

# Oil Report

Era of cheap oil coming to an end - 17 February 2009

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**Fossil fuels: quick exit not likely**

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**Hardly any increase in supply in spite of record prices**

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**Peak oil: scaremongering, conspiracy theory or soon reality?**

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**OPEC oil production cut starting to show effect**

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**Forecast 2009: stabilisation, but no drastic upward trend expected**

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**Average price: USD 55/Barrel in 2009**

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**Attractive risk/return profile**

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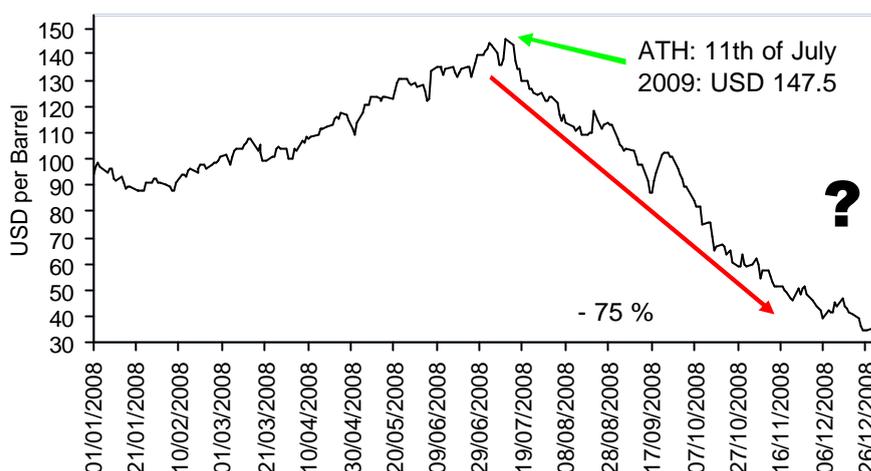
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## 1. Introduction

**Turbulent year 2008 – what are we in for in 2009 and beyond?** Commodity markets are likely to receive a permanent entry in the history books for the events in 2008: after an unprecedented bull run that took the oil price to USD per barrel in July 2008, prices slumped as quickly as they had risen, shedding more than 75% in the event. Unprecedented levels of volatility, media attention, and public discussions about the black gold dominated the past year.

### Crude Oil: price development 2008



Source: Datastream

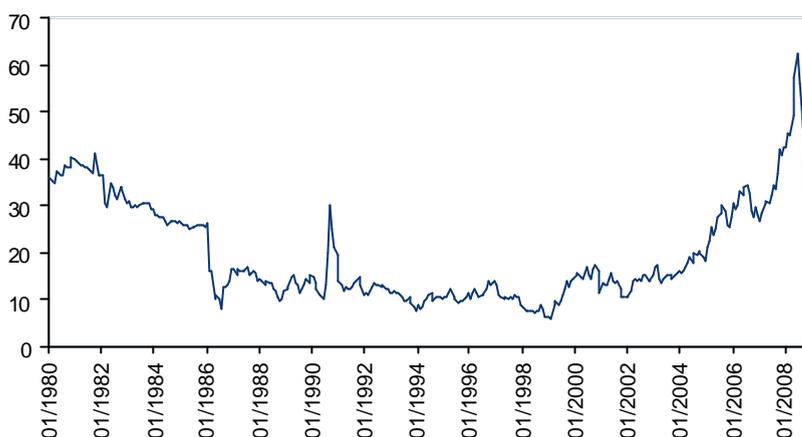
**Record high due to strongly increased demand or falling supply?** More recently, the focus has been mainly on the demand side, whereas we believe that in the long run the supply side will clearly determine the future price development. We can definitely see fundamental reasons for the run to the all-time-high in July 2008, even though the upward momentum was partially caused by excessive speculation. Currently the oil price seems to have stabilised and consolidated in a trading range of USD 35 – 47; **we will discuss the long-term perspectives in this report.**

**First decrease in demand in 25 years** The production cuts set by OPEC have so far failed to leave an effect, but the member states seem determined to put an end to the price decline. Although demand for oil is expected by the International Energy Agency (IEA) to fall have fallen respectively in 2008 and 2009 for the first time since 1983, it should pick up again a bit in 2010 on the back of rising demand from non-OECD states. The synchronous recessions in the USA, Japan, Great Britain, and Germany have significantly dampened the demand for products made from oil, but in our opinion the focus of the discussion about the oil price should shift back to the supply side again.

**Inflation-adjusted oil price not excessive** At the same time, the inflation-adjusted time series puts the oil price into perspective. Although this series exhibits an all-time-high as well, the short spike was by far less dramatic than the high price level from 1978 to 1980. During this period, the median of the inflation-adjusted price was USD 48/barrel, whereas at the moment it equals exactly the 30-year average of USD 20/barrel. This means that oil is fairly valued in a long-term comparison.

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### Inflation-adjusted oil price



Sources: Bloomberg, Erste Group Research

#### **Risk/return ratio attractive on this level**

As far as the long-term forecast of the oil price is concerned, we can see the scenario very clearly in front of us. Given that the production is becoming increasingly cost-intensive, that the required, massive amounts of capital expenditure are only coming through at a fraction of the amount actually needed, and that numerous oil fields and indeed oil-producing countries are past their peak production, we expect higher prices in the long run. The demand side is difficult to evaluate due to its current distortions and their effects as well as duration, which is why we forecast an increase at an albeit slower rate and consider the risk/return ratio highly attractive at the current price level.

## 2. Review 2008

### Main beneficiaries of the oil price decline: USA and Europe

The largest and most important beneficiary of the lower oil price is without a doubt the USA, i.e. the largest consumer and importer of oil. Demand contracted by 9% between the high in August 2007 and the end of 2008. This means that the USA saves USD 2.1bn (at a price of USD 40/barrel) a day at the lower price. Germany, Italy, and Spain (i.e. the largest European oil importers) benefited as well, not the least on a relative basis, since the UK and the Netherlands remain among the largest oil-producing nations outside of the OPEC. China and Japan seem to be benefiting the least. That said, Japan is among the most efficient nations when it comes to energy consumption. One barrel of oil generates a GDP of USD 2,610 in Japan, whereas in China the referential value is only USD 1,130.

### Main losers of the price decline: Iran and Venezuela

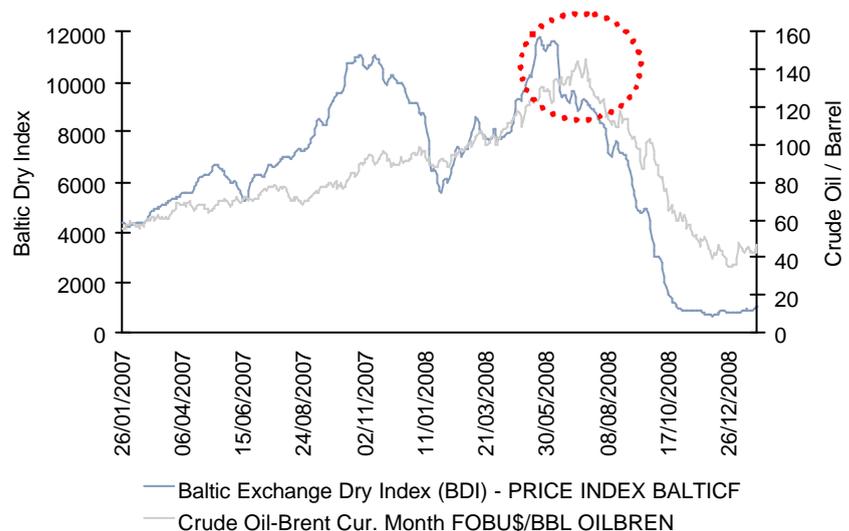
The main losers of the price decline are probably also the biggest political adversaries of the USA, i.e. Iran and Venezuela. The huge proceeds from oil have been largely funnelled into the support of the political regime of presidents Ahmadinejad and Chavez. For example, Venezuela requires an oil price in the region of USD 100 to 120/barrel in order to be able to maintain its social programmes. The decline should also come with drastic consequences in Nigeria – as numerous attacks on infrastructure facilities for liquid gas and oil would suggest. The effects in Russia do not seem as precarious. On the one hand the revenues from oil sales were mainly used to step up the foreign exchange reserves to USD 750bn, and on the other hand the dependence on oil is less pronounced due to the deposits of natural gas and base materials. Saudi Arabia and the UAE have based their budget forecasts on conservative oil price assumptions, which means that the effects of the price decline should not be that dramatic.

## Main reasons for the rollercoaster ride in 2008

### 1. Global economic decline

The global demand for oil decreased for the first time in 25 years. The abolishment of subsidies, the smouldering financial crisis, and the slump in global trade triggered a considerably lower demand for oil products. The rupture of the Baltic Dry index, i.e. the most important index for global freight rates of bulk cargo, was yet again a reliable leading indicator.

### Baltic Dry index vs. oil price



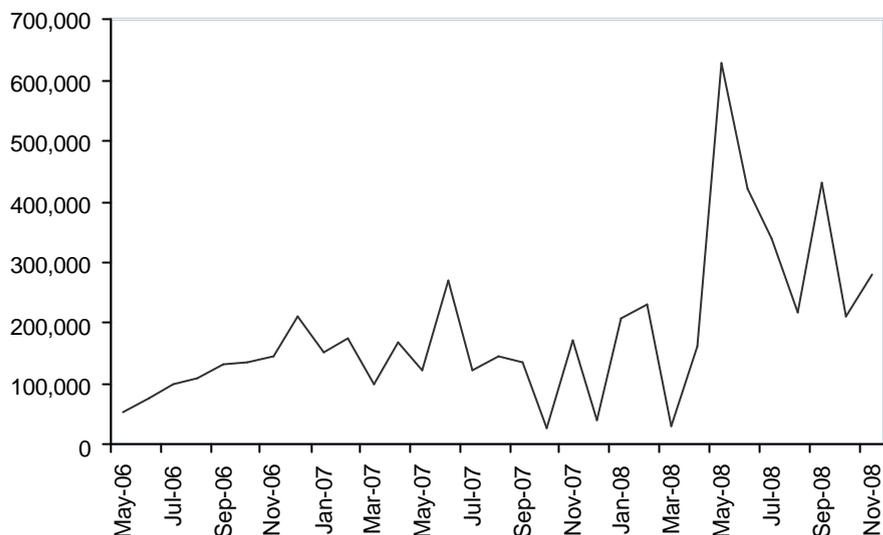
Source: Datastream

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### 2. China with a massive import surplus ahead of the Olympic Games

In the run-up to the Summer Olympics in Beijing Chinese oil imports skyrocketed. Due to the severe air pollution carbon combustion was discontinued in favour of oil combustion. On top of that, imports increased in order to ensure adequate supplies were available even in the event of a crisis.

#### Chinese oil imports



Source: Bloomberg

### 3. Speculation and de-leveraging

More than USD 80bn were funnelled into oil futures between January and July 2008, which alerted the CFTC. In the event, margin requirements were stepped up drastically. The “consensus trade” (long commodities/short US financials) was also broken as a result of the ban on short selling, and many hedge funds had to close their – sometimes considerably leveraged – positions, which was the main reason for the substantial decline in commodity prices.

#### 4. Other Reasons for the slump:

- New oil production facilities set up in Nigeria and Angola
- Better accessibility of natural gas
- Strong US-Dollar
- Lower demand for mineral oil products
- OPEC production in July was 1mn barrels per day higher than in April
- Shortage of middle distillates is easing off

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### Low price elasticity

The price elasticity of supply and demand is very low in the oil sector. On the demand side, the majority of the oil is needed in any case in the absence of any alternatives; and on the supply side, the lead times of new projects are extremely long and thus cost-intensive. This means that in a strained supply situation, even minor changes in demand can trigger vast price fluctuations.

### 5. Futures caught in “super contango”

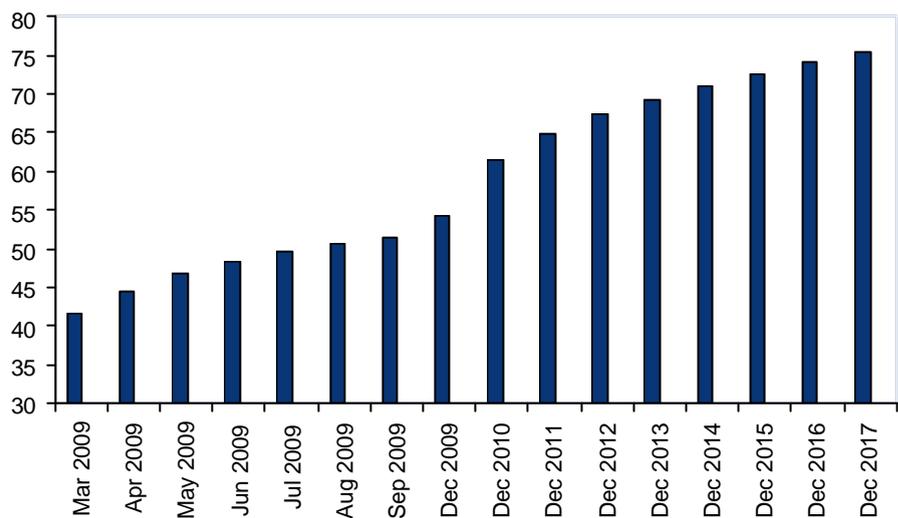
### Contango similar to 1998?

The oil futures are still caught in a massive “contango”. This means that futures with short maturities are much cheaper than those with longer maturities. As soon as the price differential between the specific delivery dates is big enough, market participants with enough liquidity and sufficient storage facilities can buy the closest future, demand physical delivery, sell the following future and subsequently deliver. This way they can generate an almost risk-free profit. Markets saw an equally extreme situation in 1998, when the contango relative to the forward curve was about as large as it is now. That period also recorded the intermediate-low of USD 10.35 shortly thereafter. In the event the oil price soared to USD 35/barrel within 15 months.

### Booming tanker leasing industry

Oil companies and state-owned oil producers are currently leasing a rising number of tankers as intermediate storage facilities so as to benefit from medium-term price hikes. At this point in time, 30 of those “very large crude carriers” are subjected to this alternative use. The forward market also indicates that the market is currently regarded as oversupplied:

### Futures prices of 1 barrel of WTI due March 2009 to December 2017



Source: Bloomberg

### 3. Supply & reserves

Just like any other market price, the oil price is a result of supply and demand. However, the pricing also hinges critically on a number of external factors such as:

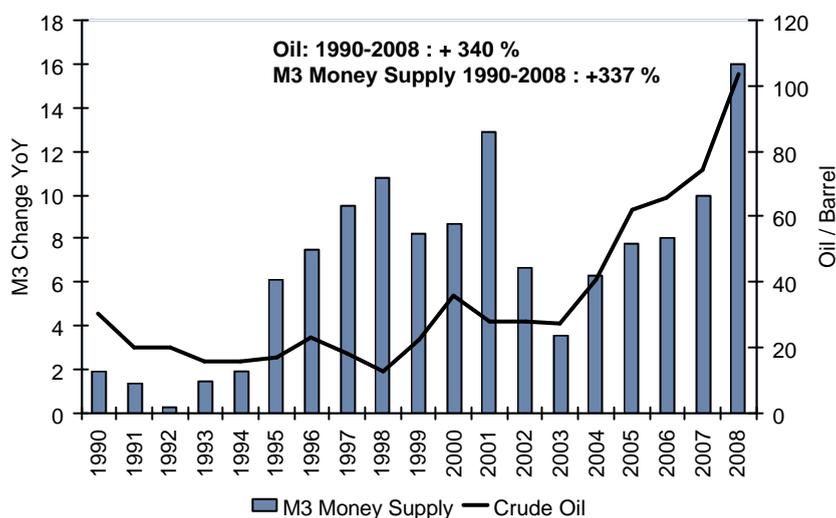
- political crises / fear of terror
- supply shortages
- sudden demand spikes
- speculation
- weather (hurricanes etc.)

