PRESENTATION BY PHILIP VERLEGER

AT THE FORUM:

"MARKET LEADERS AND SCENARIOS FOR THE 21ST CENTURY"

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Oil Prices: Permanently Down or Cyclically Depressed?

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Haskayne School of Business and PKVerleger LLC
Flame 2009
Amsterdam, March 10, 2009

Policy Blunders Caused $147/bbl Crude; Depression Could Bring Crude to $20/bbl

- The surge in crude prices to $147 per barrel was caused by policy blunders, not resource constraints or growth in Asia.
- The price rise resulted from environmental regulations and limits on the supply of sweet crude.
- Crude prices collapsed when economic growth slowed.
- A long recession could send crude below $20 per barrel for a while. Recovery will come.

Policy Blunders Caused $147 Crude

- Strong global diesel fuel growth and refinery constraints set the stage for a crisis.
- Untimely imposition of EU diesel sulfur regulations made the situation worse.
- The regulations heightened the need for sweet crude.
- Nigerian production losses and U.S. energy policy cut sweet crude supply.
- The result was a classic commodity squeeze.

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Industry Constraints and Economic Circumstances Contributed to $147/bbl Crude

- Lack of capacity to remove sulfur made it impossible to use sour crude. It takes 30 barrels of sour crude to replace one lost barrel of sweet.
- The euro added to upward pressure because Europe, not China, was the incremental buyer.
- New U.S. ethanol regulations reduced refinery throughput and lowered global diesel output.
- Higher prices solved the problem. Consumption dropped and prices followed.

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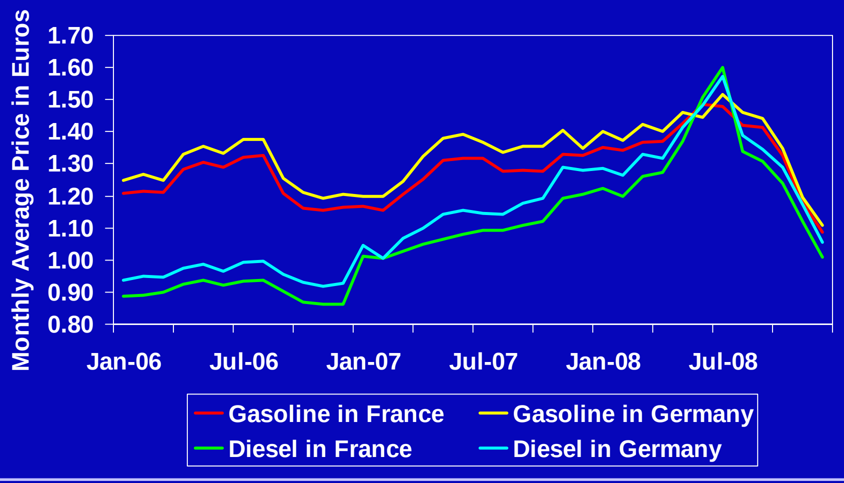
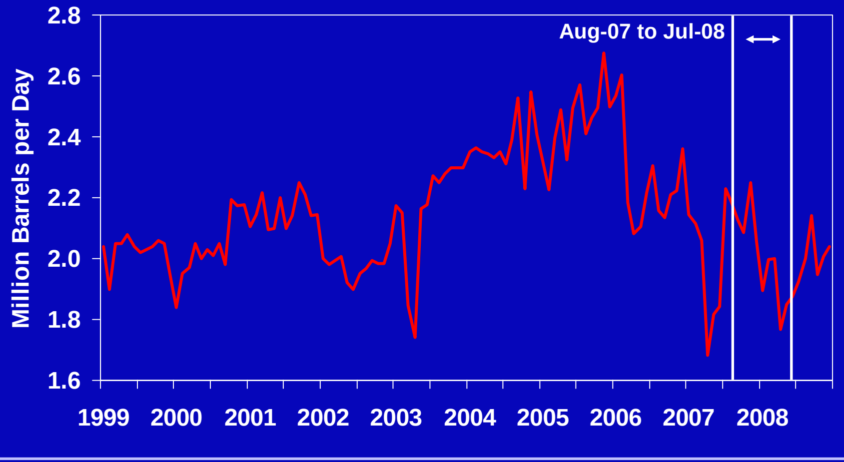
Retail Gasoline and Diesel Prices in Germany and France, 2006-2008



