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Industry Analysis

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The following is our prepared testimony for the Senate Committee on Energy and Natural Resources.

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Executive summary

Gouging is an idiotic explanation

Anybody who blames record high US gasoline prices on "gouging" at the pump simply reveals their total ignorance of global oil supply and demand fundamentals. The real reason for high pump prices is the lack of global gasoline supply relative to demand. Just in the US, overall US refining capacity, at 17 million barrels per day (mb/d), is far below demand at 22 mb/d. In turn, pump prices are effectively set by import prices. With strong demand outside the US on the back of global economic growth and a weak dollar, the era of abundant US oil supply augmented by willing international sellers is dead.

The investment cycle drives the story – but it is 30 years long
High gasoline prices will cure high gasoline prices. The reason for the massive recent run up in prices can be traced back to the last significant period of high prices, in the late 1970s, which forced lower gasoline demand, then more efficient cars, which led to excess refining capacity, which led to years of poor returns in refining (and cheap gasoline prices), which dis-incentivised investment in refining and encouraged demand, and which has ultimately led to today's intense market tightness. It is fair to say that as we enter driving season in 2007, we are one major incident away from a 1970s-style gasoline crisis. There is now US gasoline inventory, at record lows, for just twenty days of consumption.

The poor returns of the 1980s and 1990s have indirectly caused some additional external events that have played into the problems. The years of losing money caused companies to neglect refining investment, culminating in BP's Texas City disaster. Texas City has now rightly caused other refiners to operate more cautiously – and so less capacity is available. Nevertheless, because the industry is so stretched, there have been subsequent accidents, for example, a further BP issue at the company's Whiting, Indiana plant. These two BP refineries alone are two of the five biggest US refineries, now running at half capacity, with some 400 kb/d shut down, and the remaining operating sub-optimally, running rare light sweet crude when they should be using more abundant heavy sour grades. Not all problems are with BP, for example a fire at Valero's McKee refinery has tightened the Mid-Continental refining balance.

A second impact of years of reduced investment has been a lack of qualified engineering, procurement and construction staff. One vital issue here is that the tightness of US refining capacity at this time is not because companies are unwilling to invest in more capacity, it is that they are unable. There is competition from non-refining investment to exacerbate the problem, notably in Canadian heavy oil sands.

Then, just when imports are needed more than ever, European and Asian demand strength has combined with a weak dollar to leave margins higher elsewhere, crimping import levels.

In this tight context the government has mandated tougher-to-make fuels, requiring more refining and plant maintenance. The law of unintended consequences results in government-mandated ultra-low sulfur diesel (ULSD) being so hard to transport around the country that it excludes higher sulfur off-road diesel from the pipeline system, forcing farmers to use higher quality, more expensive, more difficult to make diesel than they would legally have to, and encouraging the export of off-road diesel to competing global markets.

Ethanol is not a solution. The ethanol "methadone" simply subsidies farmers to grow corn for ethanol using oil-based fertilizer driving oil-powered tractors and serves to make this economic using government/taxpayer's money. Ultimately ethanol subsidy lowers the pump price of gasoline and effectively encourages the cheap gasoline addiction.