All these make forecasting difficult.

**Emerging markets and expansive monetary policy responsible for bull market**

The decisive factor in the so far ten years of bull market is above all the economic rise of China, India, and a number of other emerging markets. Supply has failed to adjust to the ever increasing demand, and the gap between supply and demand was only closed by price increases. In addition, the dramatically soaring money supply which pushed the US dollar into a secular downward trend was a crucial factor of the long-term upward trend of the black gold.

#### Money market growth vs. crude oil



Sources: Datastream, Federal Reserve Statistics, ShadowStats, Federal Reserve

**About half of the conventional reserves has been used up**

Although there is currently enough oil around, about 50% of the conventional reserves have been exploited. The supply of non-conventional oil (oil sand, oil shale) is about similar in volume. However, the unfavourable ratio of energy invested to energy returned makes the production expensive and on top of that, dubious from an ecologic point of view. Given that it is already quite difficult to replace the existing production with newly discovered oil-wells, reserves are shrinking. In fact, this is happening at such a fast rate that the next generation will probably run into severe supply shortages.

**Energy returned on energy invested on clear decline**

The energy returned on energy invested (ERoEI) that describes how much energy has to be used to generate a certain amount of energy has been on the decline for years. In 1970 it was at 40, but in the meantime it has fallen to 8. The corroding oil and gas infrastructure only adds to the challenges. According to studies by Matthew Simmons, up to 80% of the infrastructure has to be replaced by 2020.

**Peak oil by 2016?**

Whether the maximum production, i.e. “peak oil”, has been reached yet, is difficult to tell. However, in the absence of any large-scale discoveries, peak oil will be reality by 2016 at the latest. Two issues worth mentioning are the decline in production in the North Sea and the local peak oil at the oil fields in the Gulf of Mexico and at the Cantarell field in Mexico (the world’s largest offshore oil field). The discovery of new fields has almost come to a complete halt, which supports the trend. This negative trend could be balanced by Saudi Arabia and its massive

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investment programmes, Iraq with its long-term potential, and Angola which has recorded a steady increase in production.

### The OPEC cartel and its predicament

OPEC currently has twelve members (including Indonesia, which has announced it will terminate its membership) and covers almost 40% of the entire oil supply. It also accounts for 75% of global oil reserves (including oil sand). In September production was cut by 2mn barrels/day, but this step failed to prevent further price losses. In December production was cut by an additional 2.2mn barrels/day; but the lack of discipline might become increasingly problematic. Especially Venezuela, Iran, and Ecuador have been subjected to a rising wave of criticism given that they did not fully participate in the concerted cuts. These countries depend on a steady cash inflow for their oversized social programmes and infrastructure projects. According to Platts, production in November was 850,000 barrels above plan. Moreover, OPEC is facing a predicament: Further cuts would probably prop up the oil price, but at the same time put additional weight on the economic downturn and thus dampen demand in a second round. A classic catch 22.

### Oil production in millions of tonnes – top 10

Ranking (2007)		1970	1980	1990	2000	2007
1.	Saudi-Arabia	192.2	509.8	342.6	456.3	493.1
2.	Russia	320.8	548.2	515.9	323.3	491.3
3.	USA	533.5	480.2	416.6	352.6	311.5
4.	Iran	192.6	74.2	162.8	189.4	212.1
5.	China	30	106	138.3	162.6	186.7
6.	Mexico	24	107.2	146.3	171.2	173
7.	Canada	70.1	83.3	92.6	126.9	158.9
8.	UAE	36.9	84.2	107.5	123.1	135.9
9.	Venezuela	196.5	116.3	115.9	167.3	133.9
10.	Kuwait	151.8	86.8	46.8	109.1	129.6

Source: BP workbook of historical data

### Production targets of Iran difficult to achieve

**Iran** is the second-largest oil exporter of the OPEC. At the moment Iran produces just short of 4.4mn barrels/day, which equals about half of the Saudi Arabian oil production. According to official statements, the country wants to increase capacities to 5.4mn barrels by the year 2016. Due to the political pressure in connection with the nuclear programme, Total has completely withdrawn from Iran. Shell, Statoil Hydro, and Eni are considering a similar move – no new productions contracts are being signed anymore. This means that Iran has to develop the fields by itself and has recently entered into joint ventures with Russian and Asian partners. However, this situation probably means severe delays to the action plan, and it will be very difficult for Iran to reach its production targets.

### Iraq: situation still tricky

**Iraq** commands the third-largest reserves. Due to the still chaotic situation in the country, production has fallen below 2.1mn barrels/day. The government intends to increase production to up to 6mn barrels by 2012. So far almost 40 companies have applied for drilling permits. The fact that there is still no legal framework in place that would lay down the access to the oil wells and the splitting of the revenues among the provinces and ethnic groups is a major concern. The largest oil fields are based in Northern Iraq, which is dominated by the Kurds, and Southern Iraq, which is the Shiite stronghold.

### Has Russia reached the peak?

**Russia** currently commands roughly 80bn barrels in oil reserves (i.e. 6.4% of global reserves) and 25% of the world's gas reserves. According to studies by the research house ASPO, Russia will not be able to export any oil onto the world market by 2015. This scenario seems indeed very likely. In 2008, production fell by 120,000 barrels/day, which was probably mainly due to structural shortcomings (failure to invest, taxation). Leonid Fedun, Lukoil's vice president's fitting remark in this context was, "In 2007, Russia's oil production was 9.95mn barrels/day. I doubt I will ever see a higher number in this life." That said, this statement is in clear contradiction to the most recent estimate put forward by IEA, according to which production should rise to 11mn barrels/day by 2015.

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In order to grasp the status quo of the industry it makes sense to have a closer look at the current production of the 21 biggest oil-producing countries (production in excess of 1 mn barrels/day). In 2007, these 21 nations accounted for more than 85% of global supply:

### *Slowly rising production:*

- Saudi Arabia
- China
- Canada
- United Arab Emirates
- Kuwait
- Nigeria
- Lybia
- Qatar

### *Rapidly rising production:*

- Iraq
- Brazil
- Angola
- Kazakhstan
- Azerbaijan

### *Slowly falling production:*

- Russia
- USA
- Iran
- Venezuela

### *Rapidly falling production:*

- Mexico
- Norway
- Great Britain
- Indonesia

*Sources: Review of World Energy June 2008; UK Industry Taskforce on Peak Oil & Energy Security*

### **New discoveries cannot be profitably exploited at the current oil price**

Both the Kashagan field in the Caspian Sea and “Thunderhorse” in the Gulf of Mexico used to be cited in tandem with the large oil fields of Saudi Arabia. Discovery was made a couple of years back already, but production has gradually slowed down ever since and does not seem viable at the current oil price. The most recent discoveries off the coast of Brazil are promising, but we will have to wait and see whether and if so, when, the oil can be exploited profitably from a depth of seven kilometres.

### **“Exploration hopes to find elephants and generally finds mice...”**

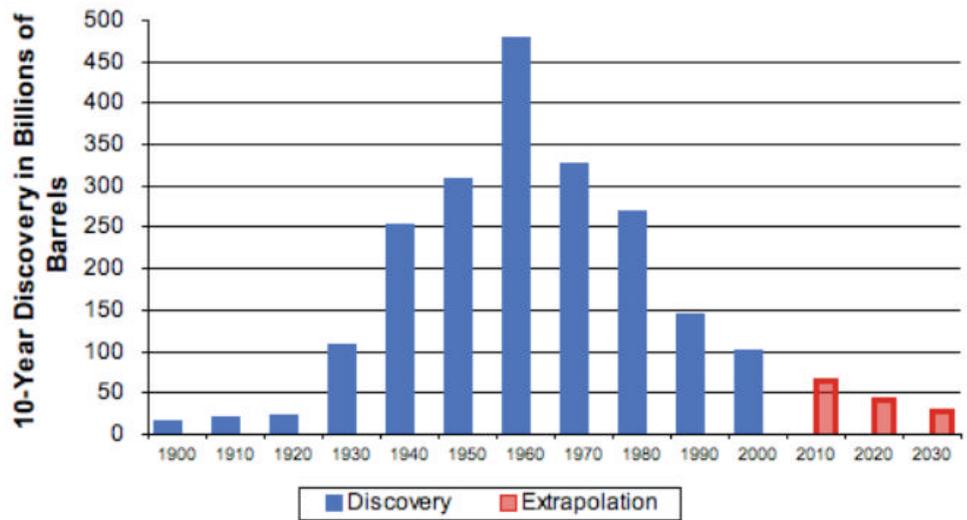
The question to what extent production can be expanded in the countries whose production costs are in the bottom quarter will be crucial. Currently the majority of investments go towards the development of expensive reserves given that private companies are not granted access to economically explorable targets.

*“If oil production in Iraq does not rise exponentially by 2015, we will be faced with a major problem – even if Saudi Arabia honours all its agreements. The numbers are quite straightforward, you don’t have to be an expert.”*

Fatih Birol, Chief Economist of IEA

The following chart highlights the fact that oil discoveries have been on a steep descent since the 1960s. When extrapolating from the past one has to conclude that it will be very difficult to replace exhausted reserves with new ones. According to IEA USD 5.4 trillion would have to be invested by 2030, the largest part of which would have to go into upstream development in order to replace the exhausted reserves. However, this does not seem realistic in the light of the current investment programmes.

**Discoveries in billions of barrels by decade:**



Source: ASPO

**Reserves**

**Extreme concentration of the disposable reserves**

Five countries in the Middle East account for about 60% of global oil reserves: Saudi Arabia, Kuwait, United Arab Emirates, Iraq, and Iran. With the exception of Iran and Iraq, and together with the sheikdoms of Bahrain, Qatar, and Oman, they form the Gulf Cooperation Council which owns about half of the global oil reserves. Whereas there were 15 so-called super giant oil fields across the world 20 years ago (i.e. super-scale oil fields with disposable reserves of more than 5bn barrels and production of at least 1mn barrels/day), this number has decreased to currently four – two of which are situated in the Middle East. Saudi Arabia owns the largest oil field in the world (i.e. the Ghawar field), and Kuwait owns the third largest one (i.e. the Burgan field).

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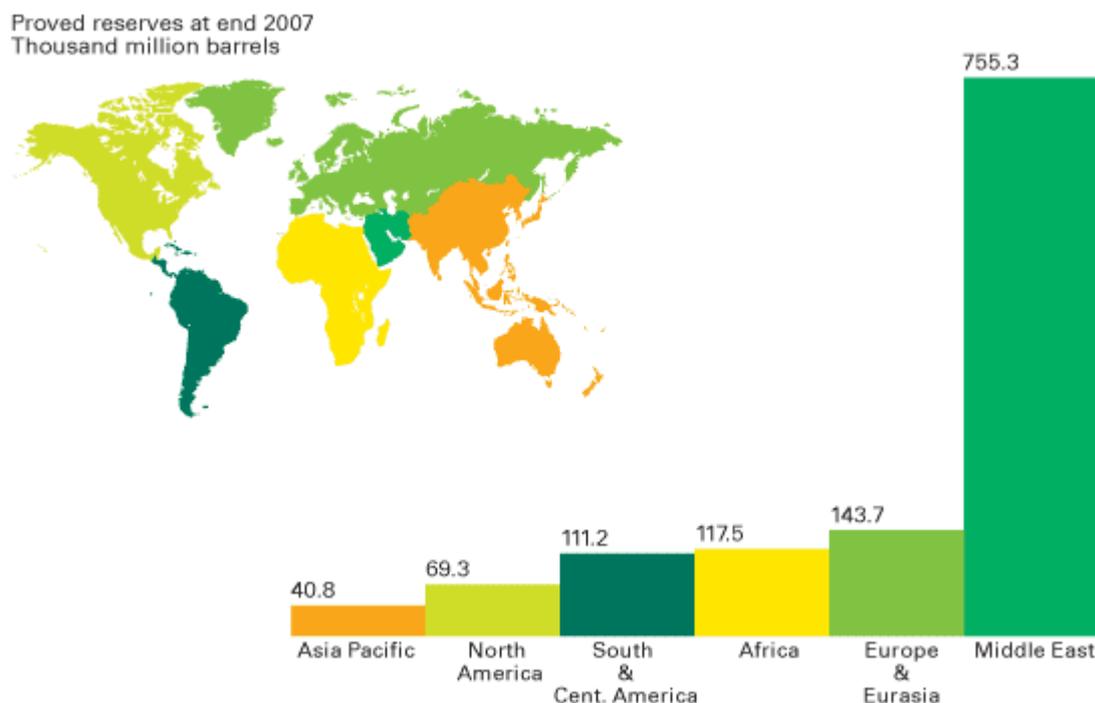
### Reserves by country

Rang	Land	Reserven (2007) in Mio. Tonnen	Anteil in %
1.	Saudi-Arabien	35.946	22
2.	Iran	18.830	11,5
3.	Irak	15.646	9,6
4.	Kuwait	13.810	8,4
5.	VAE	13.306	8,1
6.	Venezuela	11.841	7,2
7.	Russland	10.297	6,3
8.	Libyen	5.641	3,4
9.	Nigeria	4.925	3
10.	Kasachstan	4.780	2,9

Source: BP workbook of historical data

Future production depends on a number of different variables, but the most important one is for sure the total amount of disposable reserves. However, since the relevant data in this context are mainly provided by state-owned oil companies, their validity is dubious.

### Oil reserves in thousands of millions of barrels (at the end of 2007):



Source: BP Statistical Review

According to the Oil & Gas Journal, global reserves in 2007 amounted to 1.32bn barrels of oil. This means that they had increased by 25bn barrels, and based on the assumption of constant consumption at 2005 levels (which is realistic for a scenario of a long and deep recession) the expected life would be 44.6 years.