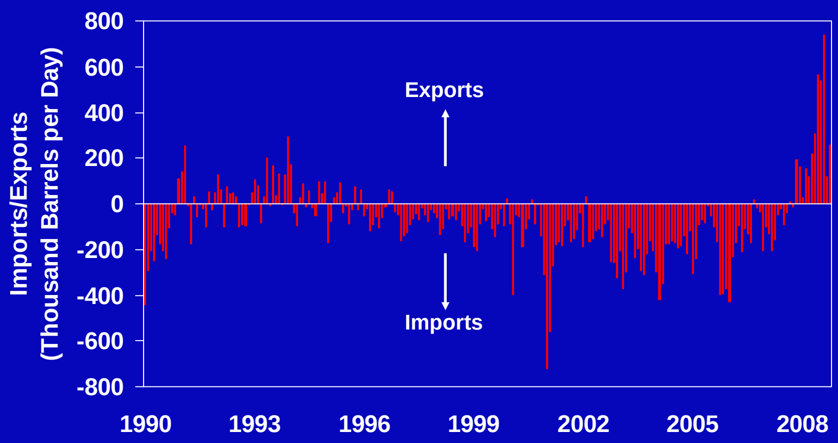
Source: PKVerleger LLC.

Monthly Nigerian Crude Production, 1999-2008



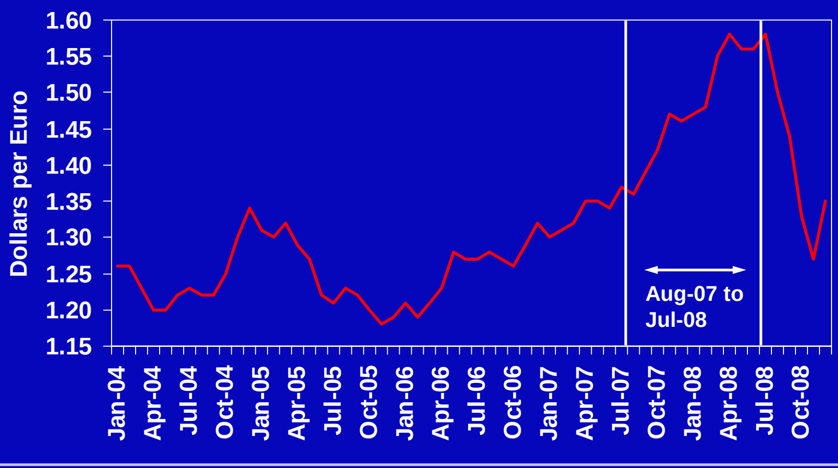
Source: Energy Intelligence Group.

Monthly Net Distillate Imports/Exports to/from the U.S., January 1990-October 2008



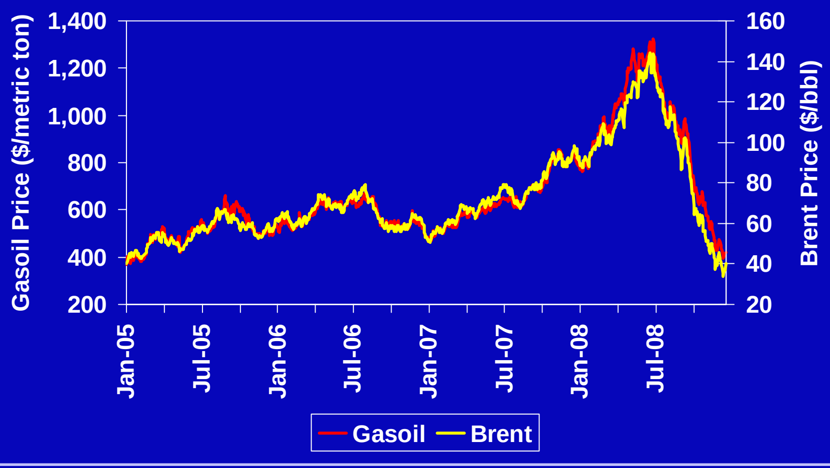
Source: U.S. DOE.

Euro/Dollar Exchange Rate, 2004-2008



Source: Platts.

Brent and Gasoil Spot Prices, January 2005-January 2009



Source: Platts.

Speculation Did Not Cause the Price Rise

- Speculators have been blamed for the price increase.
- There is no evidence to substantiate the claim.
- Commodities did become a passive investment vehicle. Billions were invested in them.
- The investment did promote inventory accumulation.
- However, OPEC and Saudi Arabia muted the impact.

