.

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1991 Raises Expectations of a Quick Fall in Prices

The optimistic view that oil prices will fall later this year, without a serious demand disruption, assumes that a conflict with Iraq would play out along the lines of the 1991 Gulf war.

In 1991, military operations were the end—not the beginning—of the spike in oil prices. Prices spiked precipitously after Iraq invaded Kuwait on 2 August 1990, severely disrupting supplies in those countries and substantially tightening the market. Precautionary inventory building and hoarding intensified the initial price spike, but by late 1990 supply increases from Saudi Arabia had largely offset the disruptions to Iraqi and Kuwaiti supplies.

A substantial risk premium continued to be built into oil prices until the US-led military action began in January 1991. At that point, the risk premium dissipated and prices tumbled—falling 34% in one day after Operation Desert Storm began.

This pattern is unlikely to be repeated in 2003, for the reasons we discuss below.

Current High Prices Are Due to Venezuela—Not Iraq

The crisis in Venezuela has created one of the largest shocks in the history of the oil market—one that already exceeds the anticipated disruption resulting from a war with Iraq. The Venezuelan outage has already cost the market nearly 125 million

barrels. This alone almost entirely explains the current high level of prices.

We see little evidence that the market is trading significantly above the level suggested by the physical supply/demand balance. Although the market may be pricing in some risk premium for an Iraqi war, it is underestimating the impact of the Venezuelan disruption by a roughly equal amount.

Iraqi crude is still on the market, so the disruption to these supplies resulting from any military action would constitute a new shock to an already tight market. Of course, the situation would be much worse if the conflict disrupted supply elsewhere in the Gulf, for instance through damage to oilfields in Kuwait or Saudi Arabia.

Cumulatively, the combined effect of Venezuelan and Iraqi disruptions has the potential to be the biggest shock in oil market history, even allowing for some offsetting supply increases by other players. With a war in Iraq likely either to coincide with or closely follow the Venezuelan strike, current price risks are severely skewed to the upside. We estimate that a war could drive crude oil prices up by an additional \$10-\$15/bbl, or 30%-50%.

The Oil Market Is Less Flexible Than Before

This potentially record disruption is poised to shock a market facing more supply constraints and less demand flexibility than in the past. When we compare the current environment to that of the early 1990s, we see five key differences:

Less excess production capacity. Even without Venezuela, the world has less excess production capacity today than in 1990. Saudi Arabia, which remains the key marginal supplier, was producing about 5.4 million b/d before mid-1990. Saudi production rose substantially after Iraq invaded Kuwait, reaching nearly 8.5 million b/d by December 1990. Today, Saudi Arabian crude production likely stands close to the 8.0 million b/d level, leaving only approximately 1.1 million b/d

OPEC Has Limited Excess Production Capacity			
millions of barrels per day	OPEC-9's Readily Available Production Capacity (excluding Venezuela and Iraq)		
	Current Capacity	December Production	Excess Capacity
OPEC			
Saudi Arabia	9.1	8.0	1.1
Iran	3.8	3.6	0.2
UAE	2.4	2.0	0.3
Kuwait	2.0	1.9	0.1
Qatar	0.7	0.7	0.0
<i>Gulf OPEC</i>	<i>17.9</i>	<i>16.3</i>	<i>1.6</i>
Nigeria	2.1	2.0	0.1
Libya	1.4	1.3	0.1
Indonesia	1.1	1.1	0.0
Algeria	1.1	1.0	0.1
<i>Non-Gulf OPEC</i>	<i>5.7</i>	<i>5.5</i>	<i>0.2</i>
Total OPEC	23.6	21.7	1.9

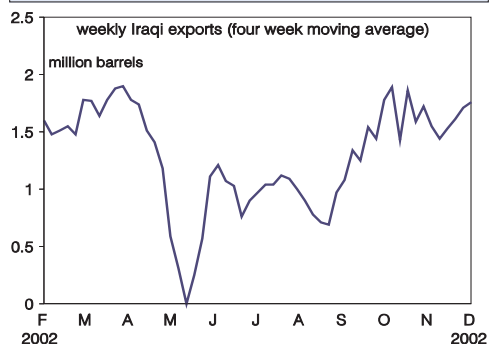
Source: IEA; Goldman Sachs.

of excess production capacity—about one-half of average Iraqi export levels.