### Russland + OPEC = a Full Nelson in the energy sector?

#### Russia about to join OPEC?

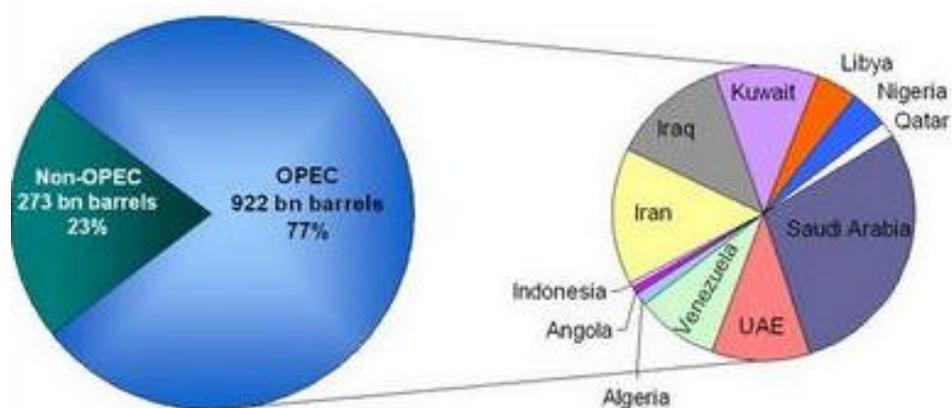
We regard the most recent rapprochement of Russia and the oil price cartel, OPEC, as indicative of Russia's imminent entry. This was also confirmed by a statement made by OPEC Secretary General, Abdalla El-Badri, to the effect that Russia's entry was imminent. The Russian Deputy Prime Minister, Igor Sechin, had pointed out that Russia had to seek close cooperation with OPEC in order to ensure the "stability" on the market.

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This rapprochement of Russia has been going on for a few months already. Russian delegations participated at OPEC meetings, and the establishment of Gas-OPEC (with numerous OPEC member states joining the new organisation as well) is clearly pointing to a soon entry. A concerted cut in production should be a first step. Many observers believe that Russia might only join on the condition that it can continue to decide its production volume autonomously in spite of accession. However, this would raise the question of what is the point of joining OPEC then altogether.

In the course of the Caucasus war, the climate between Russia and the West suffered noticeably, and by joining OPEC Russia would further strengthen its position. That said, it remains to be seen whether OPEC is interested in Russia as a full member of the oil cartel. Saudi Arabia is still considered a close ally of the United States, whereas hardliners such as Venezuela or Iran would probably be more appreciative of Russia's becoming a member of OPEC.

### OPEC's share in global oil reserves (2006):



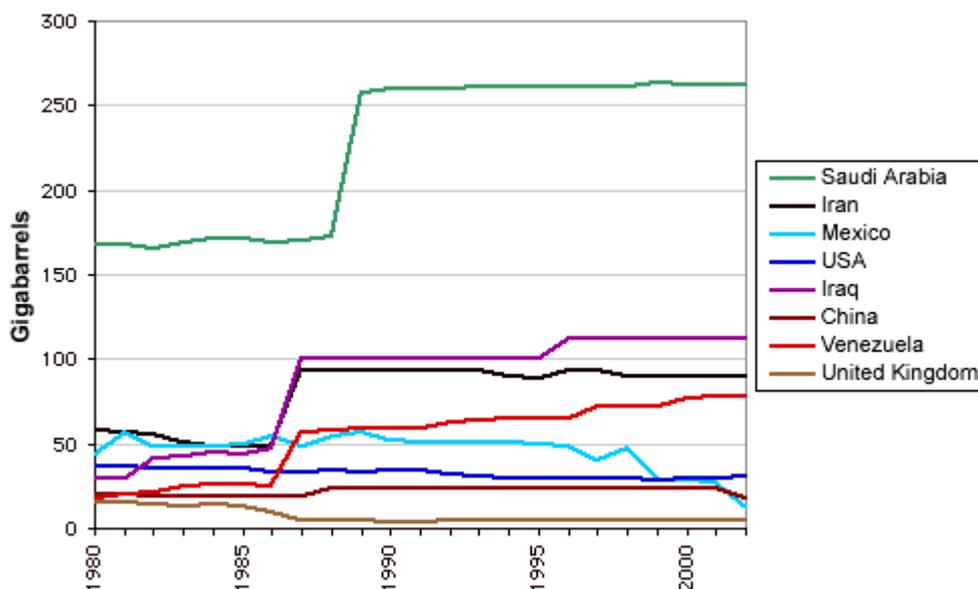
Sources: Erste Group Research, BP Statistical Survey, EIA

### OPEC's phantom oil?

In 1986 OPEC modified its bylaws: the production quotas were tied to the existing reserves, which lead all member states to increase their reserves massively (in some cases even double them) within the course of a few weeks. Kuwait was the first OPEC member state to raise the estimated reserves. They increased from 64bn barrels in 1980 to more than 90bn barrels in 1986. After massive criticism, the Kuwaiti oil minister eventually had to revise the reserves from 100bn barrels to 48bn barrels in May 2007.

Given that none of the reserve upgrades were based on any larger discoveries, the existence of the additional oil reserves remains dubious. This would also explain why the by far largest OPEC producer, Saudi Arabia, has for years refused to let independent foreign institutes appraise its reserves.

**The step increase in reserves in the mid-1980s:**



Source: BP

**Problematic trend towards state-owned oil companies**

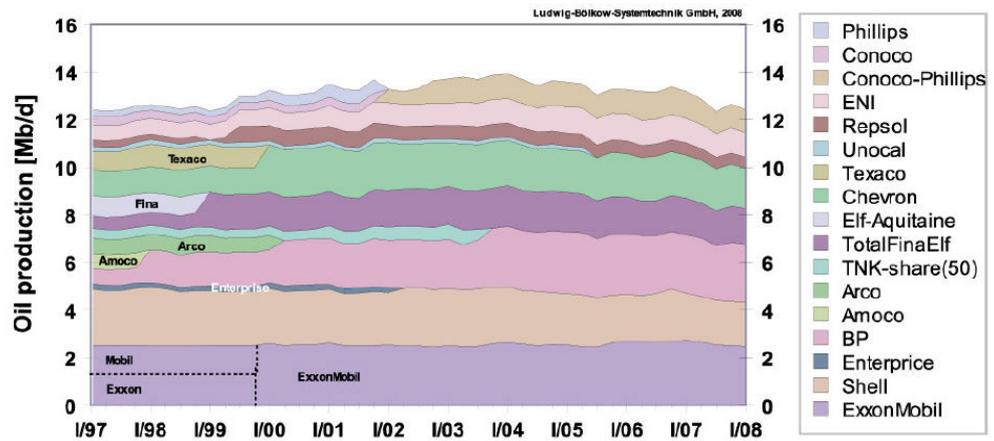
**Influence of state-held companies getting bigger and bigger – nationalisation of the oil industry**

40 years ago a number of private, international oil companies (IOCs) mainly from the USA accounted for the majority of the production and reserves. Although Exxon, Chevron, BP, and Royal Dutch are still among the world’s largest energy producers, they only account for 3% of global oil and gas production anymore. The state-owned groups have taken over the lion’s share of the production in the most important oil producing countries. National oil companies (NOCs) currently own 80% of reserves; 14% are held as joint ventures by NOCs and IOCs, and only the remaining 6% of total reserves are owned by IOCs. The relevance of international oil companies has been reduced to a walk-on part in spite of their extensive know-how, and they have to either accept their junior role or specialise in niche segments.

**Production of IOCs already past it’s peak**

The five biggest oil companies seem to have already passed their production peak. Chevron (2002), Royal Dutch Shell (2003), Total (2004), BP (2005), and Exxon Mobil (2006) did not report any increase in production in spite of the high oil price. And the following five companies with a production of above 1mn barrels/day, i.e. ConocoPhillips, Eni, Petrochina, Repsol-YPF, and Statoil Hydro, have apparently reached their peak production.

Production volumes of the biggest oil companies:



Source: Energy Watchgroup

**The predicament of the IOCs**

The growing market dominance of state-owned oil companies comes with long-term consequences. The predicament the established oil companies are faced with is the fact that they are running out of exploration targets, and that their access to large oil fields has been curtailed more and more. The know-how of NOCs leaves a bit to be desired in many cases, which means that technical and economic expertise and efficiency are often on a much lower level than in the private sector. Petr leos de Venezuela is a negative case in point here.

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### Increasing resource nationalism

On top of that, state-owned companies own the majority of existing reserves, but there are not enough human resources available to do anything beyond just maintaining production on the current level. In 1965 the oil companies owned 85% of total oil reserves. In the course of the growing resource nationalism, nationalisations and expropriations started to happen on a frequent basis.

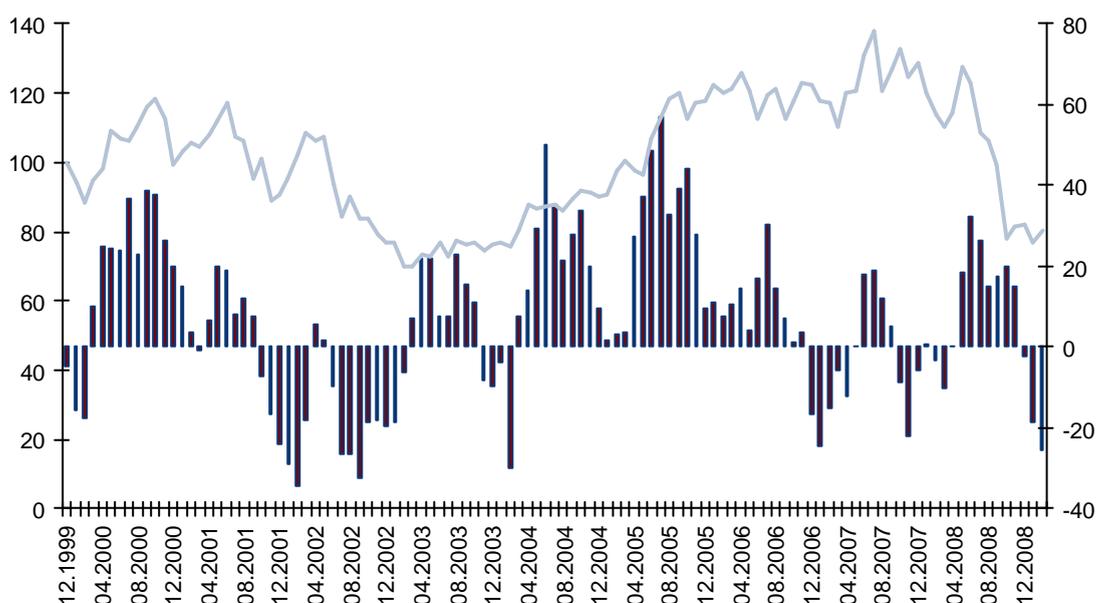
### Credit crunch leads to investment moratorium

The credit crisis has led to a situation where credit-financed exploration is faced with a veritable drought of financing. Many small companies with high gearing are increasingly left out of the competition, which only adds to the long-term shortage in oil supply. Also, prices have fallen so dramatically that they are already on par with, or even below, the marginal costs of the deposits in some cases. Global average marginal costs are at USD 65. Saudi Arabia has recently announced a cut-of value of USD 70-75 for new projects, and new projects outside OPEC cost at about USD 100.

### Acquisitions instead of exploration

In view of the declining reserves, takeover activities should remain on high levels. The consolidation of the industry clearly indicates that the search for “elephant fields” has more or less been given up on. The big oil companies are replacing their reserves mainly through expensive acquisitions rather than by going down the road of exploration. The following chart underlines the disappointing performance of oil shares over the past ten years:

#### DJ Stoxx 600 Oil & Gas index and revision ratio EPS



Sources: Erste Group Research, Datastream, JCF

### “Drilling on Wall-Street”

#### Too little investment in exploration and production among the companies

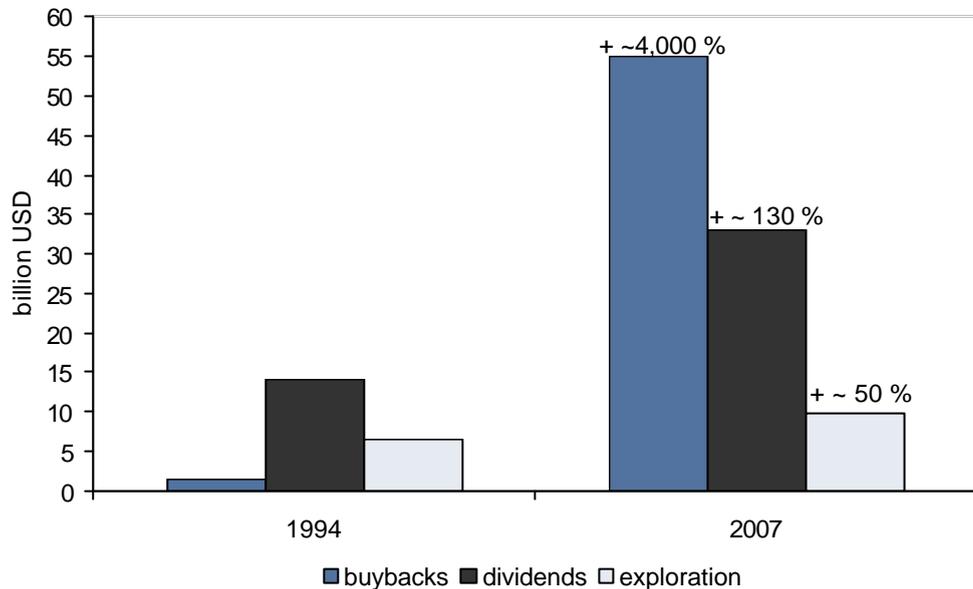
### Dividends instead of modernisation

The oil companies also have themselves to blame for their plight. Rather than ploughing back the record earnings of the past years into the expansion of production or infrastructure, the IOCs preferred to funnel that return mainly into share buy-back programmes and dividends. The five biggest IOCs, Exxon-Mobil, BP, Royal Dutch Shell, Chevron, and Conoco-Philips, bought USD 200bn worth of own shares from 2005 to 2008. Said buy-backs accounted for 34% of total costs for the big five in 2007, whereas in 1994 that item had amounted to only 1%. At the same time exploration expenditure fell from 14% to 6% of total costs over the same period. In 1994 the big five invested 3% of their free cash flow into share buy-back programmes and 15% in exploration, whereas in 2007 34% of the free cash flow were allocated to the purchase of own shares.

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The following graph illustrates this fact. While exploration expenditure increased by 50%, dividend payments soared by 130%, and the extent of share buy-back programmes exploded by the factor of 40.

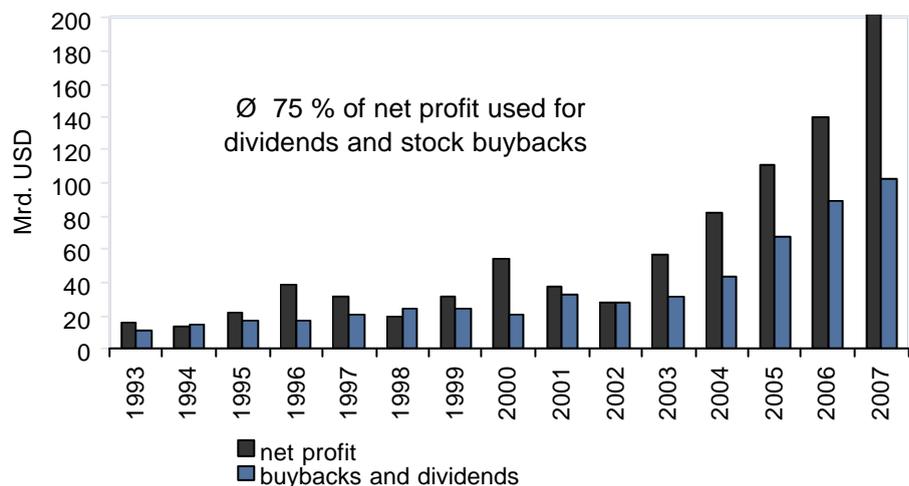
### Share buy-backs, dividends and exploration expenditure 1994 vs. 2007:



Sources: Rice University, Handelsblatt 6 Jan, 2008, own research

However, we noticed this questionable tendency not only among the big oil companies, but throughout the entire industry. The top 100 oil companies spent more than 75% of their net profits as dividends and on share buy-backs.