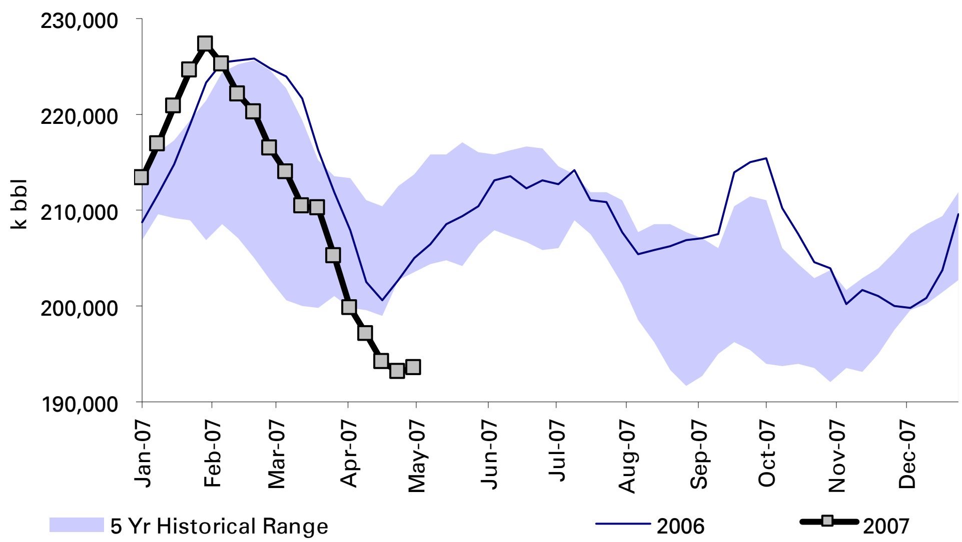
US policy makers must stop attempting to re-create a 20th century of abundant and cheap US gasoline, it is as dead as the geology that leaves no more cheap US oil. Avoid additional mandates and allow the market to direct capital towards the areas of tightness. Returns are now high, so US refining capacity IS being added, as fast as reasonably possible, and demand IS slowing. It is vital to allow US gasoline prices to reflect the true cost of supply, which even now they arguably do not do (awful geopolitics, the suffering environment). For this summer, be prepared to take emergency measures (lifting environmental restrictions, emergency IEA gasoline inventory drawdown) should an emergency develop. We are not there yet, but we are close.

Why are gasoline prices $3?

Inventories are extremely low

The combination of strong domestic demand and weak supply (a combination of weak domestic supply, tight import markets and a weakening dollar) has driven gasoline inventories to extreme lows.

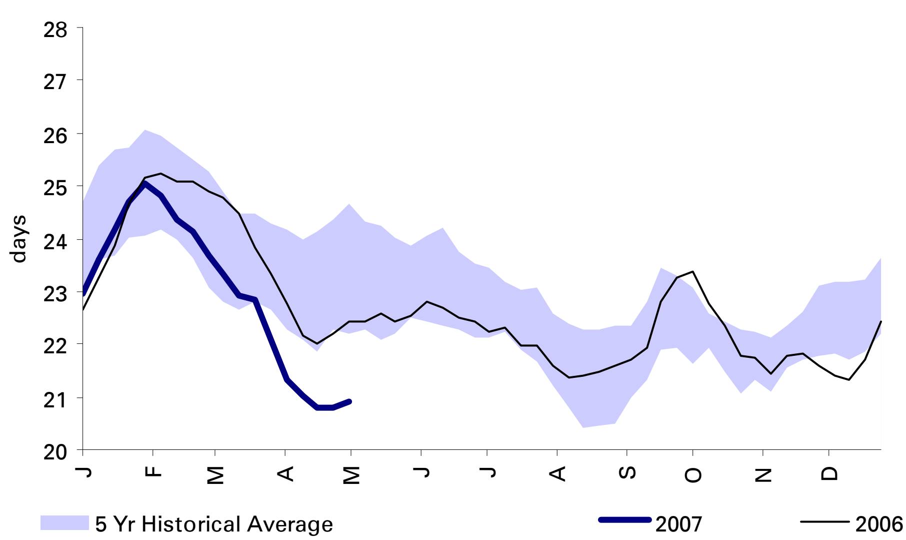
Figure 1: US total gasoline inventory



Source: Department of Energy-Energy Information Agency, Deutsche Bank

Another important way to look at this measure is in days of forward cover (how many days of demand are held in inventory. This number is just above 20 days at the moment, an extremely low level by historical standards.

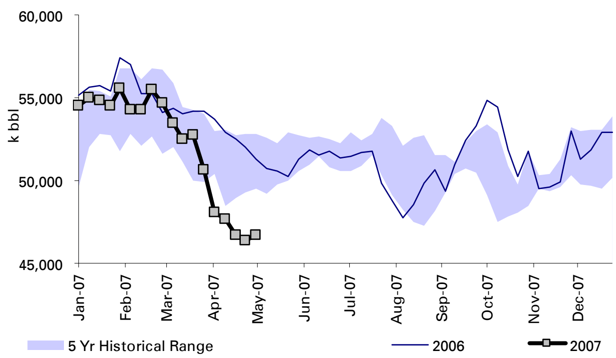
Figure 2: US gasoline inventories (days forward cover)