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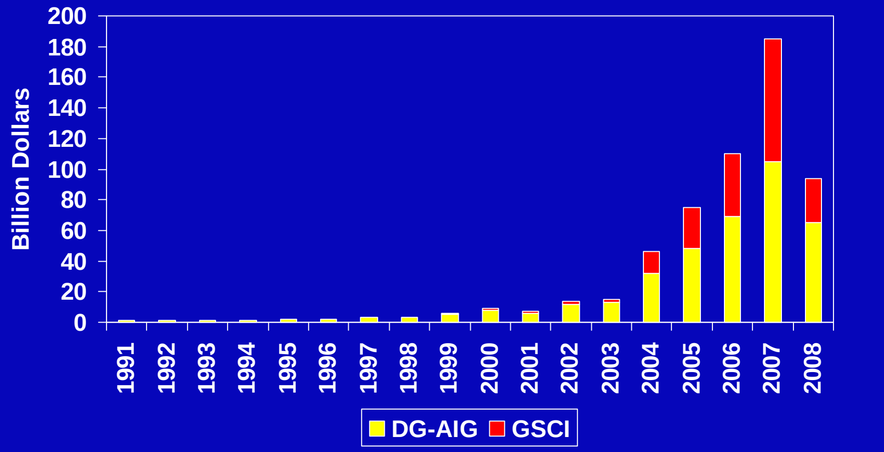
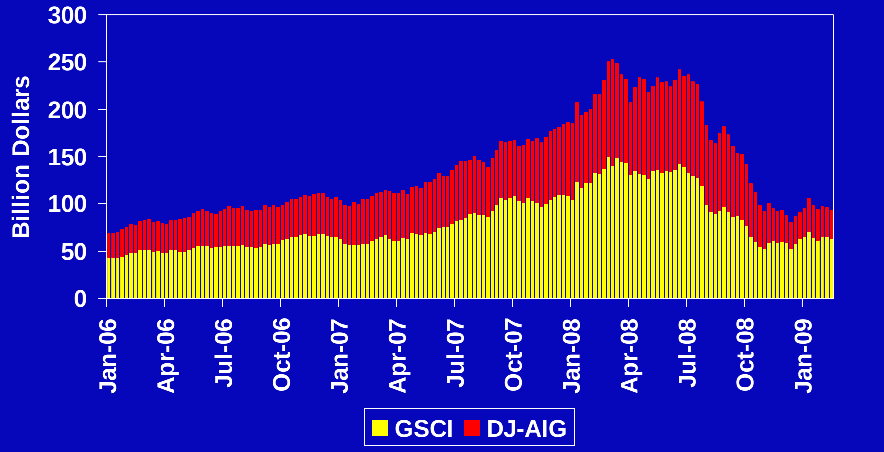
Estimated Amounts Invested in Two Principal Commodity Indices, 1991-2008



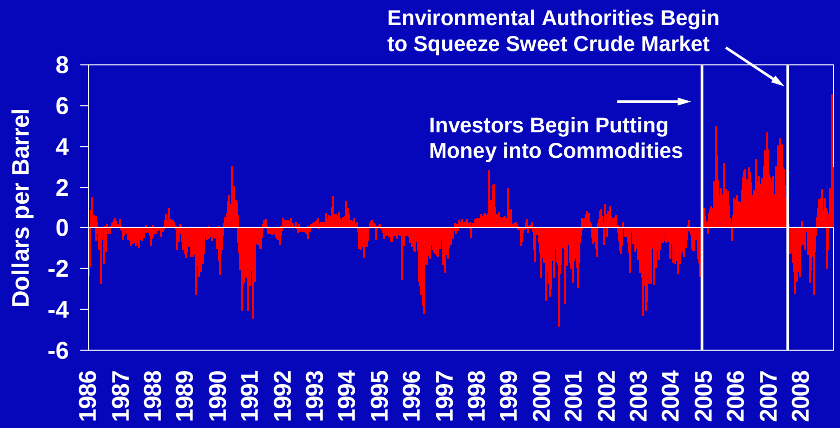
Note: Data as of end of year shown.
Source: PKVerleger LLC from Goldman Sachs, Citigroup, and Financial Times reports.