### Net profit vs share buy-backs and dividends, top 100 oil companies:



Sources: Datastream, JCF Factset, own calculations

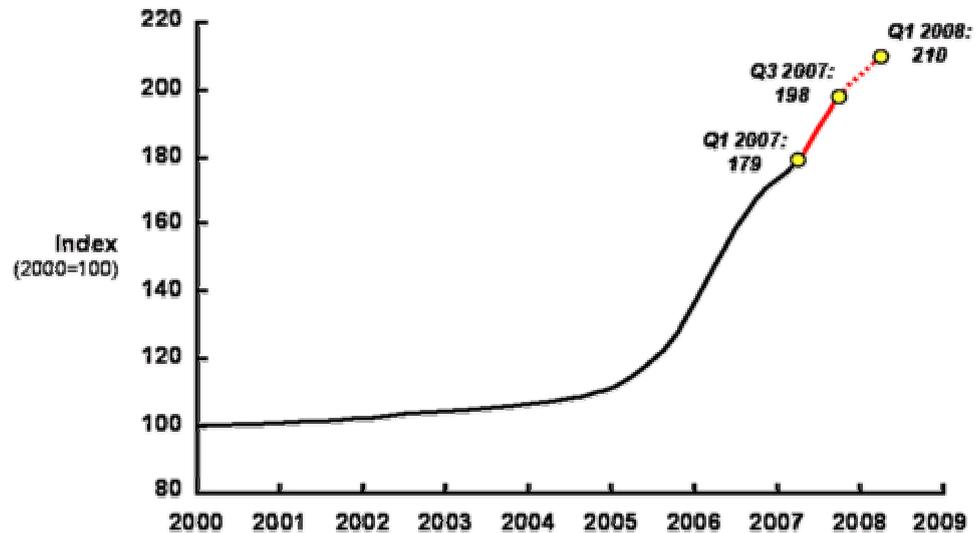
The rising number of ecological campaigns that IOCs have embarked on finds itself also in stark contrast to the actual investment in green technologies: the investment programmes of the ten biggest oil companies in the area of alternative energies account for only 1% of total expenses.

## Sector Report – Oil Report

### Production costs have increased substantially

Quite in line with many other commodity sectors, the oil sector has had to face rising costs of exploration and production. According to Cambridge Energy Research Associates the costs of setting up new oil and gas production facilities have doubled since 2005.

#### IHS/CERA Upstream Capital Costs index

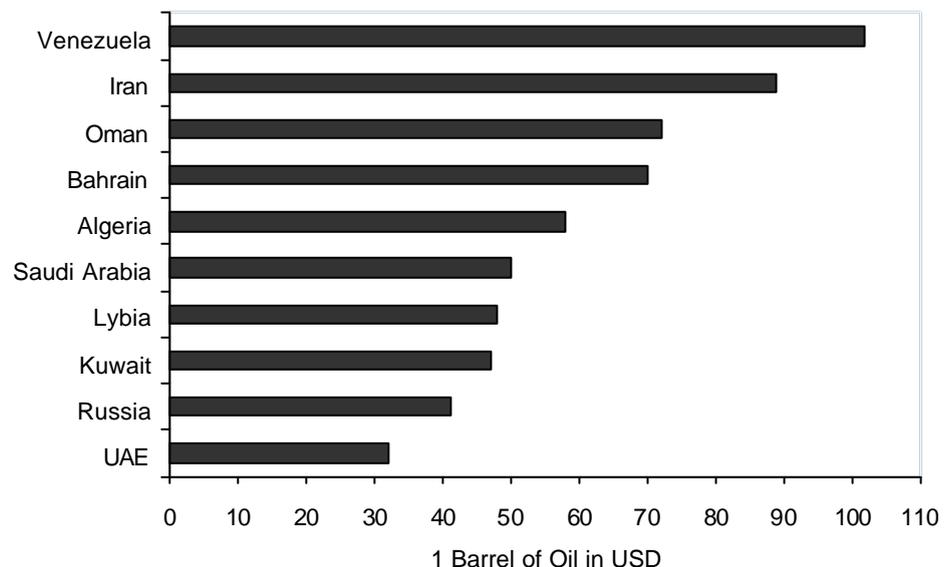


Source: CERA

### Oil-producing nations are facing massive budgetary problems

The following graph details the dilemma that oil-producing nations are faced with. Since the oil revenues tend to make up the lion's share of public revenue (e.g. Venezuela 55% of total revenues, and 93% of exports), a number of countries are in for massive budgetary problems. Venezuela for example needs an oil price of USD 100 in order to achieve a balanced budget, in Iran the break-even point is close to USD 90.

#### 2009 budget forecasts OPEC members + Russia



Sources: IIF, own research

## Sector Report – Oil Report

### Non-conventional supply

*“We should leave oil before it leaves us!” (Fatih Birol)*

Non-conventional deposits are mainly oil sand, heavy oil (especially in the Orinoco delta in Venezuela), liquefied petroleum gas and gas condensate, deep sea oil, and oil shale.

#### Oil sand

##### **Break-even above current price**

Oil sand is a mixture of sand, clay, and tarry bitumen. The extraction of this synthetic crude oil is extremely cost- and labour-intensive. The viscous bitumen is dissolved from the sand in complicated processes, either on the surface or “in situ” (i.e. hot steam is pumped into the ground and the liquid bitumen is then sucked out). In surface mining, production is often not profitable below an oil price of USD 100/barrel; the break-even of the aforementioned in-situ method is USD 75. The largest deposits have been recorded in Canada (province of Alberta).

##### **Low energy efficiency, high ecological costs**

One barrel of crude oil (i.e. 159 litres) requires about two tonnes of oil sand. In addition, the process involves huge quantities of energy (steam), which is mainly produced by burning natural gas. In addition to the low degree of energy efficiency, the ecological consequences are dubious as well. For example, the carbon dioxide emissions are 350% higher than for conventional oil production, the volume of water used is enormous, and the exploited areas look nothing short of lunar landscapes.

##### **We’d better not put our heads into the oil sand...**

In view of these high energetic, financial, and ecological costs we do not regard oil sand as serious alternative to conventional oil deposits, given the current extraction methods. Besides, the production of these alternatives would need to be managed on a long-term scale, which means that they are not suitable for replacing production shortfalls in other areas.

#### Oil shale

Oil shale is a marlstone made up of clay and calcium. The so-called cerogen is heated up to 300 degrees Centigrade and turned into a gaseous mixture from which oil can be distilled. The downsides are, again, a low rate of energy efficiency as well large quantities of water required for cooling, which means that the ecological costs are enormous.

### Peak oil: Conspiracy theory or soon reality?

*“I think that easy oil and easy gas – that is, fuels that are relatively cheap to produce and very easy to get to the market – will peak somewhere in the coming ten years!”*

*Jeroen van der Veer, CEO Royal Dutch Shell, 2008*

##### **„We never know the worth of water until the well is dry“**

The often quoted and arduously discussed term “peak oil” refers to the point of maximum global oil production. Reaching or passing that point would entail drastic price increases and supply crises. Peak oil does not mean that the existing reserves are about to run out, but rather that the rate of production decreases at an increasing momentum beyond that point.

The US geologist M. King Hubbert postulated this theory already in the 1950s and claimed that the rate of production of a finite commodity followed an almost symmetrical bell-shaped curve. Hubbert successfully predicted the American peak oil for 1971 as early as in 1956. The model was later applied to other regions such as Norway, which reached its maximum production in 2001. However, the theory contains a few flaws. A number of assumptions are highly simplified, and there are clear limits of approximation to the model due to unreliable data in connection with resources and production (this is especially true for OPEC member states).

Opinions are strongly divided on the question of the timing of peak oil. Optimistic scenarios – such as the one put forth by the IEA – are based on a global decline that will not set in before 2020 or even 2030, whereas pessimists think that the turning point of production is imminent.

## Sector Report – Oil Report

The pessimistic scenario is supported by numerous arguments:

- Oil field Burgan, Kuwait: According to statements made by Kuwait Oil Company, maximum production was reached at the end of 2005.
- Cantarell, Mexico: According to PEMEX, the phase of stagnation was reached at the beginning of 2006.
- Aramco reported in 2006 that all large oil field of a certain (large) size had entered stagnation and that production would decrease by 8% per year.

### OPEC-Peak 2015?

Of the twelve OPEC member states, six (Nigeria, Venezuela, UAE, Ecuador, Libya, and Iraq) may have already passed their production peak. Total OPEC output should not reach its peak before the middle of the next decade at the earliest. The production outside OPEC might have passed its peak in 2006 or 2007. A number of mid-sized producers such as Argentina, Egypt, Great Britain, Indonesia, Columbia, Norway, Oman, and USA have probably also reached the descending side of the bell curve.

According to ASPO (Association for the Study of Peak Oil and Gas) the production peak will be reached in 2011 or 2012 at 90 to 94mn barrels/day. If demand were to come down by a drastic degree, the peak might be delayed to 2018. For 2030, ASPO expects a dramatic decline to 50-60mn barrels.

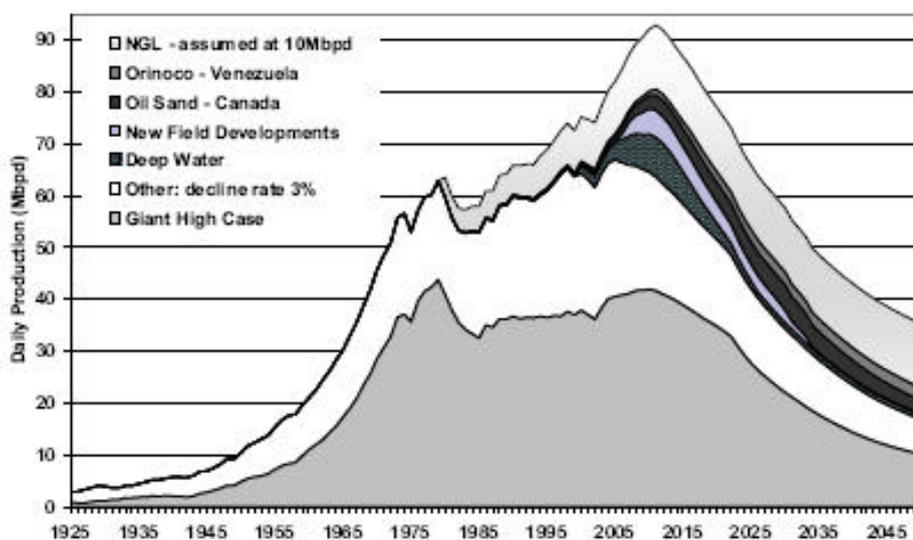
The largest oil fields will continue to account for the lion's share of production. However, no such "elephant fields" have been discovered since 1976. 1980 saw three discoveries with a production of more than 200,000 barrels/day each. In the 1990s, 420 larger oil fields were discovered, but only eleven of those produce more than 100,000 barrels/day.

### Total production hugely dependent on "Giant Oil Fields"

Almost 500 (i.e. 1% of all) oil fields are categorised as so-called giant oil fields. The majority of these fields were discovered in the 1960s and 1970s. Until 2007 these oil fields still accounted for 60% of total oil production and 65% of reserves. The 20 largest oil fields generate 25% of total production. Only four fields produce more than 1mn barrels/day (Ghawar Saudi Arabia, Burgan in Kuwait, Cantarell in Mexico, and Daqing in China). All except Ghawar have reported falling rates of production.

*"My father rode a camel, I drive a car, my son flies a jet plane, his son will ride a camel."*  
Saudi proverb

### Possible peak oil scenario:



Sources: Fredrik Robelius "Giant Oil Fields – the highway to oil"

## Sector Report – Oil Report

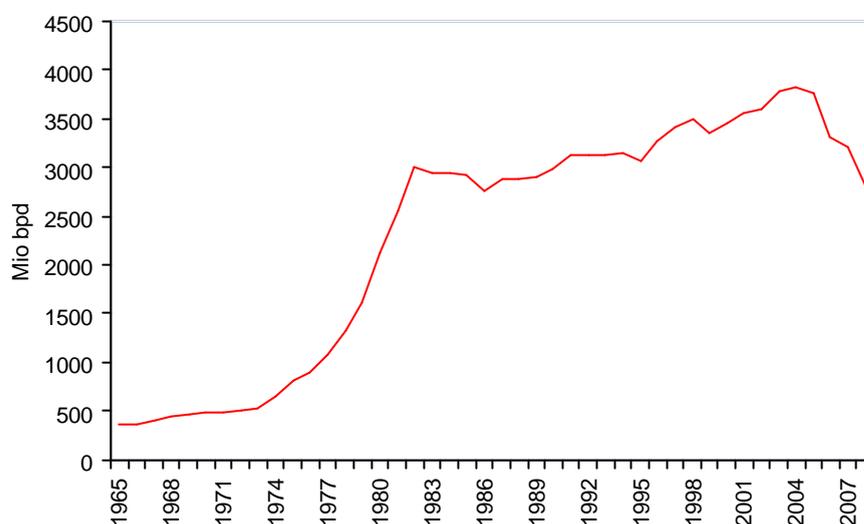
### Excursus Mexico – a prime example of peak oil

#### Mexico and USA: enormous dependence on Cantarell

At an export volume of close to 1.5mn barrels/day, Mexico is one of the most important oil suppliers of the United States. Total production in 2008 fell by 9%. In 2005 it became obvious that the production capacity of Cantarell – i.e. by far Mexico's most important oil field – had embarked on an irreversible decline. The world's largest offshore field has been in production since 1981, and production has been falling for a couple of years, which would clearly support the hypothesis that the peak has been passed.

The dependence of the country on this oil field is enormous: Cantarell accounts for 50% of the entire Mexican oil production and for 26% of its reserves. In 2005, production was 2.1mn barrels/day, but by 2008 it had fallen to 1.46mn barrels (i.e. by 31%). The other two main pillars, Chicontepec Basin and Ku-Maloob-Zaap, making up almost 70% of the remaining reserves are unlikely to compensate for the rapidly declining production of Cantarell. If production continues to fall at this rate, Mexico could even lose its self-sufficiency in crude oil within the next couple of years.