Severe capacity constraints. Underinvestment has resulted in severe capacity constraints in virtually every component of the downstream complex—from shipping, to storage, to refining—leaving the market with much less flexibility to respond to supply and demand shocks. Shipping could be a constraint on the delivery of incremental OPEC supplies to the US market. And while Russia possesses substantial excess production capacity, insufficient export infrastructure constrains these supplies from reaching the global market.

Lower commercial inventory cover. The 1990s economic expansion pushed demand to very high levels that outpaced the supply and deliverability of oil. As a result, current total hydrocarbon inventories are low not only at absolute levels, but also relative to demand. Total oil working inventory cover in the US has declined from nine days in the early 1990s to two days now. This has been exacerbated by a string of shocks, including hurricane disruptions in the Gulf of Mexico, weather-related port disruptions in Russia, a colder-than-normal winter in the Northern Hemisphere, and fuel substitution due to high natural gas prices and substantial nuclear outages in Japan.

Iraqi Exports Have Gained Momentum After Dipping in May 2001



Source: Goldman Sachs.

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No tertiary inventory building. Prior to the 1991 Gulf War, higher prices, government encouragement to conserve energy in anticipation of a war, and concerns over the efficacy of the SPR (which had never been used in that capacity) drove significant tertiary stock-building. Now, however, expectations of lower prices (due in part to the 1991 experience) and increased confidence in the ability of the SPR to temper shortages

have contributed to de-stocking, increasing the potential for substantial demand and price increases should supply concerns rise.

Less elastic demand. Over the last few decades, most price-sensitive demand has been taken out of the market, particularly through the conversion or replacement of fuel oil-fired generation to coal and natural gas. Today, the vast majority of energy consumption is centered in transportation fuels, which lack substitutes. As a result, oil demand is more inelastic, suggesting that price spikes will need to be even higher to bring the system back into balance.

■ We think **Venezuelan** production will return to sustainable levels only four to five months after the current strike ends. Worse, we think 15% of production capacity will be permanently lost without significant new investment. This estimate is generous compared to the oil supply losses sustained in Iran in 1978-79, when a massive strike shut production for almost two months. Production only reached two-thirds of prior levels in subsequent months before declining again with the onset of 1979 hostage crisis and then the Iran/Iraq war.

■ It will also be difficult to return **Iraqi** production capacity to the 3.0 million b/d levels seen in the late 1990s. We estimate that current production capacity is only 2.6 million b/d and rapidly declining as a result of chronic underinvestment. Restarting the Iraqi oil industry, should a war cause large-scale production shut-ins for two months or more, would be a considerable challenge. Assuming no other infrastructure is damaged, production would likely ramp-up to 1.5 million b/d, but it would probably take another several months to surpass 2.0 million b/d. Again, the situation would be worse if the conflict caused additional supply disruptions outside Iraq. ■

SPR Release Would Dampen Near-Term Prices But Prolong Price Pressures

A record disruption occurring in a relatively inflexible market will put much greater pressure on the Strategic Petroleum Reserves (SPR). In order to avoid physical shortages and prices spikes in the event of a war, an SPR release is likely to be essential; our forecasts assume one.

The use of the SPR creates a unique set of uncertainties for longer-term oil prices, since the supplies will need to be replenished. The more SPR supplies are used in the first half of the year, the more will need to be replaced later. This could keep prices higher farther into the future. Alternatively, a less aggressive use of the SPR today (to preserve supplies for future disruptions) would lead to higher price spikes in the near term but potentially lower prices farther out. This is because higher near-term spikes have the potential to destroy some demand, and because fewer SPR supplies would need to be replenished if war-related disruptions did not materialize. ■

Supply Cannot Be Brought on Line Quickly

The underinvestment and infrastructure issues that have tightened the oil market are deep-seated and cannot be overturned without significant investment. And returning Venezuelan and Iraqi production to pre-disruption levels will take time.

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The Economic Impact of High Oil Prices Remains Significant

Unfortunately, the most plausible route to lower oil prices this year seems to be through demand destruction.

If oil prices spike sharply in the first part of the year, and supply cannot be increased, demand will need to be squeezed out to bring the system back to balance. Although the world economy uses less oil per dollar of GDP than in the past, there is no good reason to believe that price spikes will be less damaging than they used to be.

The vast majority of energy consumption today is centered in transportation fuels, which lack substitutes. As a result, oil demand is more inelastic, suggesting that price spikes must be even higher to bring the system into balance. Because transportation capacity plays a critical role in the global economy, physical demand losses could be much more damaging to global growth than in the past.