Source: Department of Energy-Energy Information Agency, Deutsche Bank

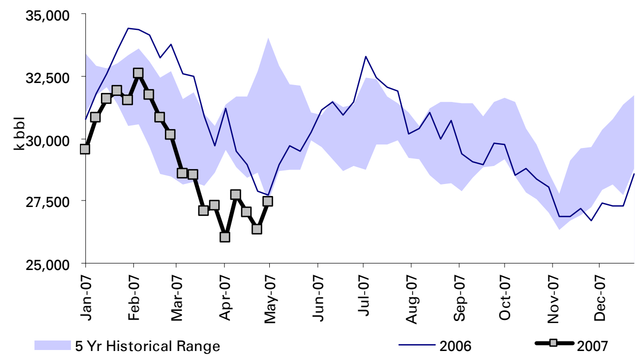
Inventories are particularly true low in the Midwest (PADD 2) and West Coast (PADD 5).

Figure 3: Midwest (PADD 2) total gasoline inventory



Source: Department of Energy-Energy Information Agency, Deutsche Bank

Figure 4: West Coast (PADD 5) total gasoline inventory



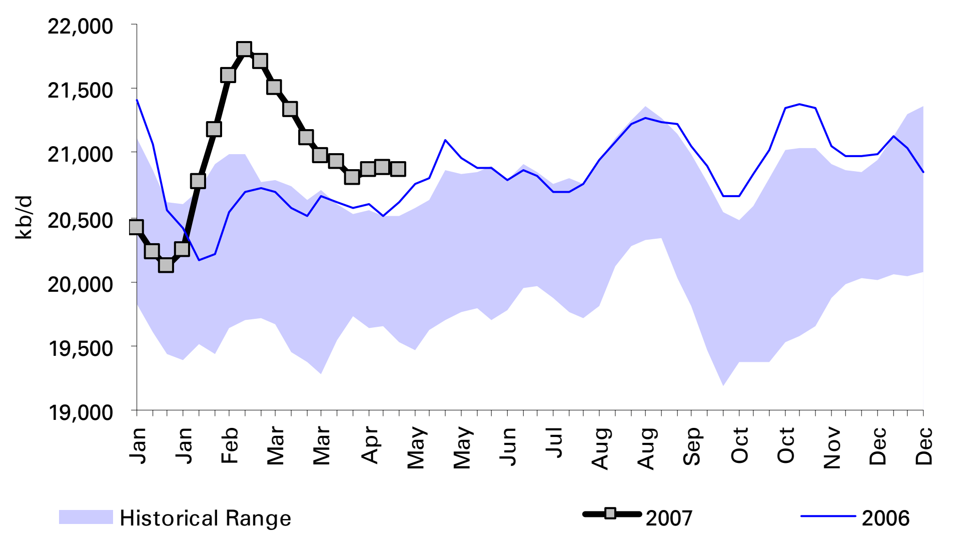
Source: Department of Energy-Energy Information Agency, Deutsche Bank

Demand

US demand for oil (including gasoline) is growing

US and global oil demand is extremely strong, particularly in the face of a slowing US economy. The chart below illustrates total US demand for oil products, which has run +2.7% year to date. Even without the cold-weather related February spike, total US oil demand growth would have been quite strong.