#### Crude oil production Mexico



Source: BP Statistical Review of World Energy 2008

### Supply: Conclusion

**Innovative production techniques could raise exploitation efficiency drastically**

Given that the yield is still low (N.B. deposits are only exploited at a rate of about 25%), the coming years will see the increased use of secondary and tertiary technologies such as EOR (Enhanced Oil Recovery) or IOR (Improved Oil Recovery). Put in simple terms, as part of these technologies oil is squeezed out of the deposit by injecting it with gas, water, steam, polymers or similar. Horizontal drilling or frac technique may also furnish production increases, but all these technologies come hand in hand with substantially higher costs. Since only an estimated 5% of production is derived from EOR, this area may hold substantial upward potential in terms of efficiency. The production output on aging deposits could be stepped up or at least stabilised; the only drawback are the high costs.

**The era of “cheap oil“ is coming to an end**

According to the chief economist of IEA, Fatih Birol, production has to be increased by 45mn barrels/day by 2030 for stable demand figures. Mr. Birol pointed out that the era of “cheap oil” was coming to an end, given that an additional 64mn barrels/day (i.e. six times the Saudi Arabian production capacity) would have to be sourced. The majority resulted from falling production on the existing oil fields, and only 18-19mn were caused by rising demand. Therefore the capacity would have to be stepped up by 45mn barrels/day by 2030 even in the scenario of stagnating demand. Christophe de Margerie, the CEO of Total, recently said that the chances of a production of 100mn barrels a day were slim. At any rate, the low level of investment in the area of exploration will presumably lead to massive problems in the long run. At the moment capital expenditure does not even reach 20% of the volume recommended to step up production from the current 86mn barrels to 125mn barrels by 2030.

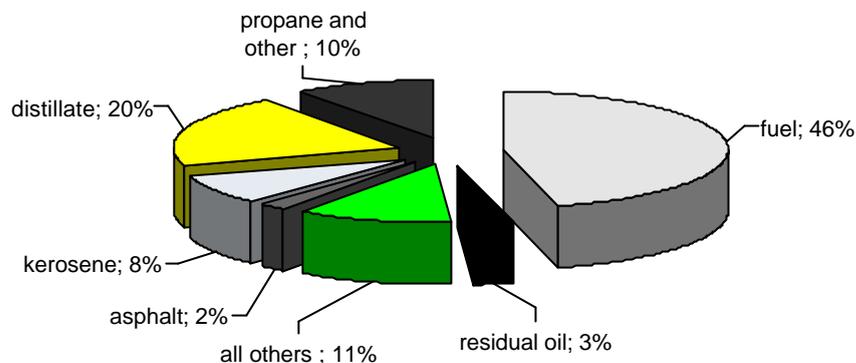
*“We know that we cannot sustain a future powered by a fuel that is rapidly disappearing. Breaking our oil addiction is one of the greatest challenges our generation will ever face. This will not be easy.”*

*Barack Obama, August 2008*

## 4. Demand

Crude oil has been in use for more than 5000 years – even the Babylonians and Sumerians knew its multifarious characteristics. It is by far the most important energy source and commodity in the world. It is the basic ingredient of petrol, kerosene, heating oil, and lubricants, and is a precursor of plastics, pharmaceuticals, and detergents.

### Products based on crude oil



Sources: Wikipedia, theoil drum.com

Why is oil by far the most important energy source?

- Vast range of applications
- High energy density
- Standardised price on the global market

There is no distributive justice: about 30% of the world's population consume 80% of the oil produced. The largest single oil consumer is the US Army, it uses as much oil as Nigeria, a country with 140mn citizens.

The USA currently accounts for almost 24% of total consumption (while accounting for around 4% of total world population). Every US citizen consumes 25 barrels per year, every British citizen uses 11 barrels, and every Chinese citizen accounts for 2 barrels per year. Due to the global economic decline, demand for oil has recorded the first fall-off in 25 years. Previously, the last decline had been seen from 1980 to 1983. Consensus estimates put the decline in demand at 0.5% for 2009.

## Sector Report – Oil Report

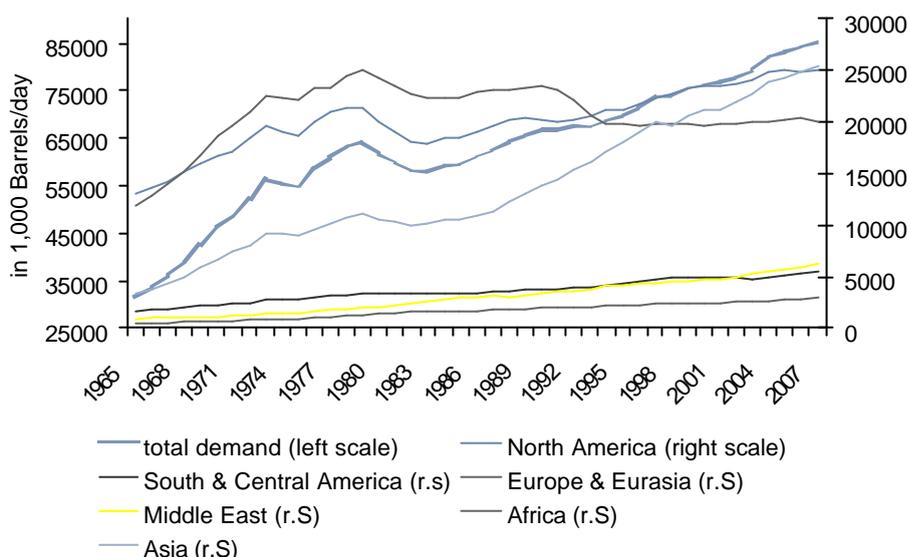
### Consumption by country

Ranking	country	Amount (2007) in Mio. tons
1.	USA	943
2.	China	368
3.	Japan	229
4.	India	129
5.	Russia	126
6.	Canada	102
7.	South Korea	102
8.	Germany	102
9.	Saudi Arabia	99
10.	Brazil	97

Source: BP Stat. Survey

**Global demand on long-term upward trend** Global demand rose by 170% from 1965 to 2007 and by a median of close to 1.9% per year. Demand dynamics were particularly outstanding in China (+3,500% 1965-2007) and in India (+1,000%).

### Global demand



Source: BP Statistical Survey

**2008-2010: short-term slump in demand, but long-term upward trend remains intact**

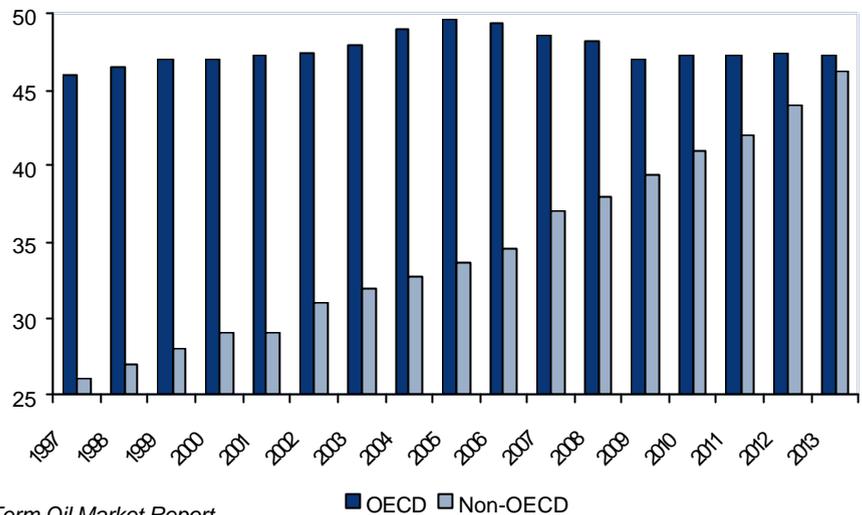
IEA cut its consumption forecast for 2009 on 16 January 2008 by a drastic 1mn barrels to 85.3mn barrels/day, which equals a decrease of 0.6% on 2008. The OECD states are expected to experience a decline in demand of 506,000 barrels/day in 2009. The dramatic downward revision is based on the IEA's own economic forecasts, because it considers the forecast models of the IMF and OECD too optimistic. IEA now only expects the world economy to grow by 1.2%. OPEC even expects a decline in demand of 4.2%.

## Sector Report – Oil Report

### OECD vs. non-OECD demand

The stifled Western economies have put a heavy lid on oil consumption. However, the various regions show a very mixed picture. Asia for example will only see a slight drop in economic growth rates.

### Demand OECD & non-OECD

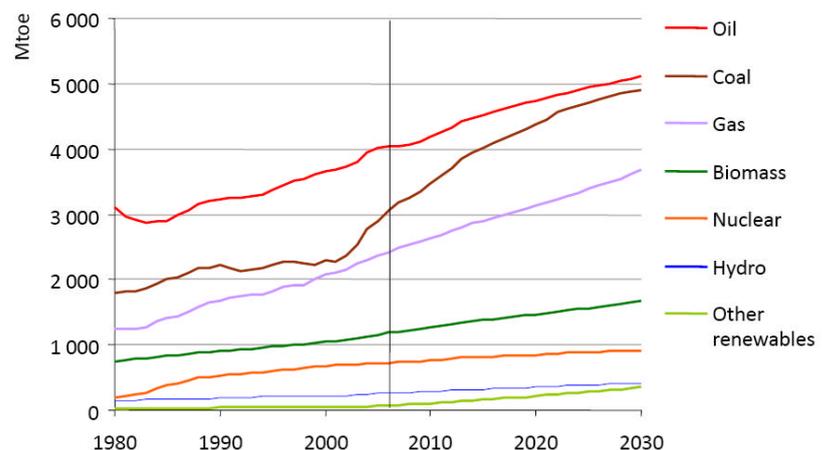


Sources: FAZ, IEA Medium-Term Oil Market Report

### Demand for energy 45% higher in 2030

In its referential scenario, IEA expects energy demand to increase by 45% until the year 2030, which equals an average compound annual growth rate of 1.6%. The coal segment accounts for more than a third of the rising demand (with particularly strong growth rates above all in China), but the oil sector is also expected to make up 28% of the growth until 2030. The demand of 85mn barrels/day in 2007 is expected to grow to 106mn barrels/day by the year 2030. Fossil fuels will still cover almost 80% of total energy demand in 2030, which represents only a minor change to the status quo. Non-OECD states are expected to account for 87% of growth; China and India alone cause half of the demand increase.

### Energy demand until 2030



Sources: IEA, World Energy Outlook 2008

## Sector Report – Oil Report

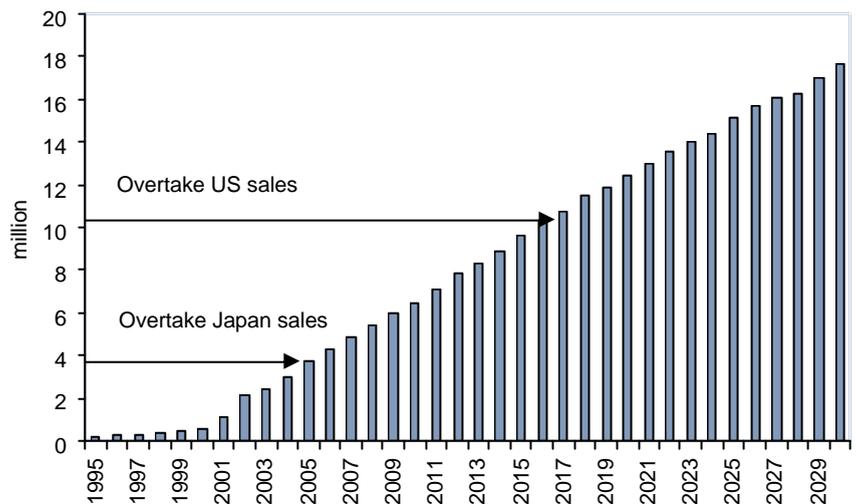
### The China factor

Ten years ago China consumed about 10% of global commodity output – today this number has risen to a third. Chinese oil production increased by 1.7% in the past decade while consumption soared by 6.4% per year. In 1990, China was still an exporter of oil, whereas now the country is the second-largest importer behind the USA. The USA share in total steel production is currently 9%, whereas China accounts for 36% of total production in that sector. This goes to show how economic power shifts. Whereas the share of the USA, Europe, and Japan in global commodity consumption has been on a steady decline, China's share has been rising continuously. To give an example: in the year 2007 alone, Chinese energy consumption rose by 91 Gigawatts, which is equal to the entire annual consumption of Great Britain.

### China = USA in 1915

The situation in China could be compared to 1915 in the USA. The aspiring Asian nation has only recently discovered its fondness of the automobile. Just like in the USA in 1915, the number of cars per 1,000 people only amounts to 9. Private car ownership was only allowed under certain conditions until 1994, but since then China has climbed up the ranks at an incredible speed to become one of the most important global car markets. In its World Energy Outlook 2007, IEA expects the global number of vehicles (i.e. trucks and passenger cars) to soar from 900mn to 2.1bn by 2030. In the face of the strengthening purchase power of the middle class which currently includes about 300mn people, China is likely to replace the USA as the world's largest car market already in 2017. The country has already achieved that status in the luxury segment. But the Russian car market continues to grow as well and has recently passed the German market.

### Expected number of cars sold in China

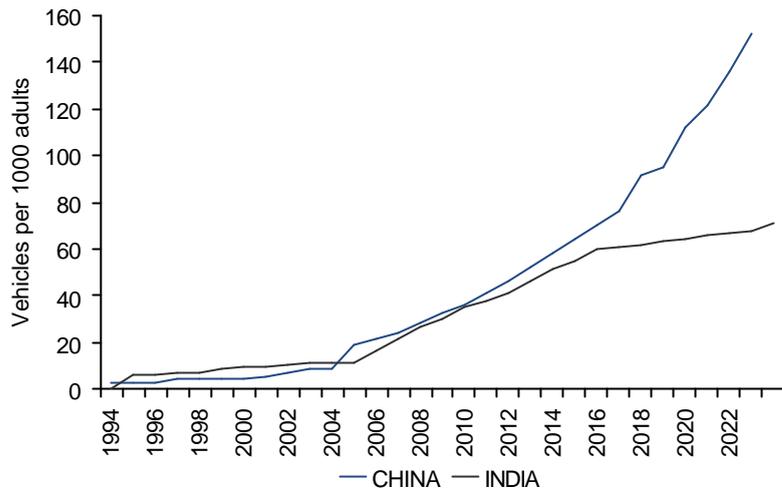


Sources: IEA, oilmarketreport.org, own estimates

According to IEA, total oil consumption of China and India will explode from 9.3mn barrels/day in 2005 to 23.1mn barrels/day in 2030. Two thirds of this growth should be generated by the transport sector; the total number of cars in China is expected to reach 200mn. In India, the number is expected to rise by more than the factor of ten – a total amount of 115mn cars are expected to find themselves on Indian streets by the year 2030.

