



Evaluating and Acquiring Oil & Gas Companies

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New England Energy Growth
Conference

Prout's Neck, Maine
September 25, 2000

My talk has three parts. First we will recap the current demand/supply balance. Second we will reminisce some about the history of energy valuation. Third we will discuss valuation today, both quantitatively and qualitatively.

Transition: Here are the conclusions.

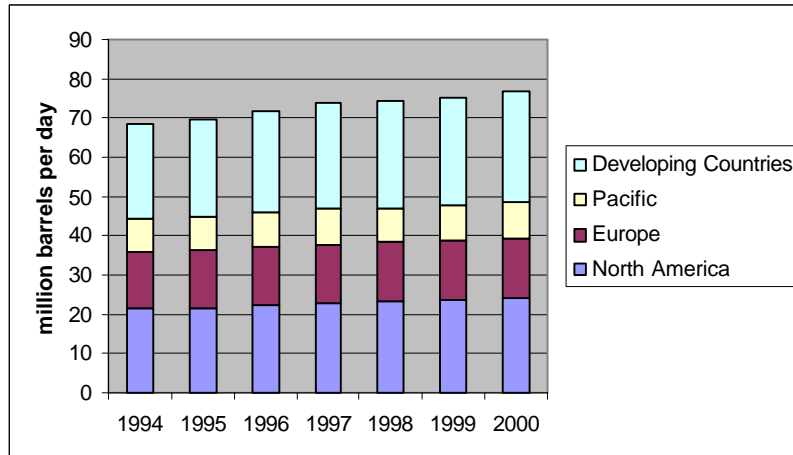
Summary and Conclusion

- ◆ Oil and gas commodity prices may be stronger and more volatile than commonly expected
- ◆ Petroleum cycle repeating
- ◆ Valuation increasingly sophisticated in the quantitative sense
- ◆ Smart people can still make dumb decisions
- ◆ Sound judgment invaluable

Transition: To support the first conclusion, we will look at the demand and supply situation for oil and then for natural gas.

Which blade of the scissors cuts? Demand or Supply? We need to know about both.

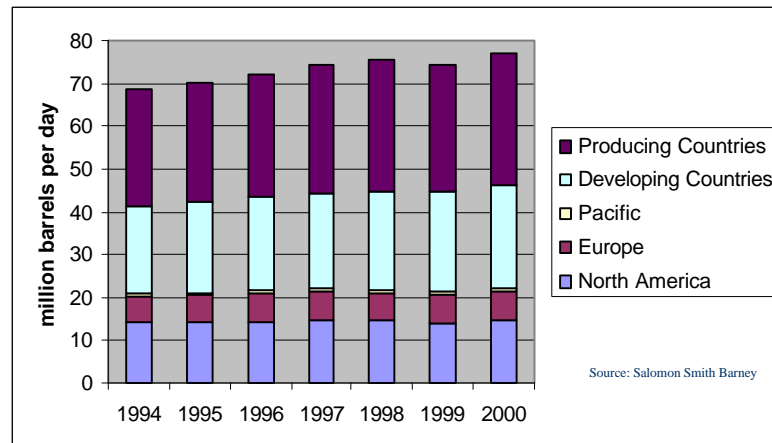
Oil Demand Grows



Demand is on a nice trend upward. Yet the chart only hints at a slowdown in 1988 and an uptick in 2000. Truth is, demand statistics are not particularly timely or accurate.

Transition: Production numbers are rough also.

Oil Production Restrained

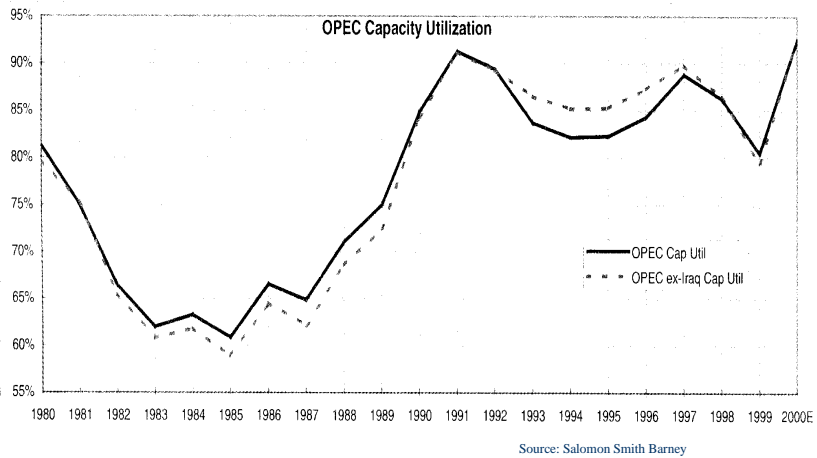


While demand slowed in 1998, production did not get cut back until 1999.