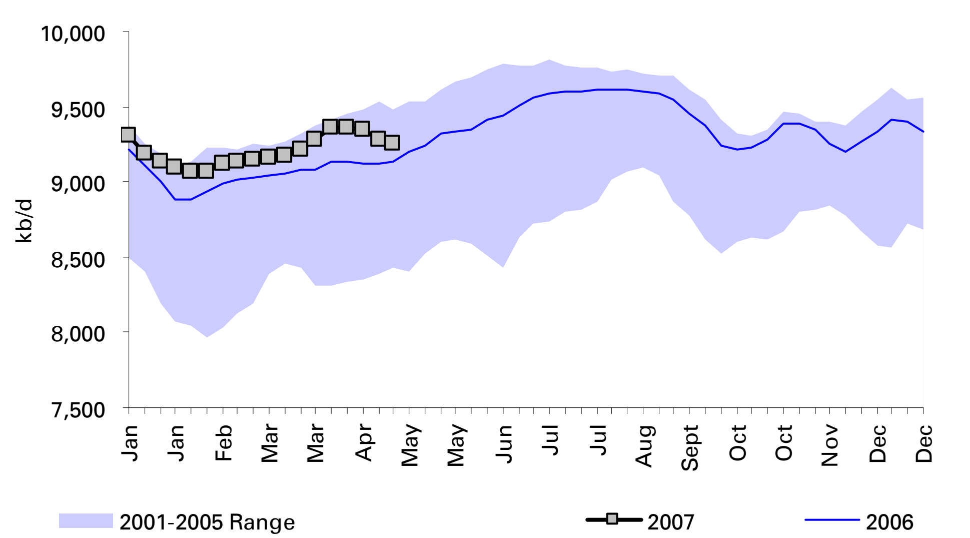
Figure 5: US total products demand (4 week avg)



Source: Department of Energy-Energy Information Agency, Deutsche Bank

Gasoline, specifically, has seen strong demand as well. Year to date, demand has grown by +1.5%.

Figure 6: US gasoline demand (4 week avg)



Source: Department of Energy-Energy Information Agency, Deutsche Bank

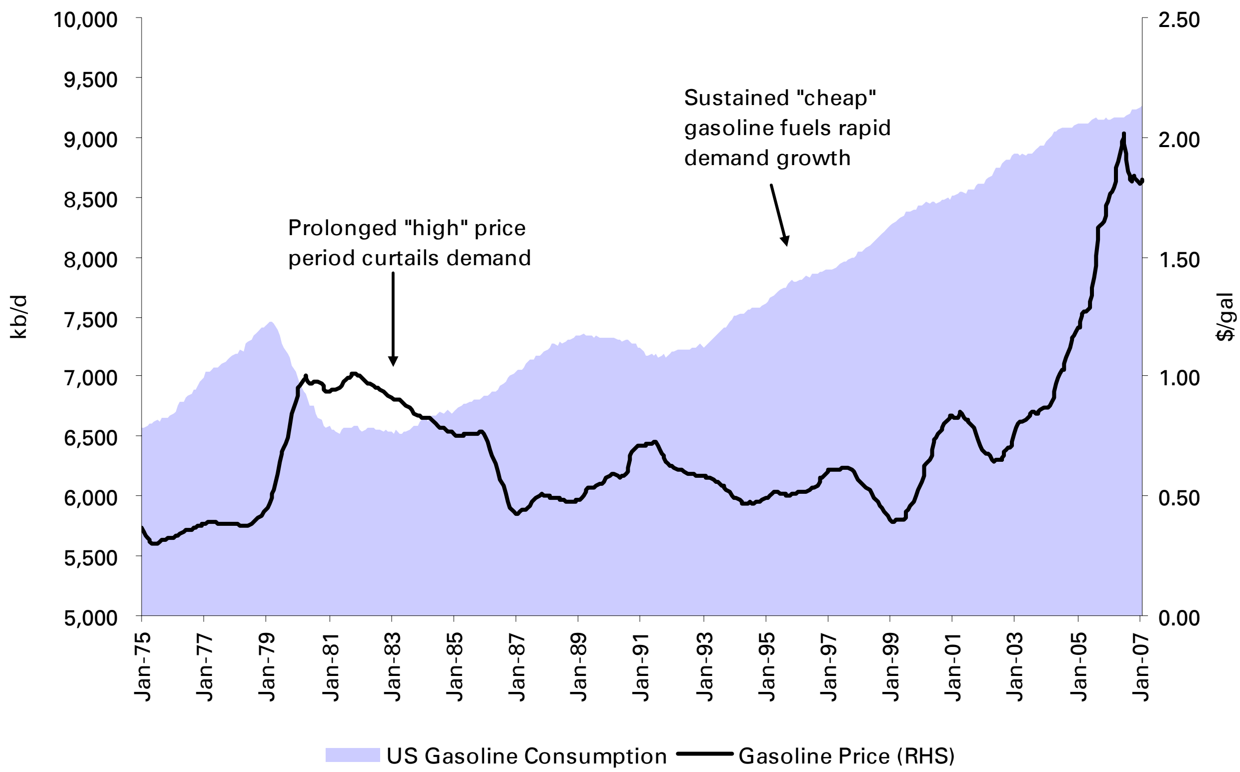
It is worth noting this gasoline statistic is likely inflated by ethanol. Ethanol is 30% less fuel efficient than gasoline, meaning that a car will drive 30% less distance on a gallon of ethanol than a gallon of gasoline. As increasing amounts of ethanol are blended into the gasoline pool, the efficiency of our car fleet (miles per gallon) will go decrease. This has and will continue to inflate demand numbers.