Estimated Weekly Investment in Two Principal Commodity Indices, January 2006-January 2009



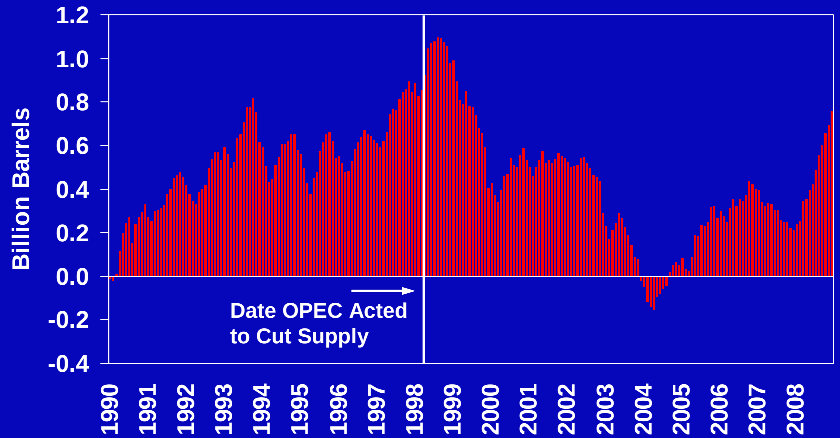
Source: PKVerleger LLC.

Weekly WTI Price Spread (Third Future less Cash), January 1986-November 2008



Source: PKVerleger LLC.

Accumulation of Global Crude Oil Stocks, 1990-2008

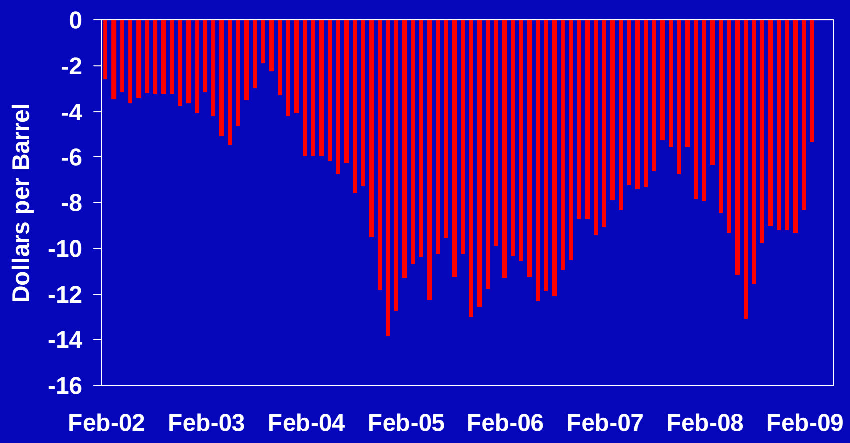


Source: PKVerleger LLC calculated from EIG data on supply and demand.

OPEC and Saudi Arabia Prevent Complete Market Adjustment

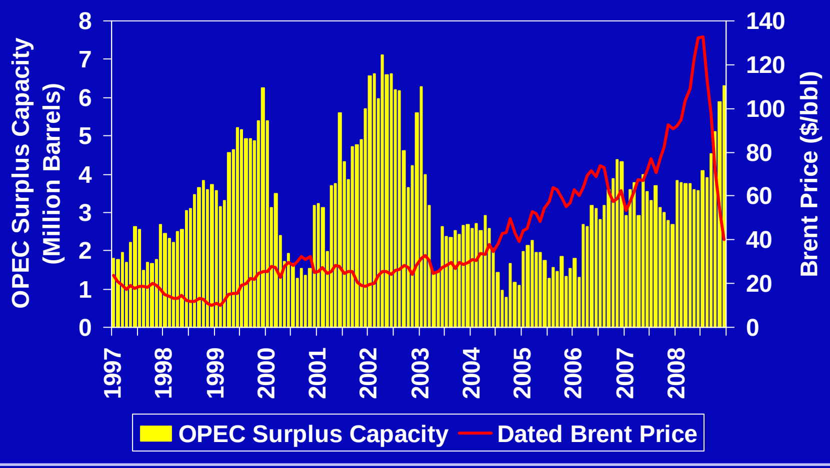
- Saudi Arabia administers the price of sour crude by setting the price differential to sweet crude.
- Sour crude prices could fall to a 50% discount absent such action, providing an incentive for refinery investment.
- Instead sour crude supplies are left in tanks, on ships, or in the ground, even with $147 crude.
- OPEC's actions have laid the foundation for the next move in the price cycle.