## Sector Report – Oil Report

### Cars per 1,000 people in China and India

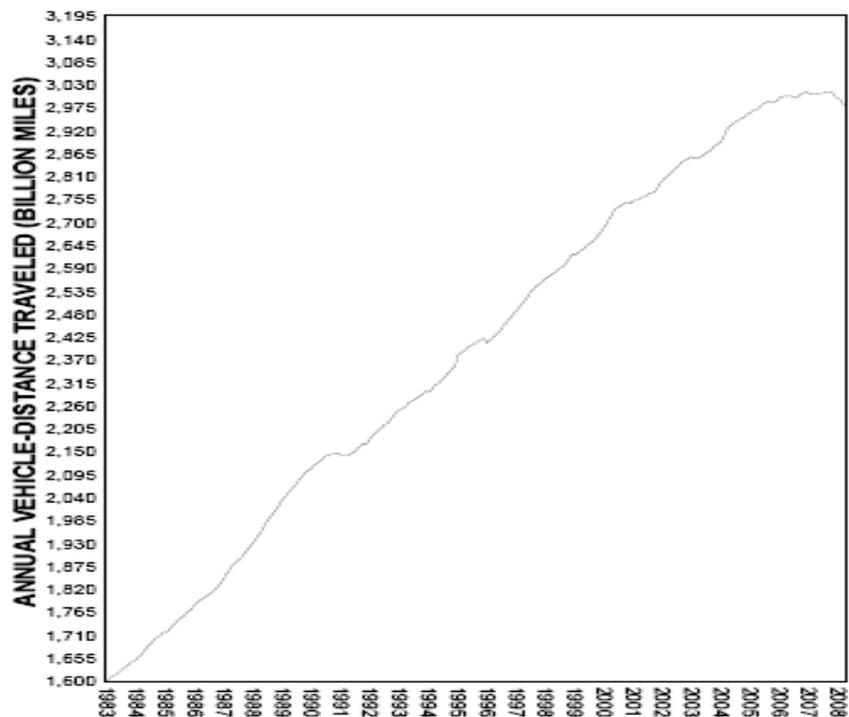


Sources: Bloomberg, IEA, own estimates

### US market: “Peak demand“ in 2007?

The financial crisis and the record petrol prices lead people to change their ways even in the USA. According to the US Department of Transportation the number of miles driven in 2008 decreased by 4.7%, marking the strongest decline since the beginning of records. The last decline of similar magnitude happened during the two oil shocks in the 1970s and 1980s. Americans now tend to buy smaller, more economical cars and also use them less. Also, the miles-per-gallon awareness has become much more poignant. From 2000 to 2004, more than 50% of all newly registered cars were thirsty SUVs.

### USA: miles driven



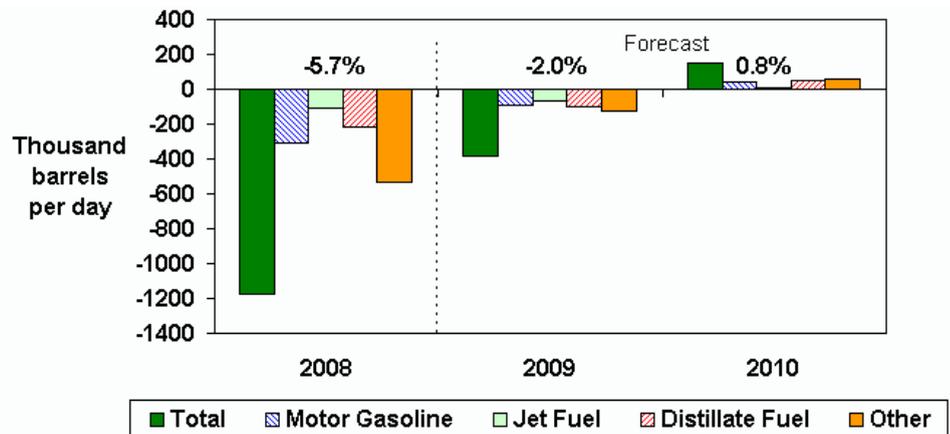
Source: washingtonmonthly.com

## Sector Report – Oil Report

### Falling demand in the USA for the first time in 17 years

Demand for crude oil products fell by 5.7% (in comparison with the 2007 average) in 2008 for the first time in 17 years. The combination of economic crisis and high fuel prices will continue to lead consumers to buy energy-efficient cars, which means that to this extent the demand for oil in the USA might come down on a sustainable basis. EIA predicts a fall of 2% for 2009 and a rebound for 2010.

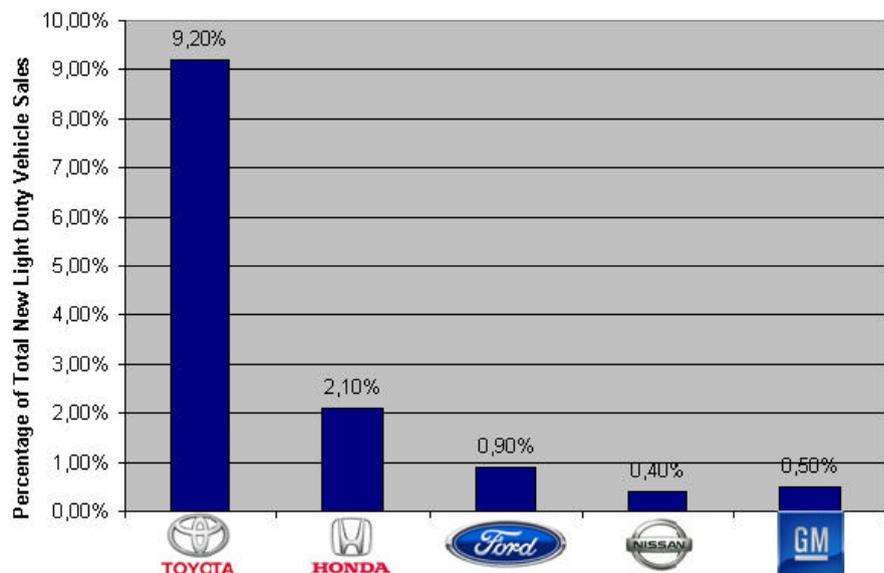
### Changes in the demand for crude oil products in the USA (yoy)



Source: EIA Short-Term Energy Outlook, January 2009

CERA already assumes a peak demand scenario, i.e. a long-term decline in demand. Given that the petrol prices had fallen back from their all-time-highs also on an inflation-adjusted basis to an average of USD 2.4/gallon in 2008, the sales of hybrid cars embarked on a clear upward trend in 2007.

### Share of hybrid vehicles in terms of total car sales

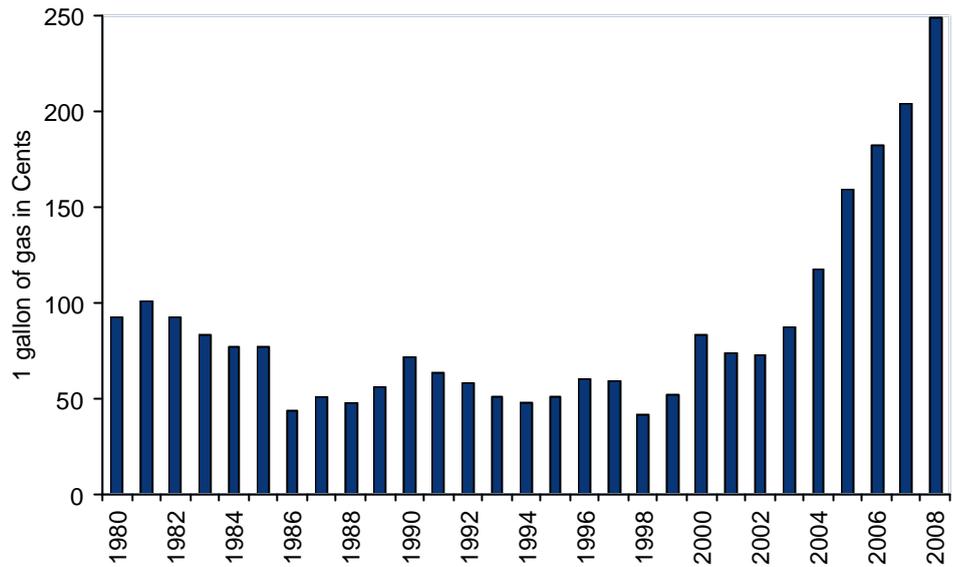


Source: Erste Group Research

Consumer preferences are clearly heading towards energy efficiency and economy: for the first time ever, more units of the hybrid Toyota Prius were sold than of the Ford Explorer (most popular SUV) in 2007. Which comes as no surprise in view of the steep increase in petrol prices.

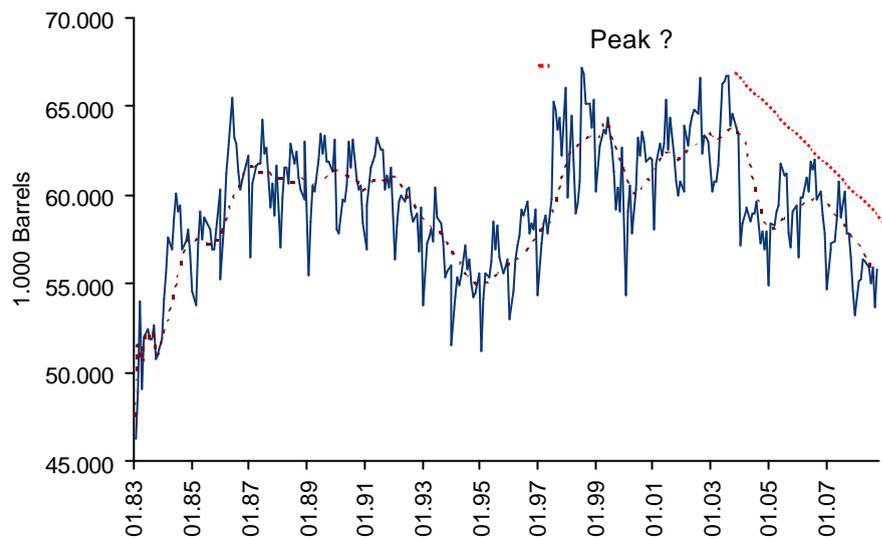
## Sector Report – Oil Report

### Average petrol price in cents/gallon



Source: Datastream

### Monthly US petrol sales



Sources: US Energy Information Administration

### Demand: Conclusion

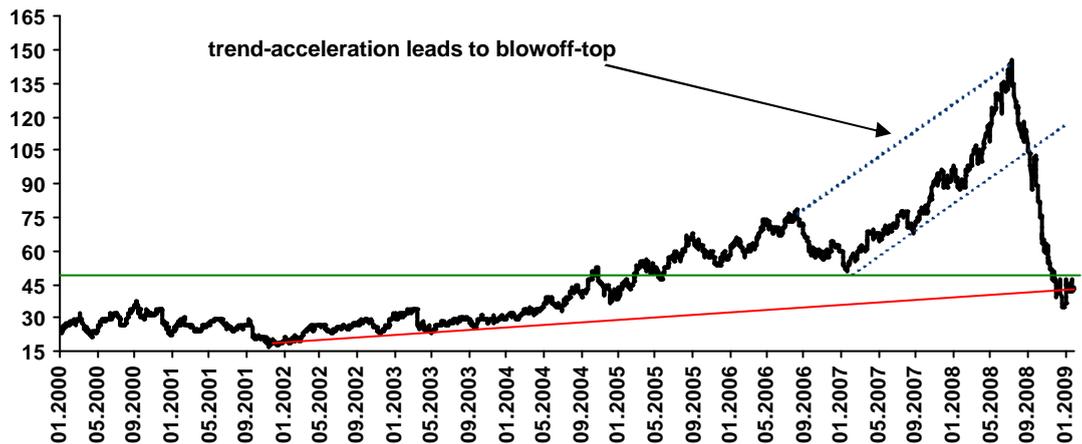
Due to the almost global recession we expect a noticeably subdued demand growth in 2009 and 2010. Although consumer preferences are slowly adjusting, especially in the USA, the long-term rise of China, India and numerous emerging markets will inevitably lead to considerably higher commodity consumption.

## 5. Charts / technical analysis

### All-time-high followed by a 75% slump

The oil price (Light Sweet Crude Oil) set its all-time-high on 11 July, 2008, at USD 147/barrel. Both the earlier massive run to the all-time-high and the current collapse seem clearly excessive. On the way down all support levels were broken vehemently, including even the long-term upward trend line at USD 50. The low of the downward movement was at USD 32 in December, afterwards the price rebounded dynamically up to USD 49.9. Should the barrier of USD 33 get broken on a sustainable basis, the next target would be USD 25. However, we assume that the downward movement saw its low on 18 December at USD 33/barrel.

### WTI from 2000



Sources: Datastream, Erste Group Research

### Contango: 1998 revisited?

Contango can be seen as barometer for the oversupply on the market. This means that futures with short maturities are substantially cheaper than those with longer maturities. The analogy to the year 1998 is quite interesting in this context. In that year, the forward curve was similarly extreme, and the oil price set its intermediate low shortly thereafter at USD 10.35. In the event, it increased to USD 35/barrel within the course of 15 months. For the current situation this could mean that a low of USD 25 may be possible, and that the trough might be followed by a dynamic upward trend.

### Dynamic upward trend on the basis of the bottom that is currently being formed?

We think that the market is currently in the process of forming a bottom which will be the basis for long-term price increases. Within the framework of this consolidation the low of USD 32 on 19 December was not broken for now - but should it be broken, a further correction towards USD 25 would be the consequence. However, we do not regard this scenario as very likely. The possible key reversal of 20 January at USD 37 may have been an early signal for a trend reversal.

The downward pressure has recently eased off considerably, the support line at USD 33 has held, and the market seems to be able to stabilise. An increase beyond the 50-day line would give a first buy signal and set the seal to the trend reversal.

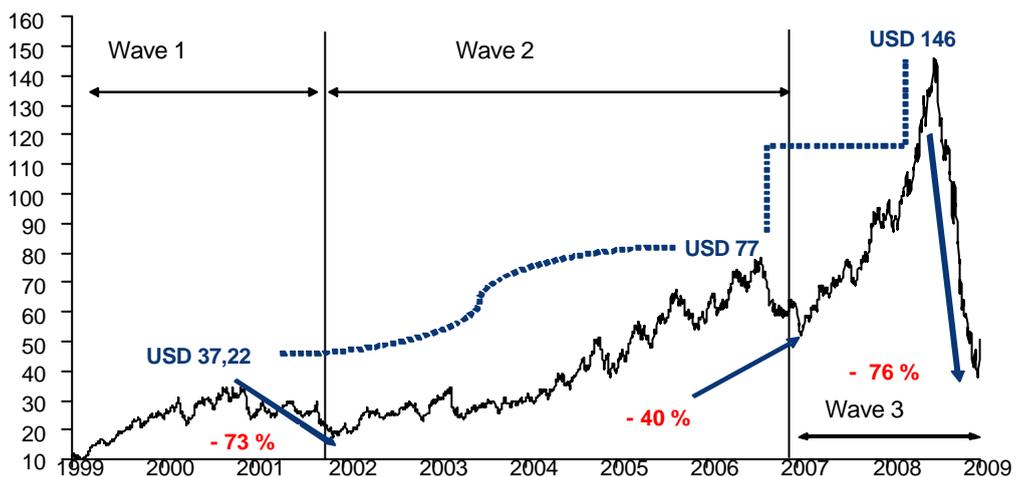
**Oil price (Continuous Contract) since July 2008:**



Sources: Bloomberg, Erste Group Research

Since 1999 the oil price has developed in three phases. The increase to USD until end-2001 was corrected by almost 72% (Fibonacci retracement). In the event the second wave pushed the price to USD 77, from which it later corrected by 40%. In the last wave the oil price shot up to USD 147, and the subsequent correction was considerably more dynamic in terms of duration and extent than the previous two waves. Interestingly, each of the two new highs was exactly twice its previous all-time-high.