While demand is apparently accelerating in 2000, production has been increased belatedly.

Transition: This time there is less capacity available to meet surprising demand.

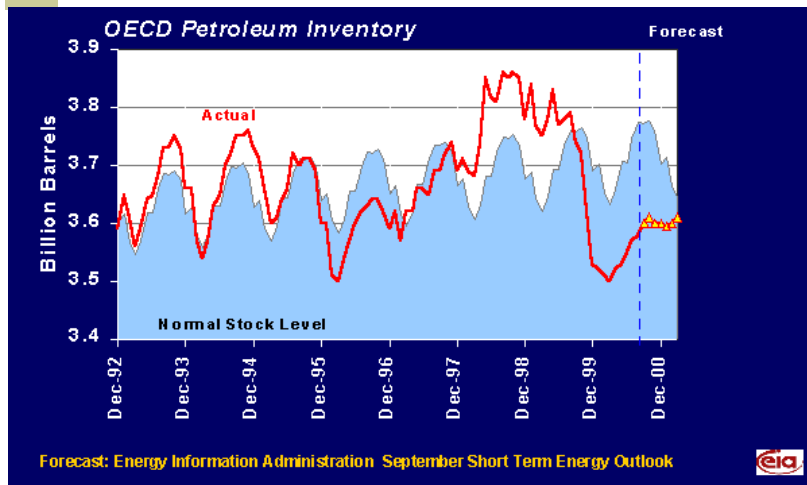
Spare Capacity Slim



Spare capacity is only on the order of 1 million barrels a day, less than 2% of demand.

Transition: The most sensitive volume indicator of the demand/supply balance is inventories.

Oil Inventories Depleted

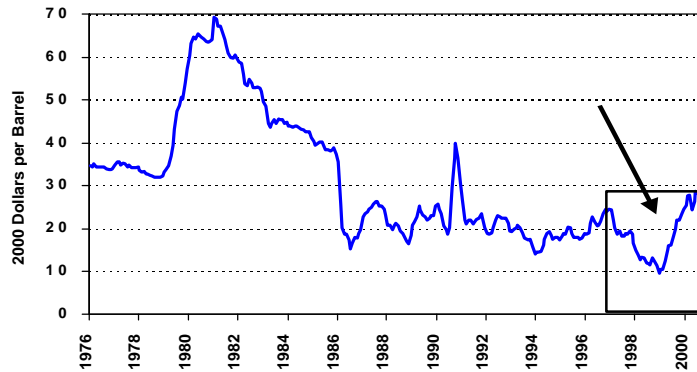


Inventories are high when demand has grown less than supply and inventories are low when supply has grown less than demand. At today's low level there is little inventory cushion to absorb surprising demand as from weather or a strong economy.

Transition: The most sensitive indicator of the demand/supply balance is price.

Oil Price Highest Since Last Crisis

Monthly World Oil Prices, 1976 - 2000



Sources: EIA, Short-Term Energy Outlook database, August 2000.



Considering that spare capacity is as slim as it is and inventories as low as they are, price may not yet have reacted as much as it could.

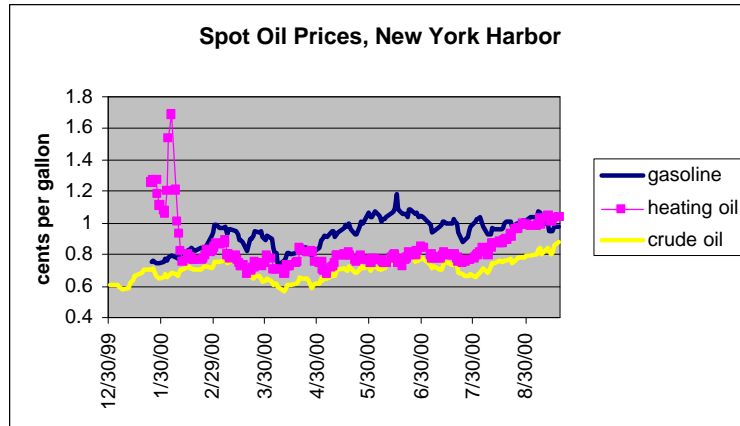
Transition: Why are not oil stock prices higher? Stocks reflect short and long term price.