Saudi Discount to Brent Offered to Buyers of Arab Heavy Destined for Europe, 2002-2009



Source: PKVerleger LLC.

Movement of OPEC Surplus Crude Capacity vs. Movement of Dated Brent Prices, 1997-2008



Source: PKVerleger LLC.

Price Rise Reversed with Policy Adjustments and Beginning of Depression

- Congress stopped DOE from filling the SPR.
- Russian invasion of Georgia caused euro to fall.
- Refiners changed catalysts, boosting distillate yield.
- Economic slowdown began in Europe.
- High retail prices cut use in United States.
- Chinese use dropped due to end of Olympics and decline in manufacturing.

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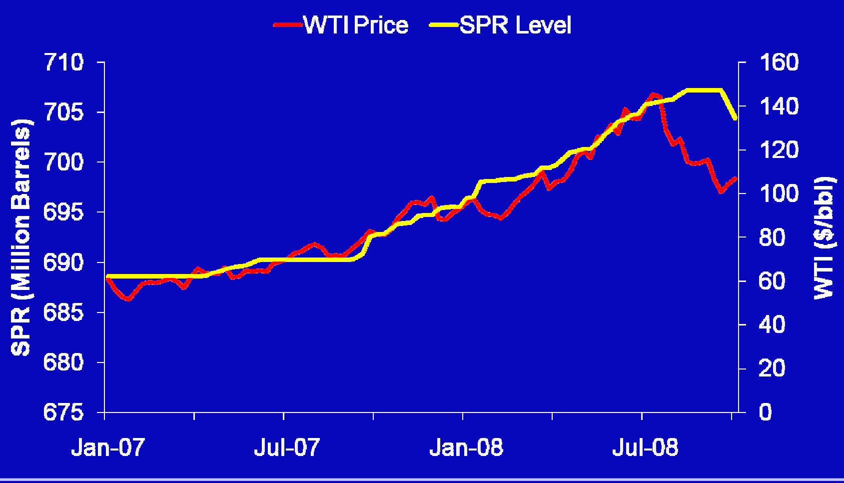
Spot WTI Price vs. Strategic Petroleum Reserve Inventory Level



Source: Platts; U.S. DOE.

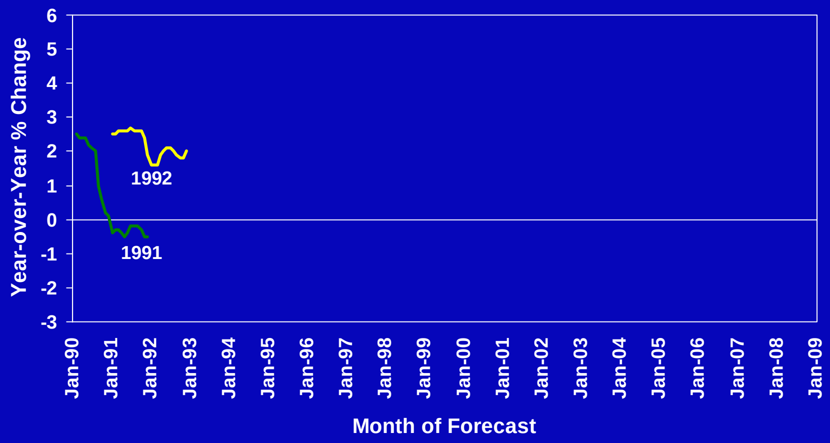
Onset of a Long Global Recession Will Keep Prices Low for Several Years

- This economic cycle is different. It is a financial crisis.
- Financial crises last longer, at least three years.
- The loss in GDP is greater. Government debt can be expected to increase by more than 80 percent
- Global oil use can be expected to drop at least ten percent by 2011. Recovery could be deferred to 2015.

Economic Forecasters Missed the Collapse

- This is the first major financial collapse in 80 years. Economic models are based on data for the last 30 years and thus have no history.
- Financial crises are hard to model. History books offer better lessons. No one reads history books.
- Forecasting models cannot be relied upon to predict the end of the crisis. Without history one cannot forecast.

"Consensus Shock": U.S. GDP Consensus Forecasts, 1991-2009



Source: Consensus Economics.