In fact, if physical rationing and shortages are important means of restraining demand, the more efficient users of oil may actually be at a disadvantage. Put crudely, if a barrel of oil supports a higher level of economic activity (GDP per barrel is higher), removing that barrel may have a larger impact on growth. Industrial users might be forced to shut down production if spikes were severe.

From that perspective, Europe and Asia would both be more vulnerable to physical demand losses than the US. The US remains the least efficient major consumer

of oil, so usage could fall without significantly disrupting economic activity.

Yet it is hard to be sanguine about the risks to the US economy from higher oil prices. US consumers are major users of oil and gas and are likely to bear the brunt of any price spikes. A rough rule of thumb is that a \$10/bbl increase in oil prices costs US consumers \$50 billion on an annualized basis, by increasing spending on energy-related goods and services. US consumer spending on energy appears to be influenced much more by oil prices now than in the past. Given the underlying vulnerability of US consumers and the need to increase savings, a sharp oil price spike could trigger a broad consumer retrenchment.

Even Temporary Spikes Can Hurt

Research by our global economics team into the impact of oil supports the idea that sharp spikes, even if temporary, are hard to manage and can cause serious economic damage. We estimate that a sustained 10% rise in oil prices would reduce G7 GDP growth by nearly 0.3% after 12 months.

The same model suggests that a short, sharp spike could have equally serious economic impacts. If oil prices were to spike by 50% (say to around \$45/bbl) for only one quarter, we estimate that G7 growth would be around 0.5% lower within 12 months. A two-quarter shock would have a larger impact (roughly 0.7% over 12 months). More sustained or sharper oil

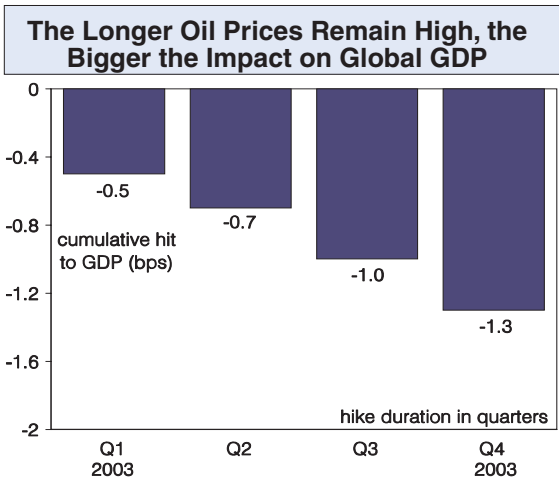
price rises would cause even greater damage, but that might ultimately bring prices down again.

If our economic forecasts (which draw on the commodity research team's baseline oil forecasts) are correct, clients with lower oil price assumptions may be significantly too optimistic about the global growth outlook.

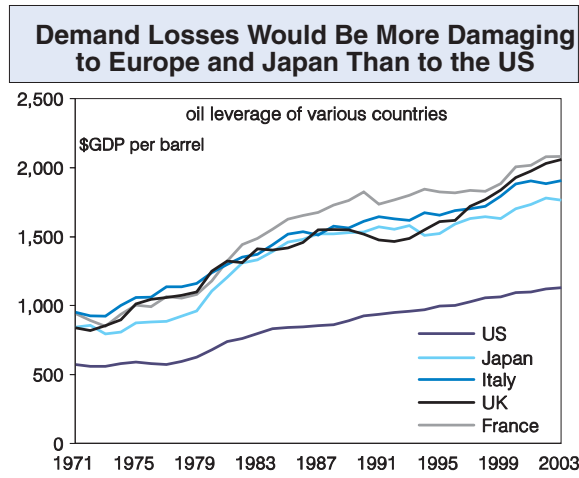
A Higher 'Equilibrium' Oil Price?

With the world's focus on the risk of war this quarter, short-term oil prices are at the forefront of concerns. Although we do expect to see trading volatility and some short-lived sell-offs driven by developments in Iraq and Venezuela, current pressures on the oil market reflect structural problems that are unlikely to disappear soon. The drastic underinvestment and capacity constraints will rear their head periodically and will become even more obvious when global demand eventually returns to trend.

This means price volatility is likely to remain high over the next two to three years, putting upward pressure on average oil prices. The common view that oil prices will converge on an 'equilibrium' price in the range of \$16-\$17—the price at which new investment in oil production capacity is currently worthwhile—is misguided. Oil prices are likely to fluctuate around higher average levels for several years. ■



Source: Goldman Sachs.



Source: IEA; IMF; Goldman Sachs.