2004 Oil Only \$23



Transition: In my opinion the long term price is likely to move up for reasons among those that follow.

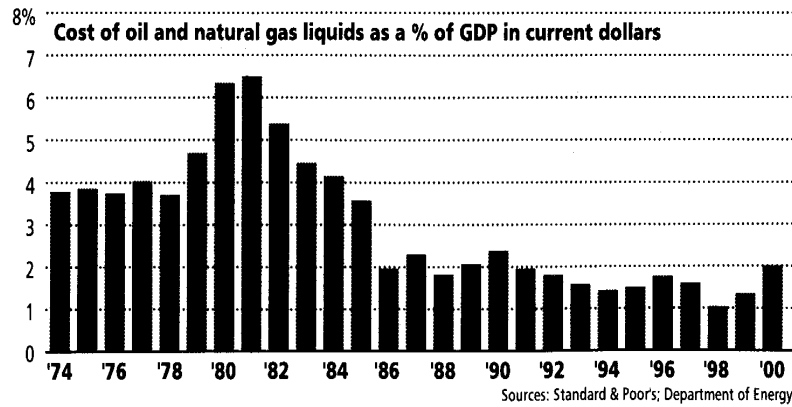
Vulnerable to Shortages



Last winter when heating oil was in high demand we had a shortage in the Northeast. Last summer when gasoline was in high demand we had shortages in the Midwest although it did not show up too much in the NY Harbor price.

Transition: Among the main political factors we note that producers have not been very profitable for a long time as I will have more to say about. Let's look at consumers from the political point of view.

Consumer Can Sustain Some Higher Price

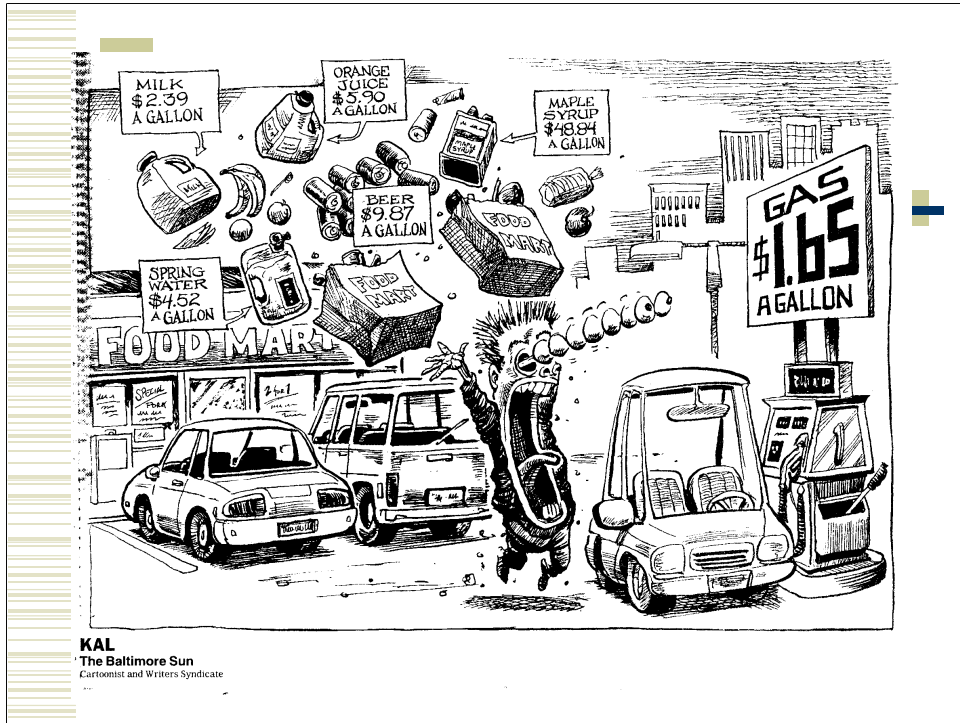


1998 was 12-15 dollar oil

2000 is 25-30 dollar oil

Figures are for the U.S., but indicative of the world.

Transition: Here's how a cartoonist sees it.



Transition: Next let's take a look at natural gas from the same angles of demand, supply, spare capacity, inventory and so on.