Is gasoline as necessary as food? Almost

Geography and demographics say gasoline demand will continue to grow

Gasoline is a staple good. Growth in demand is much more about demographics (increasing US population) and geography (population growth in the West where there is no alternative to driving). Only prolonged periods of high prices, such as the late 1970s and early 1980s, impact consumer behavior.

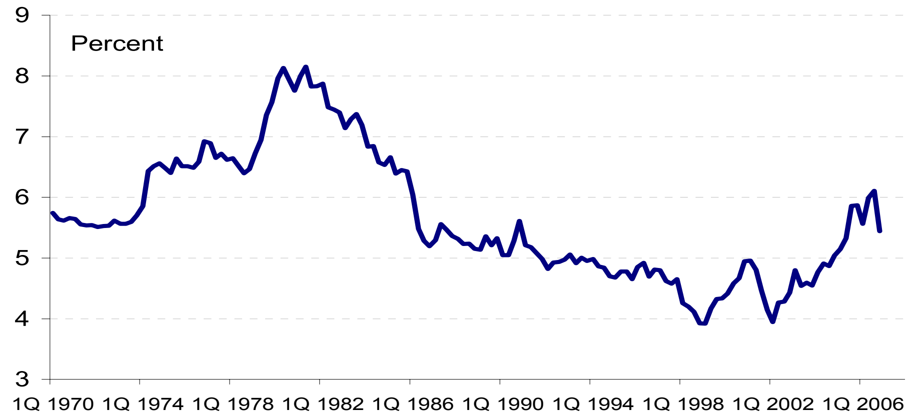
Figure 7: US gasoline demand vs. price: high prices hit demand over the long term



Source: Bloomberg, Department of Energy- Energy Information Agency, Deutsche Bank

However, the cost of gasoline to the US economy is not nearly as high as this chart would indicate. The chart below illustrates that the cost of energy to the US economy is still well below its peak from the early 1980s.

Figure 8: Energy consumption spend as a % of disposable income



Source: Bureau of Economic Analysis, Deutsche Bank

In short, gasoline prices are not that high and as our population grows in and shifts to geographies without mass transit, our gasoline needs will only continue to rise.

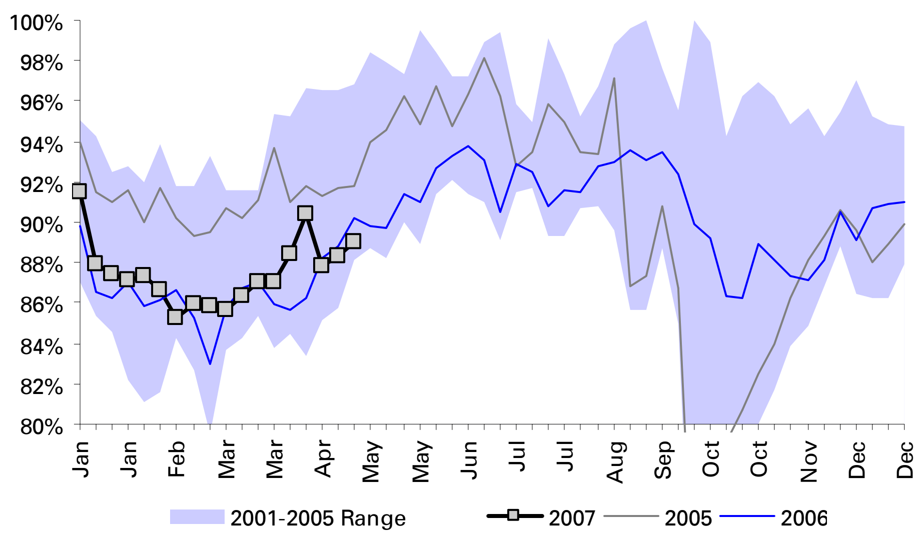
Supply

US refinery problems, European tightness and a weak dollar have constricted supply

Refinery utilization is very low

US refinery utilization (essentially supply) has been particularly low this year. The chart below depicts utilization, being the percentage of US refinery capacity being utilized in any given week.