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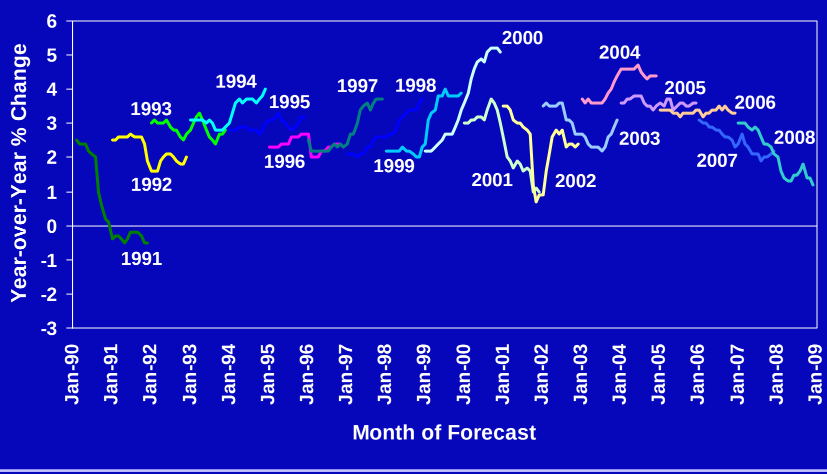

Source: Consensus Economics.

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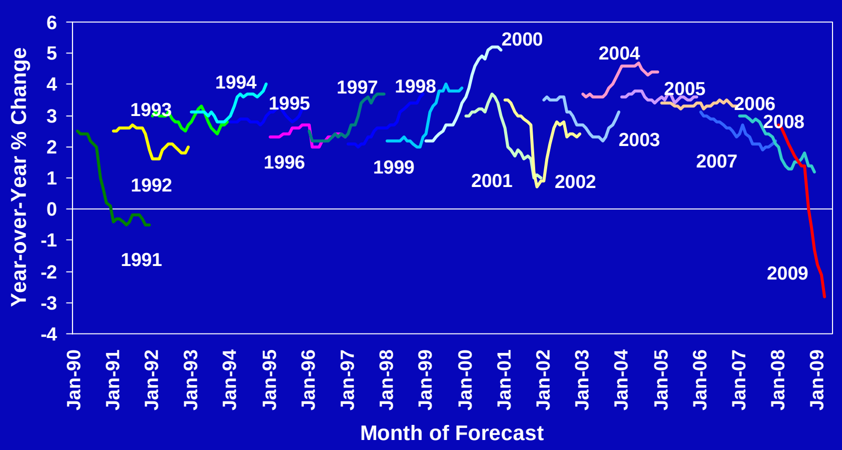

Source: Consensus Economics.