Natural Gas Demand Overcomes Weather

- ◆ New economy needs electricity
- ◆ Thermal efficiency breakthrough in electrical generation
- ◆ Power producers long electricity and short natural gas

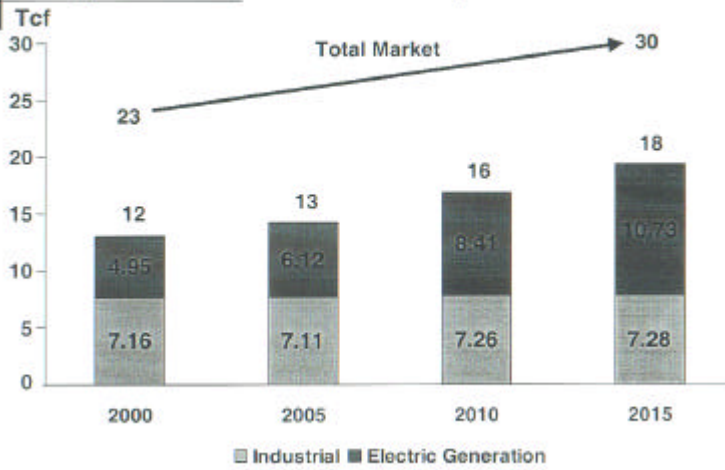
Demand is surprisingly strong. One of the major reasons is electricity. Even the new economy needs power. Chevron points out that computers and electronic equipment consume some 12% of electric power.

Meanwhile natural gas has become the fuel of choice for electrical generation. Not only is it cleaner, but new plants are almost 60% efficient compared to old plants on coal, oil and natural gas at only 35% efficient.

Transition: Let's look at a demand forecast.

Electric Powers U.S. Natural Gas Demand

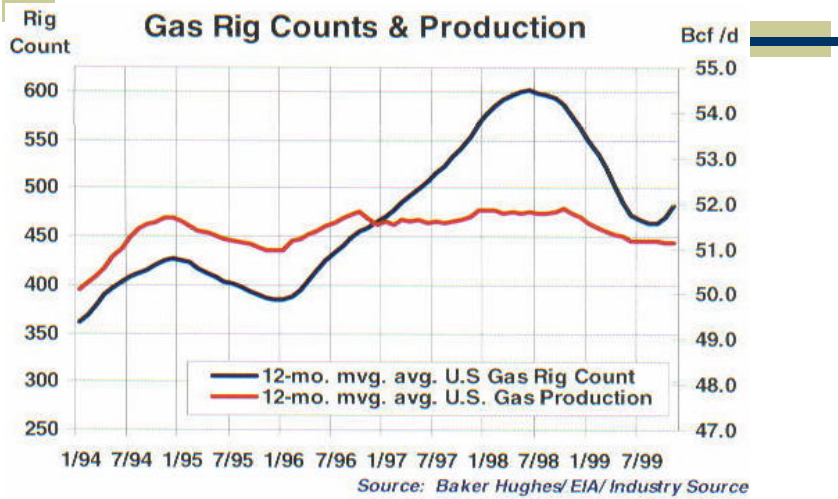
Projected Gas Consumption



Paying little attention to changing price, it is easy to see big gains for natural gas in electricity as projected by one of the pipeline companies.

Transition: Now, how about supply?

U.S. Natural Gas Production Stalls



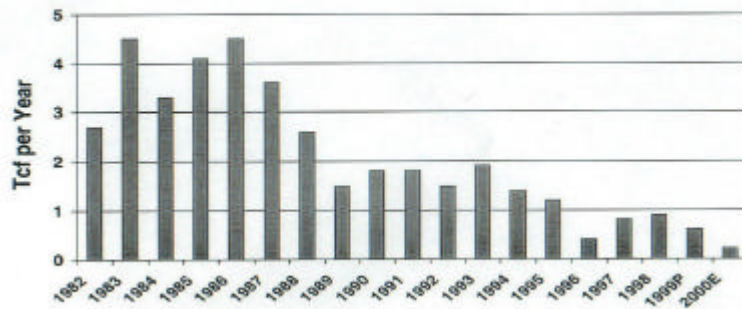
The last drilling boom did not add much production.

The next drilling boom may do well just to keep production flat.

Transition: How about spare capacity?