**Crude oil spot**



Sources: Datastream, Dr. Thomas Chaize

**Seasonality highly reliable**

Just like with most commodities, the oil price is highly seasonal. Over the year, the peaks tend to occur in August or September. This pattern is due to the hurricane season in the Gulf of Mexico as well to people storing oil prior to the heating season. January and February are traditionally weak months, and the price curve tends to pick up only around mid-February/beginning of March. In post-election years the oil price has statistically shown a sideways tendency and low volatility.

## Sector Report – Oil Report

### Seasonality, based on a time series of 26 years

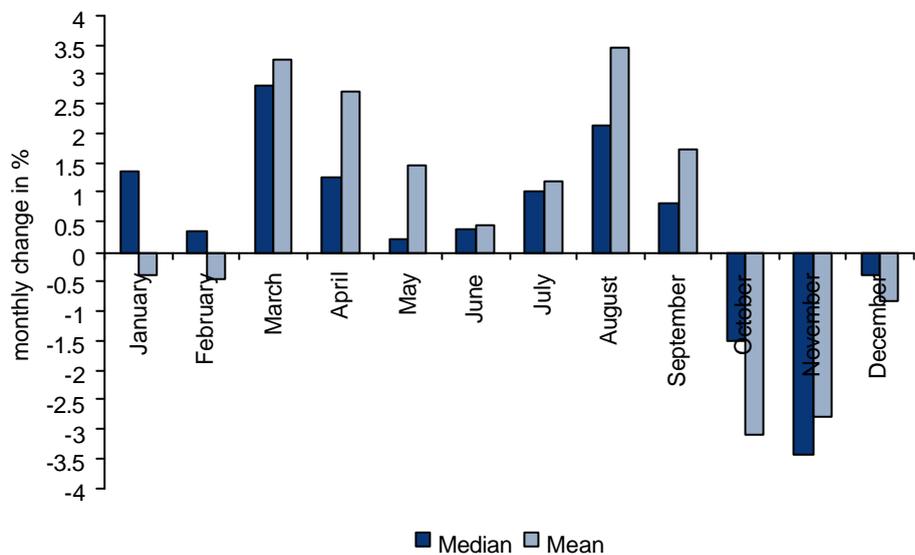


Source: [www.markt-daten.de](http://www.markt-daten.de)

### Seasonality signals attractive opportunity to invest

The following chart highlights the particularly strong buying pressure in the periods of March to May and July to September. From October to February, on the other hand, the oil price tends to come under pressure. This picture is not the least due to the discrepancy in demand between the Northern and the Southern hemisphere. The stronger prices result from the increased demand during the holiday (i.e. driving) season and stepped-up purchasing of heating oil in early autumn. Due to the attractive seasonal pattern we expect attractive prices for investment as of mid-February. In 19 out of 25 years (i.e. in 76% of the cases) the oil price increased between 24<sup>th</sup> February and mid-May.

### Monthly changes: 1983 – 2009, median and average:



Source: Datastream

## Sector Report – Oil Report

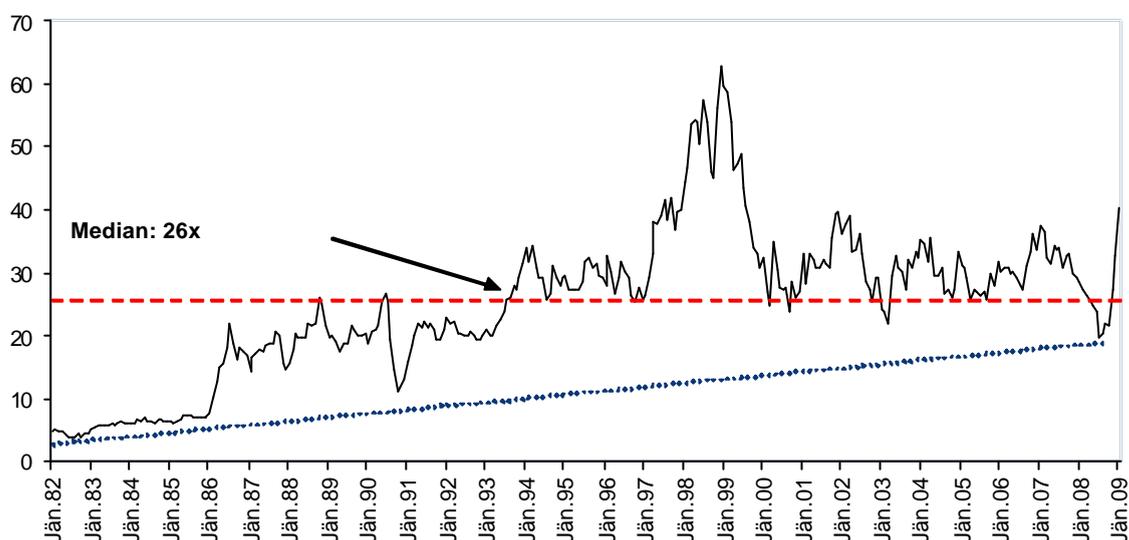
### Ratio analysis:

Ratio analysis is a simple yet extremely useful part of the technical analysis. By simply dividing one value by another one, one obtains a ratio which can be depicted as ratio line in the charts. If the line increases, the numerator is gaining vis-à-vis the denominator. This means that a rising line indicates relative strength. The analysis of long-term relations between oil and other assets is meant to help the investor look at the current market situation from a new and long-term perspective. The simple mathematical operation of the division, representing a direct, long-term comparison of the variables involved, shows whether an asset is fairly valued, overvalued, or undervalued.

### Oil shares/oil (currently 40x)

In comparison with their long-term median of 26x, oil shares are currently overvalued at 40x; or put differently, oil is relatively cheap. Although the premium is by far lower than at its peak (i.e. 62x at the beginning of 1999), we would still advise in favour of investing in the commodity rather than in the shares of oil-producing companies.

### Datastream oil index / oil



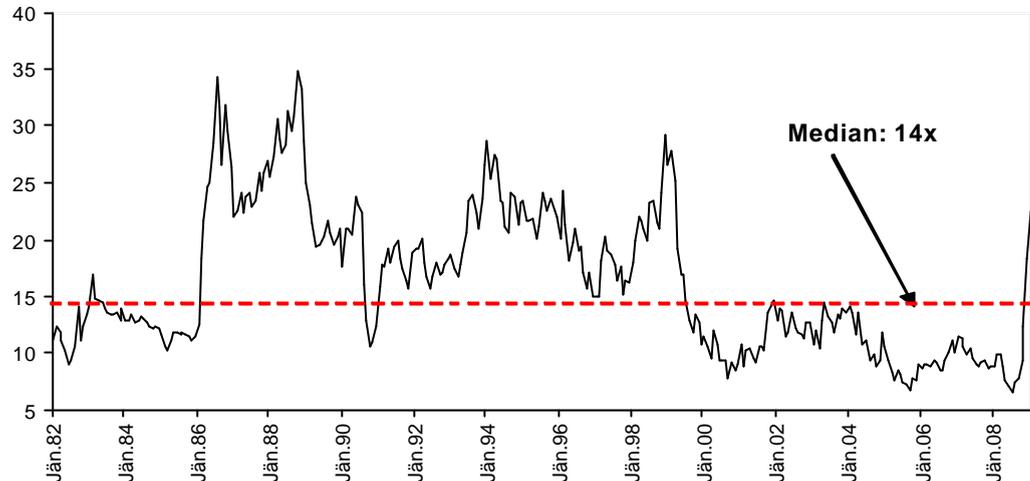
Source: Datastream, Erste Group Research

## Sector Report – Oil Report

### Gold/oil (currently 22x)

One ounce of gold currently buys you 22 barrels of oil, which is substantially above the long-term median of 14. This means that for the first time since the beginning of the year 2000, oil seems favourably valued in comparison with gold.

### Gold/oil

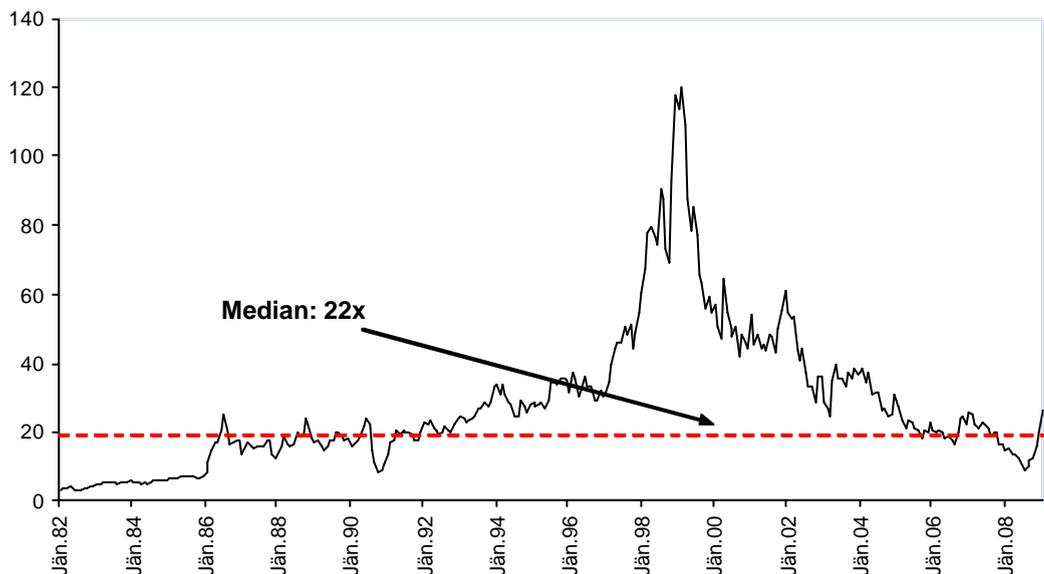


Source: Datastream, Erste Group Research

### S&P 500/oil (currently 24x)

In comparison with the broad US equity market, oil is fairly valued at the moment. At 24x, the ratio is only slightly above the long-term median of 22x.

### S&P 500 / oil



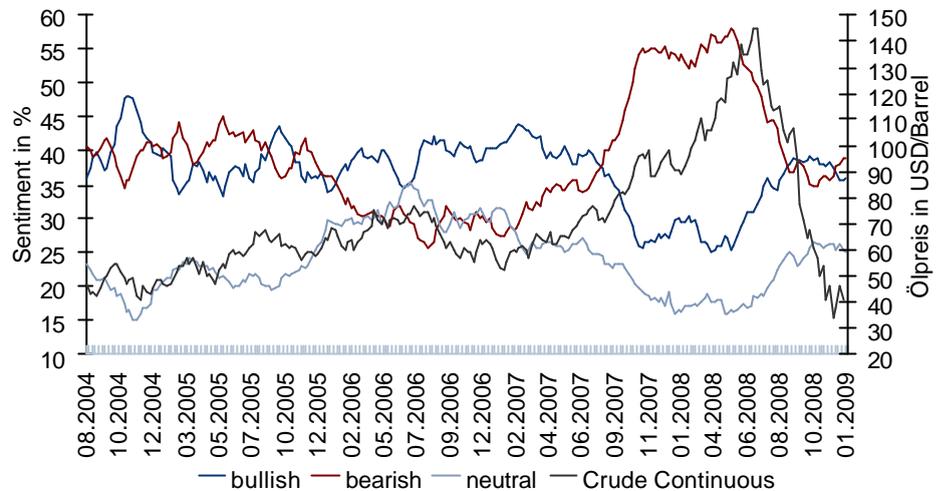
Sources: Datastream, Erste Group Research

### Sentiment still too bullish

According to the Bloomberg Sentiment index, 37% of market participants are still bullish, 20% are neutral, and 39% are bearish with regard to the future development of the oil price. This still appears to be too positive an appraisal of the future.

## Sector Report – Oil Report

### Sentiment (3-month moving average) vs. oil price

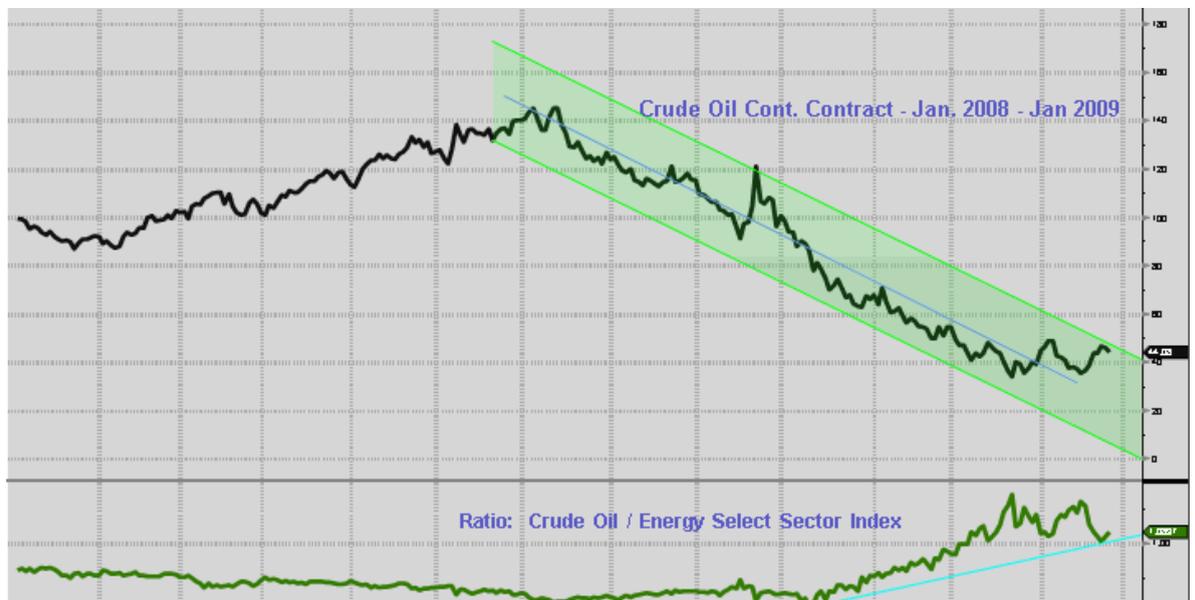


Sources: Bloomberg Sentiment Index, Erste Group Research

### Oil producers with relative strength vis-à-vis the oil price

The distinct relative strength of oil shares in comparison with the oil price that we have seen since October is another bullish factor. The Energy Select Sector index, which reflects the US energy market, shows the increasing momentum. This is a reliable indicator of a sustainable bottom formation, as the shares of oil producers represent a reliable leading indicator of the oil price. We regard the fact that the ratio has been forming a bottom since the beginning of October 2008 and has embarked on a clear upward trend as explicitly bullish.