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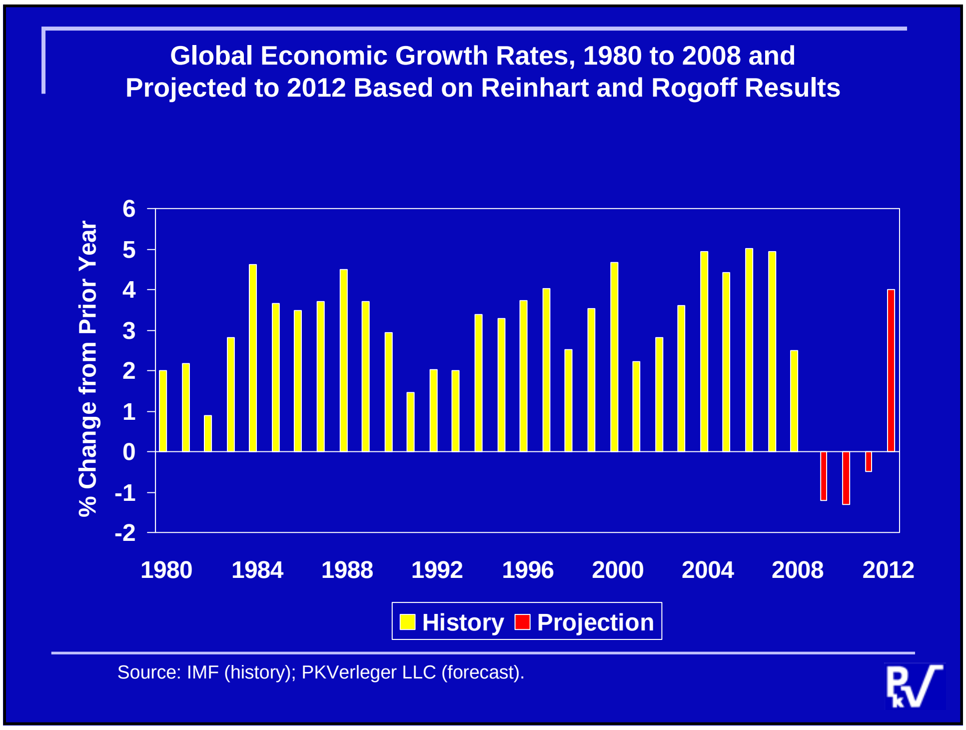
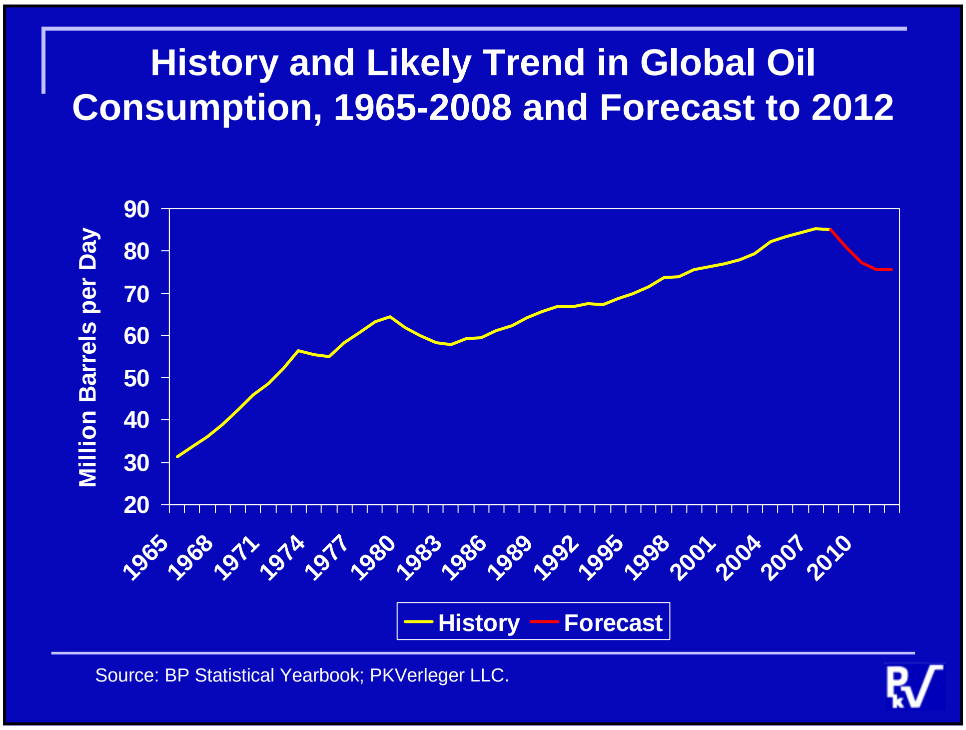
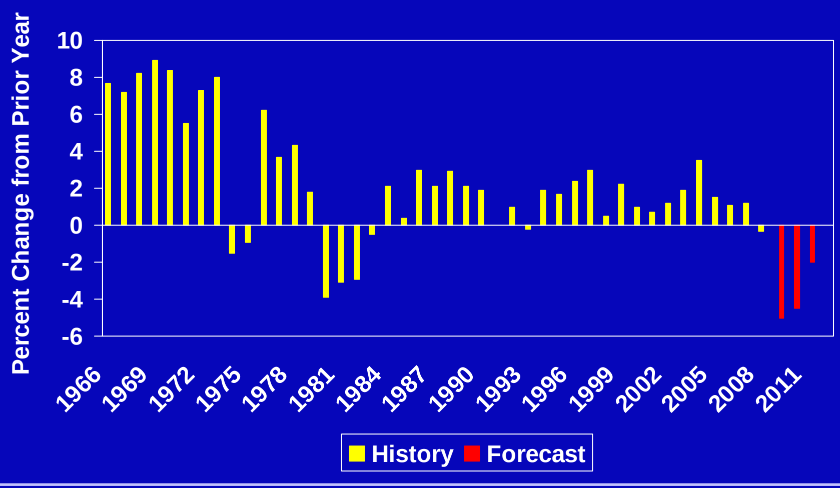


Global Economic Growth Rates, 1980 to 2008 and Projected to 2012 Based on Reinhart and Rogoff Results
% Change from Prior Year
6
5
4
3
2
1
0
-1
-2
1980
1984
1988
1992
1996
2000
2004
2008
2012
History
Projection
Source: IMF (history); PKVerleger LLC (forecast).