Figure 9: US refinery utilization



Source: Department of Energy-Energy Information Agency, Deutsche Bank

There are several possible reasons for this. We believe it is some combination of the following:

- Extended maintenance – Refiners have universally pointed to longer maintenance periods (turnarounds) due to (1) tighter fuel specifications that require more frequent plant maintenance (2) the difficulty in finding and retaining skilled contract labor and (3) the considerable damage to machinery that has been pushed to the limits by strong product demand over the past few years.

- Product specifications – Tightened product specifications for transportation fuels (i.e. Tier II gasoline, ultra-low sulfur diesel) have made it more difficult to produce fuels. Problems which used to cause a refiner to alter operations now cause one to shut down until necessary repairs are made.

- Safety concerns – In the wake of the deadly explosion at BP's Texas City refinery in 2005, refiners are more concerned about safety than ever. As such, they are much quicker to halt operations than in the past.

Imports are the balancing factor in US gasoline markets

Gasoline imports are the balancing factor in the US market, currently running over 1mm bbl per day, 10-15% of US consumption. This means that the US gasoline market is influenced by the global refining environment. With economic growth strong around the world, the import markets are tighter, and subsequently higher priced than ever.

Further constricting gasoline import supplies has been the strong global naptha market. Naptha is an early-stage product from petroleum refining, which can be further refined into gasoline or used in petrochemical applications, particularly in Asian chemical plants. The petrochemical demand for naptha has been very strong this year, drawing it away from the global gasoline pool.

Weak dollar

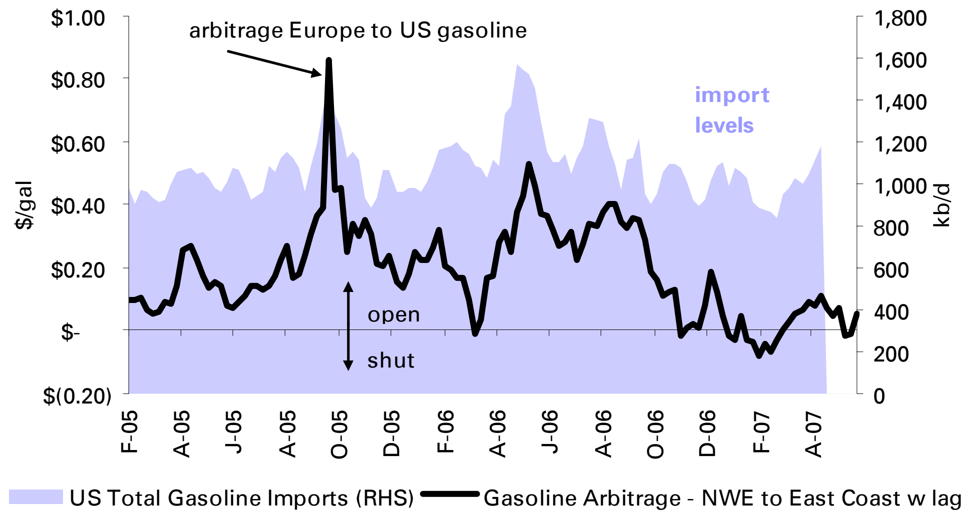
Given the US imports its marginal barrel of gasoline, a weakening dollar drives up gasoline prices. In order to attract imports, the US must pay for them. As the dollar weakens, the price for US consumers rises. The dollar has weakened since the beginning of the year.