### Oil shares building relative strength



Source: Bloomberg, Erste Group Research

## Sector Report – Oil Report

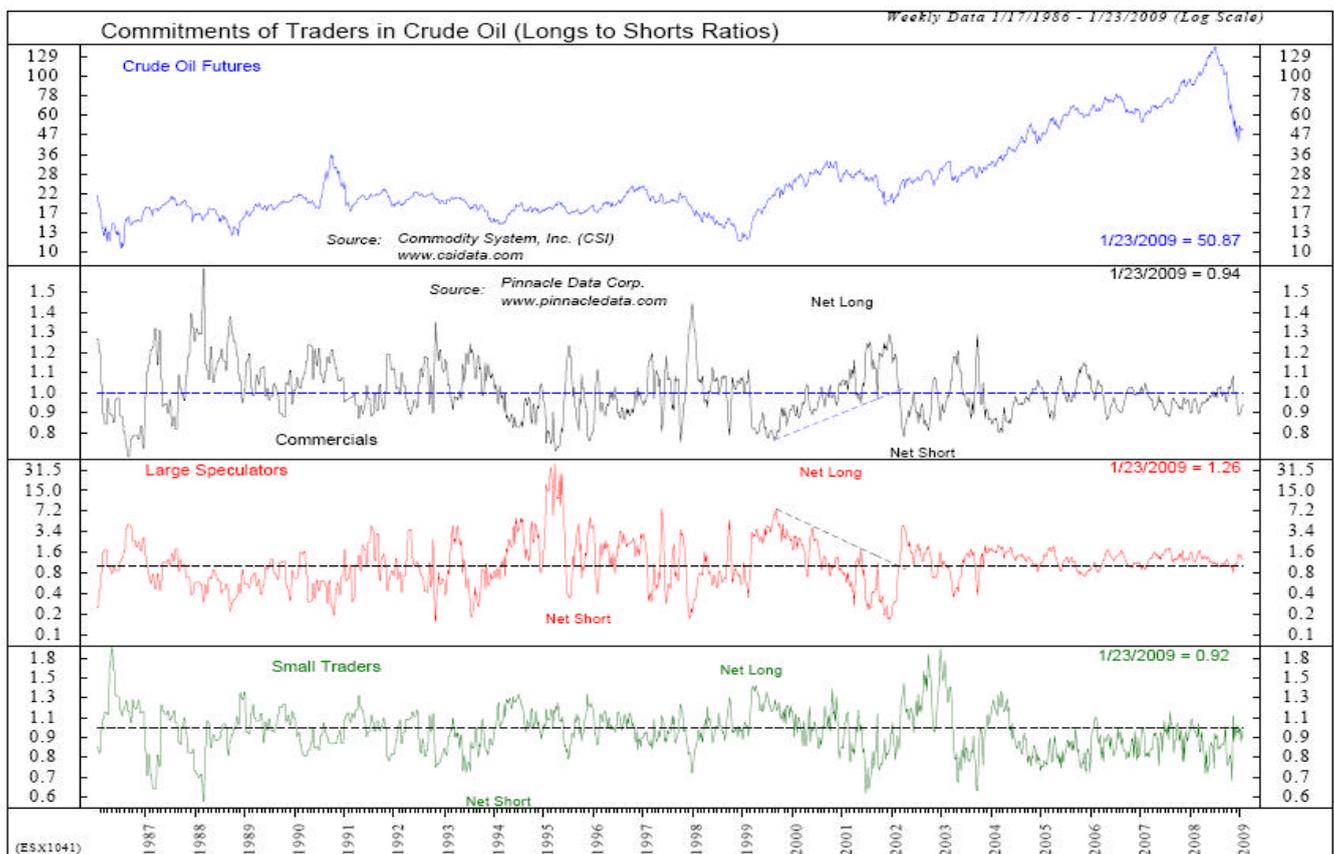
### Commitment of Traders (CoT) Report signals bottom formation

The weekly report by the Commodity Futures Trading Commission details the positions of commercial traders, large speculators (“large specs”), and small speculators (“small specs”). The CoT report tends to contain valuable information that helps understand the positioning of the various market participants.

**Large speculators with long positions, commercial traders reducing positions**

The large specs have been gradually building positions since December and are now net long, which is a reliable indicator for imminent price increases. The commercial traders showed keen interest in buying in November and December and entered new long positions; however, the picture changed in January, where short positions were expanded and long positions were substantially reduced. The forward structure curve (contango) is of course a natural enemy of long investors, given that it causes massive roll-over losses. We would therefore interpret the latest CoT report as relatively neutral. The discrepancy between the behaviour of the large speculators and the commercial traders might indicate a healthy bottom formation, as has been the case many times before in the past.

### Commitment of Traders Report



Source: [www.ndr.com](http://www.ndr.com)

## US dollar index vs. oil

### Fed measures will lead to weaker USD and inflationary tendencies

Since oil is traded in US dollar, the outlook for the US currency is of significant importance to the commodity. The substantial spending programmes and the accordingly massive provision of capital will spark inflation in the medium term. The Fed has considered the purchase of long-term Treasury bills in order to keep yields low. This means there would be a trade-off between higher risk of inflation and lower yields, which could hamper investor interest in American bonds. This in turn would make the US dollar less attractive in the medium term, and it might depreciate against the euro.

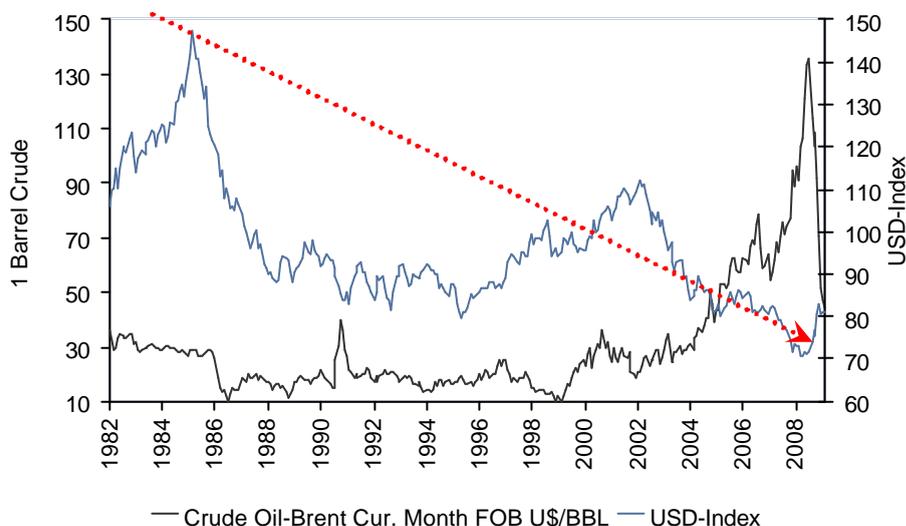
### Currency hegemony under increasing criticism

The currency hegemony of the US dollar and the economic privileges this hegemony comes with has been criticised by an increasing number of countries. Oil-producing nations such as Russia, Venezuela, Kuwait, Iran, the United Arab Emirates, and Saudi Arabia have repeatedly vented their dissatisfaction with the fact that oil is traded in US dollar. Should the emerging markets get their way, any change would certainly be at the expense of the US dollar.

### Secular USD bear market still intact

The following graph shows that the US dollar index (a currency basket containing the euro (57.6%), the Japanese yen (13.6%), the British pound (11.9%), the Canadian dollar (9.10%), the Swedish crown (4.2%), and the Swiss frank (3.6%)) is still caught in a long-term downward trend. Most recently the index fell for the first time below 80 and later almost tested 70. In the course of the massive deleveraging the dollar has appreciated substantially over the past six months, which we interpret as a clear bear run. This means that the dollar index has been caught up in a secular bear market since July 2001 and has lost almost 40% since that time. The end of this broad downward trend is not in sight. Therefore the efforts made by investors to diversify their portfolios come as no surprise.

### USD index vs. oil price since 1982:



Source: Bloomberg, Datastream

## Conclusion of Technical Analysis

### 2009: Bottom formation as basis of a sustainable upward trend?

In summing up the results of the different technical analyses, one could expect a broad-scaled bottom formation in 2009 which will be the basis for long-term price increases. A sustainable increase beyond the (also psychologically important) threshold of USD 50 at the end of the week could be seen as strong buying signal. That said, we do not believe in the imminent comeback of the bull market. Rather, we think that a so-called saucer-bottom formation is more likely. The pronounced seasonality of the oil price would clearly argue in favour of a strong trend from mid-February to the end of September, which means this is a good time to invest. The latest reports by Goldman Sachs, Merrill Lynch, and Morgan Stanley with price targets of between USD 40 and 25 remind us of earlier reports with targets of USD 200/barrel in summer 2008 and can thus be interpreted as reliable counter indicator.

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In view of the extreme situation on the futures markets (contango) a decline to USD 25/barrel could be possible (very much in line with the developments in 1998). Even though we regard the probability of this scenario as low, we would not rule it out completely. The still bullish sentiment would support this scenario.

**Conclusion:** Oil has traded in a sideways range since the beginning of December with a lower band of USD 33. The seasonality of the commodity will open a window of opportunity to invest from the end of February. A bottom seems to have been formed; however, the resistance lines at USD 50 and 55 will be difficult to overcome, as has been shown by earlier attempts and the subsequent pullbacks. Only if the oil price were to pass USD 50 and 55 on a sustainable basis, would it enter into a new, dominant upward trend.

## 6. Conclusion & outlook:

<b>Stabilisation and slight recovery to be expected for 2009</b>	We expect the oil price to recover in 2009, but do not envisage it entering a new, strong trend phase. An average price of about USD 55/barrel seems to us a more probable scenario for 2009. The OPEC production cuts will only help balance the massive inventory levels and thus prevent an even more extreme oversupply. As long as the global economic outlook does not take a turn for the better, there should be no significant rebound in the oil price either.
<b>Quick exit of fossil fuels not likely</b>	One upside of the record run of the oil price last year is the fact that it sparked a public discussion of topics such as security of supply and investment in renewable energy. A turn to alternative forms of energy would of course come with a peacekeeping effect, as it would dampen the danger of resource wars, and it would be beneficial for the environment. However, the public discussion has been sidelined in view of the declining oil price. The belief in the imminent replacement of fossil energy sources with alternative forms of energy seems unrealistic and naïve in the face of the current investment volumes and political support. At the moment the intent to change the energy mix on a long-term basis is non-existent.
<b>Investment not even 20% of the volume needed</b>	Global energy consumption currently outgrows GDP by 1% (long-term median). The growth rates of alternative energies may show above-average dynamics, but they are only a drop in the ocean. Much hope has been put into natural gas; it should be able to fill in at least for parts of what is currently running on oil. – Not the least from the point of view of climate protection, because natural gas emits the lowest share of carbon dioxide among all fossil energy sources. The non-conventional oil deposits (mainly oil sand, liquefied gas, oil shale) could substitute parts of the receding production, but they would not be able to tackle the demand overhang. Also, the ecological consequences and the low energy efficiency and high production costs are critical issues that set clear limits to the potential.
<b>“The longer down, the higher up“?</b>	The longer the oil price will remain at USD 40 and below, the more rapid and extreme the future shortage will be, because investment and exploration programmes will have been postponed or cancelled at this level. The low level of investment in exploration will cause massive problems in the long run anyway. Current capital expenditure does not even reach 20% of the volume recommended to push production from its momentary level of 86mn barrels to 125mn barrels by the year 2030.
<b>Discipline of OPEC members needed</b>	OPEC will have a strong influence on the future oil price. We expect a further cut in production capacities aimed at stopping the decline in prices. The organisation will probably issue cuts as long as the oil price is traded below USD 75/barrel. The majority of oversupply on the global market should be gone by mid-2009. However, in the global recessionary environment production cuts should make themselves felt on the market only with a considerable time lag. Although we expect strongly falling growth rates of demand within OECD, increasing consumption in China, the Middle East, Latin America, and India should largely compensate this fall.
<b>Further OPEC production cuts to be expected</b>	<p>The actual implementation of the production cuts imposed by OPEC seems to leave a bit to be desired. Total production of all OPEC members declined from 27.24mn barrels in December to 26.23mn barrels in January. The target was 24.84mn barrels – and the difference was probably caused by a lack of discipline among the likes of Venezuela. Saudi Arabia, on the other hand, cut its output by 233,000 barrels, i.e. by more than planned.</p> <p>OPEC will presumably cut its production targets in its next meeting in March by at least 1mn barrels/day. This would result in a total cut of so far 5.2mn barrels, or almost 6% of total world demand. In 2001, OPEC imposed cuts of 5mn barrels in four steps (i.e. 19% of the organisation’s total production), which resulted in an upward trend of the oil price that lasted six years. At the moment, production cuts amount to 14.5% of total OPEC production, but the economic distortions seem much more dramatic than in 2001.</p>
<b>Receding demand expected for 2009 and 2010</b>	Overall we expect demand to decline by about 1% in 2009. Non-OPEC supply should fall by about 0.6% due to receding output in Russia, Mexico, and the North Sea; we believe that OPEC will cut its production by a further 2 to 3mn barrels/day. Supply should be more than sufficient in the current year; there should be enough remaining production capacity due to the cuts in output quotas.

## Sector Report – Oil Report

- Imminent flight to tangible assets?** When the monetary floodgates open and the velocity of money picks up again, a strongly inflationary environment might trigger the flight to tangible assets. In this kind of scenario, commodities – especially oil and gold – would benefit.
- Will it be “1998 all over“?** Futures with 2013 delivery dates are currently going at twice the market price of oil. In this context, the parallels to the 1998 situation seem interesting, where the contango relative to the forward curve was equally extreme. That period recorded the all-time-low of USD 10.35 shortly thereafter. In the event the oil price soared to USD 35/barrel within 15 months. For the current situation this could mean that a low of USD 25 may be possible, and that the trough might be followed by a dynamic upward trend.
- The era of cheap oil is coming to an end** At any rate, the era of cheap oil seems to be coming to an end seeing that the easily and inexpensively exploitable reserves are approaching a state of exhaustion. The dramatically risen dependence on state-owned oil companies and the extremely low share of private oil companies in total production and reserves would also suggest long-term rising prices. The structural problems of the oil industry are based on years of neglect, whose effects we are only about to realise. The date of global peak oil cannot be predicted with absolute precision. But the dependence on giant oil fields, the receding output of numerous larger producing nations such as Mexico, Norway, USA etc seem to be giving a clear signal. The fact that the production of the international oil companies within the past ten years has been declining speaks volumes.
- Significantly higher oil prices to be expected in the long run** In the long run, the oil price will not form as a result of supply and demand anymore, but it will depend on the oligopolistic practices of a few big producing countries. Given that production is becoming increasingly cost-intensive and numerous oil fields have already passed peak production, we expect significantly higher oil prices in the long run. To this extent, a price of USD 200/barrel within the next three to five years is within the realms of possibility.
- 2009: Ø 55/barrel risk/return profile attractive** The demand side is difficult to evaluate at the moment because of the economic distortions and their effects and duration, but we expect a somewhat subdued upward trend and consider the risk/return profile highly attractive at the current price. For 2009 we therefore predict an average price of USD 55/barrel, and we expect the price to rise above USD 70 as soon as the economy recovers on a sustainable basis.

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