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The Longevity of Oil

Christopher Cassidy

Rising fears concerning the supply and safety of world oil production have recently caused oil prices to spike, and to remain at record high levels for much of the summer. Amidst the backdrop of ongoing attacks on the Middle East's oil infrastructure, and the reports of light crude exceeding $49 a barrel on the New York Mercantile Exchange, a heated debate has intensified surrounding the longevity of our world's oil supply.

Oil pessimists believe that the vast majority of the oil-rich regions worth exploring have already been discovered, and that any newly discovered regions will be very small in comparison. These pessimists advocate that agency estimates of world oil reserves, such as the U.S. Geological Survey (USGS) estimate of 2.6 trillion barrels, are highly overstated, and should be estimated around 1 trillion barrels. Consequently, oil pessimists believe that the peak in world oil production will occur within the next five to ten years.

Oil pessimists contest the figures of the two categories that make up the USGS' estimate of total reserves, "undiscovered" oil and "proven" oil. "Undiscovered" oil is the oil whose existence is indicated by several geological markers, but has not yet been verified by the drill. Oil pessimists suggest that the USGS' estimate of 900 billion barrels of oil is overstated for a number of reasons, such as the belief that remaining undiscovered systems are both harder to reach and smaller in size, and that many of these undiscovered systems are located in areas of political instability or stringent environmental protection.

The second component of total oil reserves, "proven" oil, is the term used to describe the oil that has not yet been pumped out, but that lies in fields that have already been discovered. Oil pessimists, who claim that proven reserves are constantly being overstated, hotly contest the USGS' estimate of 1.7 trillion barrels.

According to Paul Roberts, author of *The End of Oil: On the Edge of a Perilous New World*, "estimates of proven reserves are routinely exaggerated for economic and political gains." Roberts points to the late 1980's when six OPEC producers collectively added approximately 300 billion barrels to their respective reserves, despite the fact that no major discoveries were made. Earlier this year, Royal Dutch/Shell, the world's third-largest oil company, admitted that it had overstated its reserves by 22 percent, or roughly 4.5 billion barrels of oil.

The lack of newly discovered large oil fields has fueled the fire of oil pessimists. In a recent National Public Radio program, Kenneth Deffeyes, Professor Emeritus at Princeton University and former researcher for Shell Oil Company, said the world peak in oil, smoothed out, would be on Thanksgiving Day of 2005.

Deffeyes is not the only expert with a bleak view of the oil situation. T. Boone Pickens, a former geologist, oil executive and corporate take-over artist, said the rate of oil production has already topped out, and, while the supply situation won't get any better, demand will only increase. As a result of this, Pickens is currently buying oil at high summer prices for delivery in the year 2011, when he feels that oil prices will be at least this high.

There are numbers that support the claims of Pickens and Deffeyes. More than 90 percent of the oil used today comes from oil fields that were discovered more than twenty years ago, and the last giant oil field discovered was Cantarell, in 1976. The statistics concerning oil drilling are equally discouraging; around the world fewer than 2,500 rigs are currently drilling for new gas and oil-less than half of the peak number in 1981. The lack of newly discovered oil, when paired with increases in oil consumption, paints a grim picture of the world oil market. Since 1995, the world has consumed an average of 24 billion barrels of oil a year, while finding only 9.6 billion barrels on average annually.

Oil optimists, such as the U.S. Department of Energy and the U.S. Geological Survey (USGS), believe that the amount of exploitable oil is closely correlated to the advances in production technology. Optimists believe that the current recovery rate for the majority of oil fields is very low, and that an improvement in this rate will substantially boost reserves. Due to the constantly increasing technology, oil optimists feel the peak in world oil production will be sometime in the next thirty to fifty years.

Oil optimists believe that the reserve estimates of the pessimists are inaccurate because they do not take into account the advances in technology. Formerly unusable oil, such as the tar sands in Alberta, Canada, is now being produced as a result of advancing production technologies. In Venezuela the same phenomena is occurring, and the molasses-like "heavy" oil once considered unusable is being produced. These new technologies allow oil companies to work in almost any climate or environment, making formerly impractical sites such as the Caspian, Greenland and Siberia intriguing possibilities.

Alaron commodity trader, Phil Flynn, believes that advances in technology will push back the peak in oil. Flynn points out that with oil prices at this level, more innovative methods will be created to find and extract oil. Advancing technology has allowed oil companies to extract more oil from a given field. In the 1970's, United States oil companies often were not able to extract more than 30 percent of the oil from a field, so 70 percent of the oil would remain in the ground as "unrecoverable."