Natural Gas Spare Capacity Low

Excess Natural Gas Deliverability U. S. and Canada



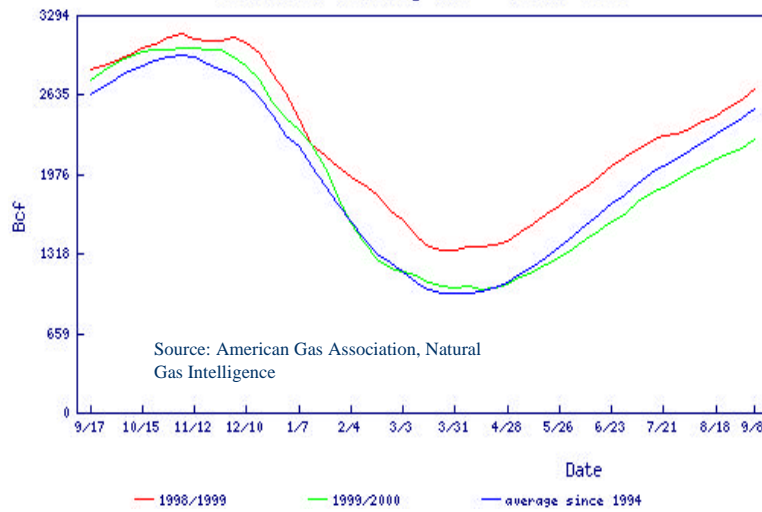
Source: DLJ Research

In addition to low inventories, spare deliverability has almost disappeared.

Transition: What does the sensitive volume indicator, inventories, show?

Natural Gas Inventories Low

Estimated Working Gas - Total U.S.

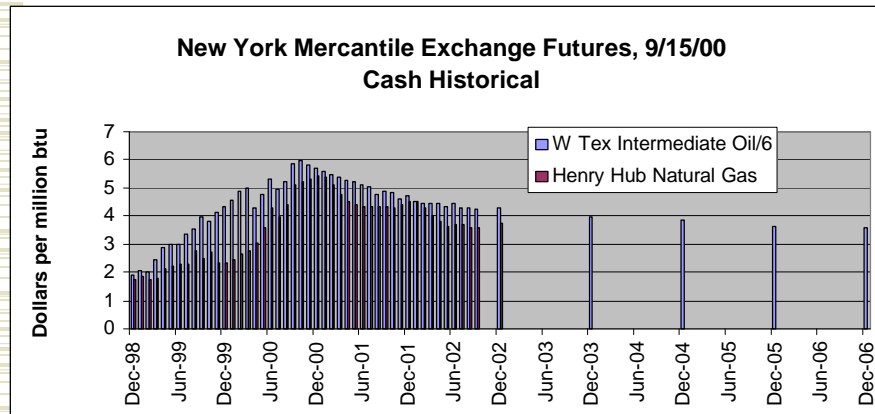


The demand/supply balance is tight.

Inventories are below 1999 and below the 5 year average.

Transition: That should mean prices are up.

Natural Gas Price Bumping Oil Price Ceiling



Natural gas lagged oil until May this year when it began an accelerated upward move. Coincidentally that was also when inventories diverted from last year's pattern.

Transition: Finally how about the politics in natural gas? Again the producers have not made much money for a long time. They are due to be more profitable on a sustained basis. Also, as in oil, consumers can afford to pay more.

Consumer Can Sustain Some Higher Price

- ◆ Cleaner fuel
- ◆ Alternatives not competitive for electrical generation
 - Old plants can run on residual oil that costs \$0.80 per gallon or \$5.50 per million btu
 - New plants can run on distillate oil that costs \$1 per gallon or \$7 per million btu

You saw that the futures price for natural gas was as high as \$5 per million btu. At current oil price gas is worth that in old electric plants competing with dirty fuels. The more efficient plants might be able to pay a premium price that is higher by 30% or more.

Transition: As a result our demand/supply analysis of oil and gas supports the overall.....



Economic Conclusion

- ◆ Oil and gas price may be stronger than expected in the coming decade

Now let's reminisce to see if there are any parallels in today's situation with past experience.



Oil and Gas Through the Decades



- ◆ 1960s: Growth
- ◆ 1970s: Shortage
- ◆ 1980s: Balance
- ◆ 1990s: Growth
- ◆ 2000s:

Petroleum is cyclical like any other business, but the cycles can be long, perhaps as long as three decades.

Transition: Believe it or not I have lived through more than a full cycle.