Figure 10: FINEX US dollar index

Source: Bloomberg, Deutsche Bank

The chart below demonstrates the gasoline arbitrage spread between the East coast and Europe (East coast wholesale gasoline price – European wholesale gasoline price – shipping cost). This formula needs to be positive, i.e. US prices are more than the sum of European prices + shipping, in order to attract imports. Recently, this has not been the case, indicating that European wholesale gasoline prices have been very high. The implication is, in order to attract necessary imports, US prices may have to increase.

Figure 11: US gasoline imports vs. arbitrage to Europe



Source: Bloomberg, Department of Energy-Energy Information Agency , Deutsche Bank.

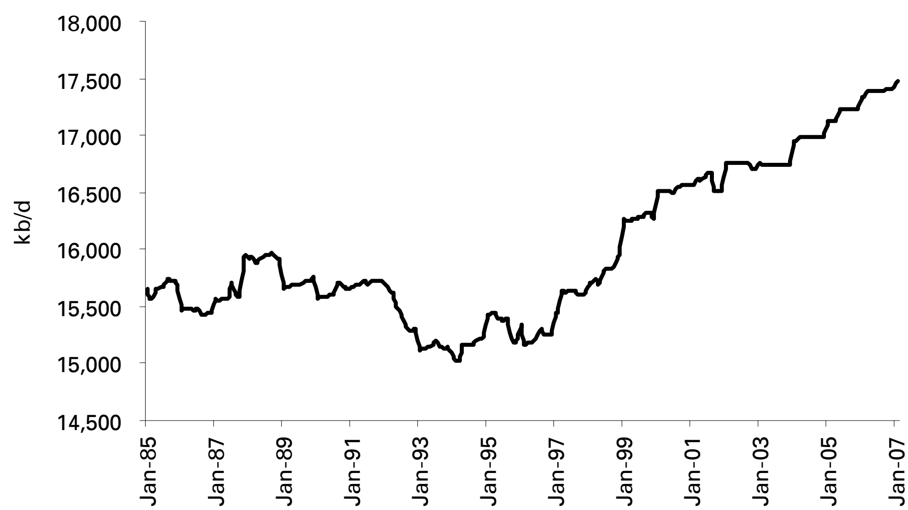
NOTE: These are based on wholesale prices and do not include retail taxes. Therefore, very high European taxes, which drive headline European pump prices higher than the US, are not a factor here.

Myths

There are three key myths for policy makers to keep in mind.

Myth: US refining capacity is not growing
While a new refinery has not been built in this country for decades, plenty of refining capacity has been added. The chart below depicts US refining capacity, which as grown steadily since the mid-1990s. US refiners are adding capacity and have significant projects planned out into the next decade.

Figure 12: US refining capacity



Source: Department of Energy-Energy Information Agency, Deutsche Bank

Myth: High gasoline prices are bad
Gasoline consumption is widely viewed as excessive on the basis of energy security and environmental concerns such as global warming. As discussed previously, over the long-term, the only proven effective way to slow gasoline (oil) consumption is through prices. Given this fact, high gasoline prices can be viewed as a friend to the policy maker.

Myth: High gasoline prices are caused by price gouging
In a rising gasoline price environment, oil companies tend to lose money at the petrol pump, because cost of supply is outstripping price of sales. In fact, spectacular profits for gasoline marketing (the service station) are made in rapidly falling price environments. In neither case do we believe there is systematic price manipulation on the part of the major oil companies.

Appendix 1

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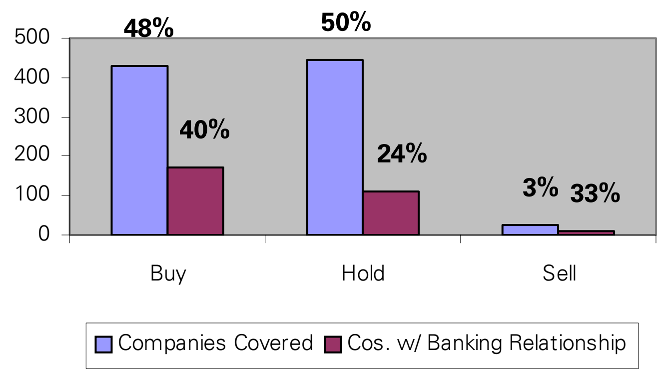

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