With new technology, however, drills can reach up to ten miles underground, and can move in all directions. Supercomputers can create three-dimensional seismic pictures of the structures underground, which reveal to operators exactly where the oil-bearing rocks and most efficient routes for drilling are located. These technological advances have yielded recovery rates as high as 80 percent, and, as a result, some declining fields are being revived.

In less-developed oil regions such as Saudi Arabia, recovery rates are estimated at around 25 percent. Many oil optimists, including Energy Information Agency analyst Dan Butler, believe that if these technologies are applied, the world's oil reserves will increase significantly.

"The Saudis have very primitive operations," says Butler. "They just let the oil gush out. But if you could get another 5 percent out of Saudi Arabia and the rest of the Middle East, you would up your reserve base by at least a hundred billion barrels."

In addition to the advances in technology for both finding and extracting oil, optimists point out popular theories in the 1970's, which suggested that the world would run out of oil by the year 2000. Oil optimists believe that the pessimists' predictions have been premature in the past, and are similarly premature now. With all the political conflict in the Middle East, and the escalating prices at the pump, the heated debate between oil optimists and oil pessimists will only become more intense over time.

(Christopher is a Skidmore College economics major. He interned at TCV this summer.)

If the Pessimists are Right................

In a recent National Public Radio program, oil pessimist Paul Roberts described two possible scenarios for a peak in world oil.

If oil peaks in the next few years then the price of oil per barrel could rise to and stay at $70. Without a well developed, economically viable alternative to oil, a recession would most likely occur. Currently the United States relies on oil for ninety three percent of its transportation, and a few years is probably not enough time to implement a new system.

If oil peaks in fifteen years, then the price will gradually rise, sending a signal to the economy that it needs to adjust and become more fuel efficient. If we allocate the proper financial resources to alternative energy sources and fuel efficiency over the next fifteen years, our dependency on oil will be greatly lessened, and a peak will have less of an effect on the economy. As a result, a recession could most likely be avoided.

Financial Markets ~ Third Quarter Commentary & Outlook

David DeBellis, CFA, Portfolio Manager

THE ECONOMY: What recovery?

The recent "soft patch" that the US economy has muddled through was clearly the result of higher oil prices, which drained consumer purchasing power. The percentage of after-tax income spent on energy rose to 4.8% in the second quarter from 4.5% a year earlier. Put another way, the higher energy prices reduced consumer purchasing power by about $25 billion. The higher gasoline prices were also a drag on car sales, especially on sales of SUVs.

Growth in Gross Domestic Product (GDP) slowed to a 2.8% annual pace in the second quarter from 4.5% in the first quarter and the peak pace of 7.9% in the third quarter of 2003. The hurricanes will probably depress third quarter 2003 GDP because of the disruption to retail sales and tourism, but will raise GDP in the subsequent quarter or two because of repair work.

There is an optimistic case to be made that the economy is firming up. Consumer spending rebounded in July; home and auto sales, while off their peaks, remain at high plateaus; and although payroll growth has been slower than expected, the current unemployment rate of 5.4% was once considered full employment. Cash flow at the State and Local governments and at corporations has improved more than one would think based upon how negative coverage of the economy has been. State and Local receipts have had a large swing from a $50 billion deficit to a $15 billion surplus since the beginning of 2003. Corporations are flush with cash after weathering the down turn and holding back on capital expenditures, opting instead to either pay or raise dividends or to repurchase shares.

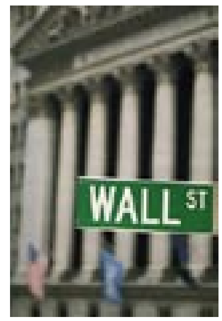
FIXED INCOME: Biggest surprise of 2004!

Without a doubt, this year's biggest surprise has been that bonds have been this year's big winners, even though they've been universally out of favor and the Federal Reserve did fulfill expectations by beginning to nudge up short-term rates. Indeed we saw rates rise in the spring and peak in May. Since then, we've seen the yield on the 10-year Treasury drop from 4.87% to less than 4% today! This bond rally stems from a lack of conviction on the recovery by bond traders. We remain cautious on the bond market, believing that the US Treasury market is highly vulnerable to any positive news on the economic front.

US EQUITIES: Expectations must come down!