1960s

- ◆ Energy demand strong
- ◆ Monetary inflation subdued
- ◆ Economic boom continues
- ◆ Integrated oil companies do well
- ◆ North American oil and gas producers depressed

I started my energy career in 1962 with Exxon with a summer job in the Bayonne Refinery in New Jersey. The next summer I worked for Chevron in San Francisco. Choosing San Francisco over New Jersey, I was hooked to return to Chevron full time.

Transition: As a young consultant in 1970 I published a study “Energy Outlook to 1980”.



1970s

- ◆ Shortages develop
- ◆ Oil producing countries assert control
- ◆ Inflation picks up
- ◆ North American producers soar in resource value and stock market value

Of course I could not see all the tumult that was about to take place. Among other insights I was bullish on natural gas then as I am today. Presenting the findings to investors whetted my appetite to work in the financial industry. I had an opportunity to join Donaldson, Lufkin & Jenrette in 1971 that changed my life.

Transition: We were on the right side of energy in early 1973 ahead of the Arab Oil Embargo that was implemented in the fall.

DONALDSON, LUFKIN & JENRETTE, INC.

RESEARCH BULLETIN

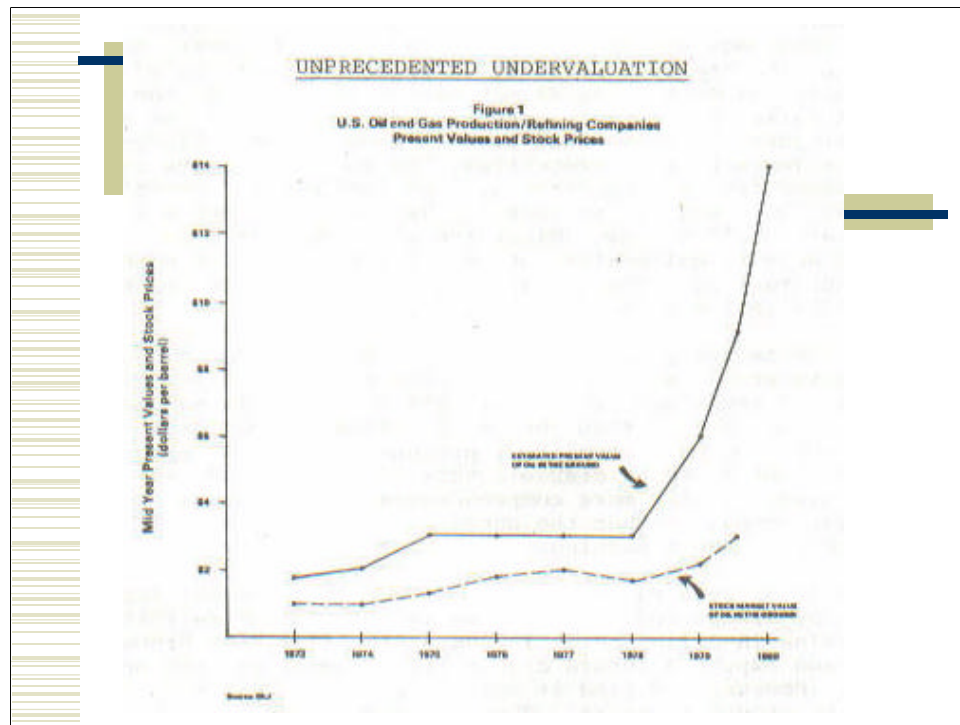
JANUARY, 1973

THE OIL AND GAS SHORTAGE IN 1973

Converging trends in natural gas and domestic refined oil product supply point to a year of accelerating investor interest in oil and gas companies. Widening appreciation of the natural gas shortage has already resulted in favorable progress on higher wellhead prices for new supply and improved regulation of interstate pipeline companies. Meanwhile, as evidence of a developing refined product shortage mounts, the business environment for petroleum refiners will also improve. For example, we expect relaxation of price controls on refined products and progress toward resolution of policy issues regarding oil imports and ecological constraints. The more favorable climate for both natural gas and refined oil products will be reflected in earnings per share growth and, most importantly, in further improved valuation of oil and gas companies relative to the general market. To fully reflect this appreciation potential, we believe that natural gas and oil related investments should represent an above average weighting in portfolios, e.g., 20-25% of total value.

What I did not see was the steepest recession and stock market decline since 1929 that followed. Wall Street barely survived.

Transition: The price increases accompanying the Arab Oil Embargo were not too surprising to me. The gains that came at the end of the decade were more surprising. Nonetheless one could see the implication for stock prices as suggested in the next slide.