History and Likely Trend in Global Oil Consumption, 1965-2008 and Forecast to 2012
Million Barrels per Day
90
80
70
60
50
40
30
20
1965
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1998
2001
2004
2007
2010
History
Forecast
Source: BP Statistical Yearbook; PKVerleger LLC.

Year-to-Year Percentage Change in Global Oil Use, 1966-2008 and Forecast to 2012



Source: PKVerleger LLC.

Oil Prices Will Recover and Surpass 2008's Peaks within Ten Years

- Environmental regulations, not "Peak Oil Problems," will likely send prices above $200/bbl by 2020.
- New regulations on sulfur emissions from ships will again squeeze the light crude market. Refiners will be unable to satisfy demand. They will seek sweet crude.
- Sweet crude prices will be pulled up. Sour crude will follow thanks to Saudi Arabia. The Depression will be prolonged.

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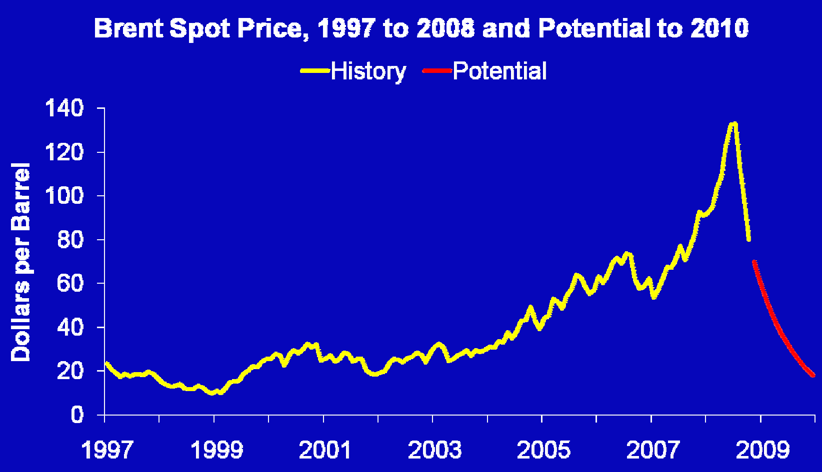
The World’s Consumers Lose Because the Oil Industry Does Not “Nurture” Its Market

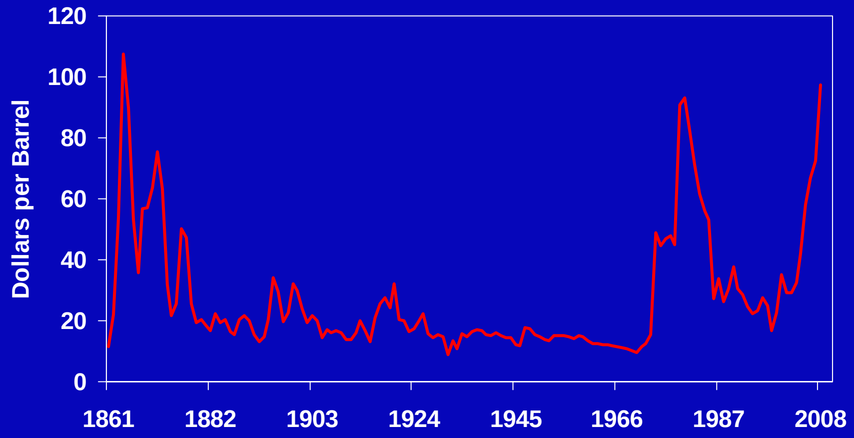
- Oil industry has not really worked with consumers on environmental issues or other matters
- Sixty years ago Professor Levitt described the oil industry as a “tax collector” in “Marketing Myopia.” Oil would have failed if it were not a “necessity.”
- The industry’s status as a “pariah” in the economy means it has no leverage in the political system.

A Ten-Year Cycle?



Source: Platts; PKVerleger LLC.

Inflation-Adjusted Real Crude Oil Prices, 1861-2008



Note: Prices in 2007 U.S. dollars.
Source: BP; PKVerleger LLC.