Corporate earnings growth is expected to slow with the economy, and companies face much tougher comparisons with year-earlier results. Earnings for S&P 500 companies increased 28% and 25% in the first and second quarters of 2004, respectively. Earnings increases in the third and fourth quarters should slow to 15% and 16%. Likewise, analysts have forecast 2005 earnings growth to come in at approximately 10%, or almost half of the 19% growth expected for all of 2004. The markets have sold off of late, reflecting investor dissatisfaction with the prospect of decelerating earnings growth.

The bullish case for stocks portends that the stock market will look at the healthy absolute level of earnings. While growth may be slowing from the last four quarters, earnings are still growing. We believe that this allows stock prices to rise along with the rate of growth; even if price-to-earnings multiples do not expand. With the 10 year Treasury currently yielding around 4%, earnings growth of 10% appears attractive, especially when one considers that the historical average for earnings growth is 7%.



One thing that has bolstered the bull's case is that stock valuations have slipped to somewhat modest levels. The S&P 500 trades at approximately 15 times next year's forecast earnings. In this slow growth/low valuation environment, the market will be focusing more on risk and less on reward. We would favor high quality, dividend paying stocks in this type of market.

Investors are extremely cautious and pessimistic due to all of the bad news in recent months. We think that if Election Day can come and go without a terrorist attack and if economic data show signs of improvement, then the dark cloud overhanging the market should rise along with stock prices. Many believe that if John Kerry wins, the stock market will react negatively.

We believe that regardless who wins in November, stocks will improve after the election. In 1976 and 1992, the democratic candidate unseated the incumbent republican president, and the markets rallied significantly in both cases.

Colleague Profile
David DeBellis

In doing these profiles, it is interesting to us to trace the steps of our colleagues, who, through twists and turns, now live and work in Vermont. Equally, if not more enlightening, is to discover similar paths to our chosen specialties, and our commonalities.

In preparation, we usually ask the question "How did you end up in Vermont?" A simple question with implications: we all feel very fortunate to end up here ***and*** this will probably be our last stop (short of the nursing home). David DeBellis is no exception although significantly younger then the median age.

Tracing his progression to Vermont was simple and direct. David was born in Poughkeepsie, N.Y in 1966. His father, a native of Poughkeepsie, along with most of his aunts and uncles, was employed by IBM. His mother, however, was a native of Swanton, Vermont, and through her and the extended Vermont family, David was introduced to the State.

His Vermont cousin, an Edmundite priest based at St. Michael's College in Colchester, Vermont, was instrumental in recruiting Dave. Midway through his college career in computer science, David made an unexpected turn. A visiting professor introduced him to economics, and he changed majors. An optimist, he turned to the "Dismal Science", but more on this later.

After graduation, he returned home to a job on the third shift at IBM so he could look for long term employment during the day and, as part of the process, wrote to all the banks in Vermont. Chittenden Bank responded and, in 1988, he started in Burlington as a customer service representative. A year later, he was transferred to the investment group in the Trust Department, learned portfolio management, became a Chartered Financial Analyst, and brought to practical life his training in economics.

In 2002 he joined us as a portfolio manager based equally in St. Albans and Burlington.

Economics: the Dismal Science


1766 - 1834

The term originated in the writings of Thomas Carlyle. He coined the term while referring to **Thomas Maltnus** and his belief that exponential population growth and linear food supply growth would result in worldwide famine.
Malthus was wrong because he did not take into account advances in productivity.
Economics has also been referred to as "the dismal science" in recent times because of the theory of diminishing marginal returns.

So this concludes his employment story. For David, however, the more meaningful story is that during this period he met his wife, a St. Albans native, and became the blessed father of his two boys. A soccer coach, and an active member of the St. Albans' community, David's path has followed his optimistic vision.


1966 -

As a portfolio manager, David maintains this optimism over the long term. It is this same confidence in the future which draws him into the study and application of economic theory.

Economics captivates him; the interrelationships, macro economics, and supply and demand. David loves economics in spite of the pessimistic law of diminishing returns, as first notably observed by Malthus: if we have exponential growth in population and a linear food supply, we will soon face famine (hence the "Dismal Science"). David doesn't agree with Malthus. He believes in people, their capacity to be more productive, creative and the ability to correct a bad situation. In his own words: "As human beings, we tend to be at our best when times are at the worst". It is this core belief which sustains him through temporary periods of pessimism.

All our managers, to a greater or lesser degree, have the same confidence in the long term. David brings this confidence into the sharpest relief.