The top line is the rising value of oil in the ground reflected in purchases of reserves. The bottom line was the value of oil in the stock market. By the end of 1980 the stock market line moved up more than two fold or about four fold for the two years 1979 and 1980. Fortunately for my record, at year end 1980 DLJ made a policy decision to cut back on energy stocks.

Transition: The cycle turned again.

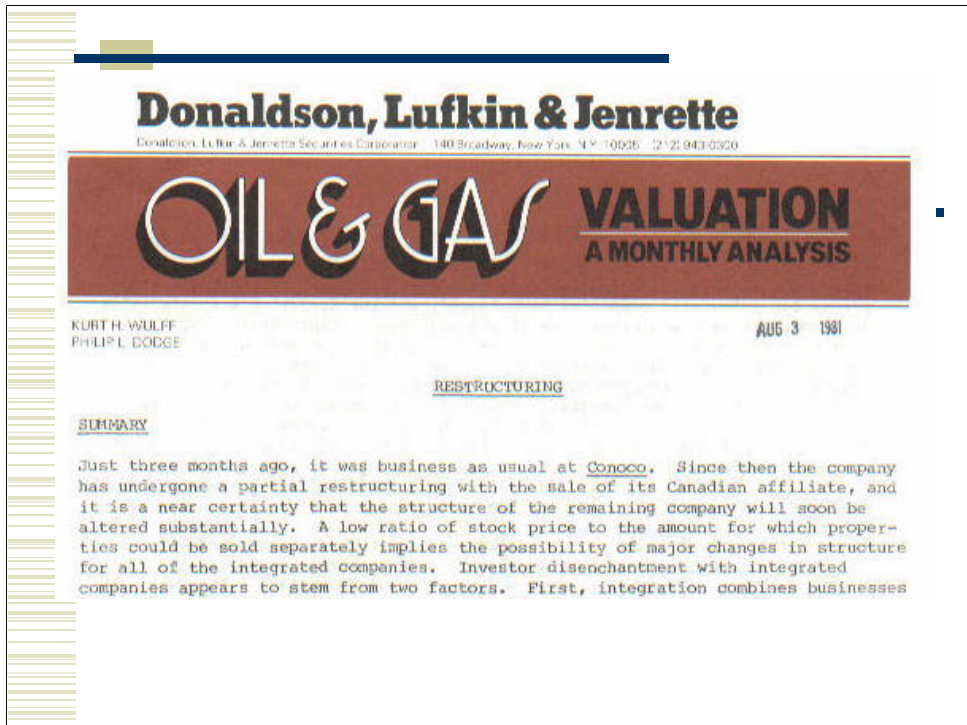


1980s

- ◆ Demand/supply balance restored
- ◆ Inflation subsides
- ◆ Bull market resumes for stocks
- ◆ Integrated oil companies meet takeover pressure
- ◆ Overly aggressive independent producers suffer

Chagrined that some of my favorite stocks, like Marathon Oil, were declining, I urged the company to make some radical changes or have it done to them.

Transition: Then with Dome Petroleum's tender for Conoco, I thought I saw a new era began in 1981.



While we were not recommending Conoco at the time, we did capture the opportunity in Marathon, Cities Service, Superior, Getty, Gulf, Phillips and Unocal.

Transition: Like in 1974, all did not proceed straight up.

Donaldson, Lufkin & Jenrette

Donaldson, Lufkin & Jenrette Securities Corporation 140 Broadway, New York, N.Y. 10005 (212) 902-2000

OIL & GAS VALUATION A MONTHLY ANALYSIS

KURT H. WULFF
PHILIP L. DODGE
JEFFREY R. FREEDMAN
KATHERINE R. HENSEL

August 2, 1982

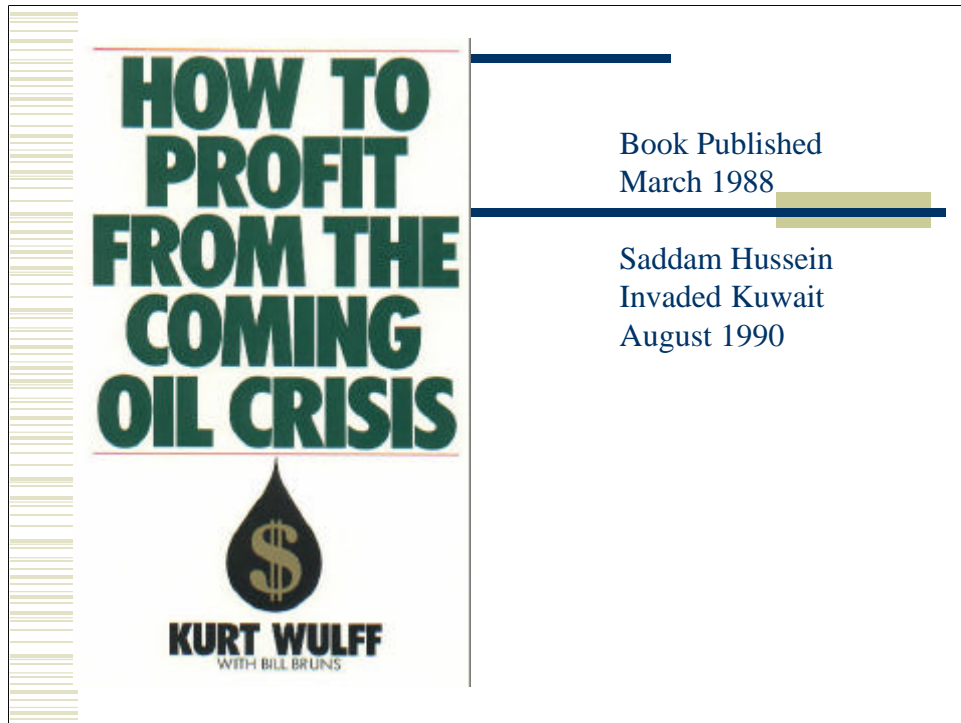
THE EDGE OF PANIC

Summary and Recommendation

A bank failure in Oklahoma, a couple of medium-sized bankruptcies, and a strong fear among traders and arbitrageurs that Gulf will renege on its purchase of Cities Service all contributed to steep stock-price declines as energy companies led the market down during the past month. Historically, at critical stages in the market, a rash of unfavorable developments can set the stage for a climax and sharp rebound. In the face of this, the shares of strong companies along with those of weak companies have fallen sharply. Moderately strong companies being under more pressure may rebound more rapidly, and some weak companies might not rebound.

Gulf reneged on its purchase of Cities Service throwing Wall Street into near panic. Arbitrageurs, including some of the major firms, were loaded up on Cities Service. I made a call with John Chalsty of DLJ to Dr. Hammer of Occidental who then bid for Cities Service. Wall Street was off the hook and the bull market that has been running for almost 18 years began on August 12.

Transition: After the run of megadeals I left DLJ in 1987 to become an independent analyst.



My book came out in 1988 with prices of stocks at lows after the 1987 crash. Stocks rose again to the point of the crisis within three years.

Transition: In hindsight, the oil crisis of 1990 and the Gulf War of 1991 was a turning point to a new decade of low oil prices and strong economic growth.



1960s 1990s

- ◆ Energy demand strong
- ◆ Monetary inflation subdued
- ◆ Economic boom continues
- ◆ Integrated oil companies do well
- ◆ North American oil and gas producers depressed

In fact the 1990s looked a lot like the 1960s.

Transition: Does that mean that the 2000s will look like the 1970s?



~~1970s~~ 2000s?

- ◆ Shortages develop
- ◆ Oil producing countries assert control
- ◆ Inflation picks up
- ◆ North American producers soar in resource value and stock market value

Transition: Not exactly. There are some things that are better now.



What Is Different?



- ◆ The world is at relative peace
- ◆ Better government
- ◆ The Second Industrial Revolution is here
- ◆ Resource base more exploited

Transition: That concludes my series of slides on historical valuation. Next I discuss valuation today commenting the two major techniques of cash flow and reserves along with modifications I incorporate in my work.

Valuation Today – Cash Flow

- ◆ Enterprise Value divided by next four quarters earnings before interest, tax, etc.

	<i>Wellhead Price (\$/mcf)</i>	<i>Margin (%) (\$/mcf)</i>	<i>Volume (bcf)</i>	<i>Ebitda (\$mm)</i>	<i>EV/ Ebitda</i>	
Dorchester Hugoton, Ltd.	4.55	76	3.43	6.5	22.2	7.2
Hugoton RT (42.5%)	4.37	75	3.29	29.6	97.4	5.5
Cross Timbers Royalty Trust	4.76	75	3.58	5.0	17.8	5.1
San Juan Basin Royalty Trust	4.11	81	3.34	32.2	107.6	4.5
Burlington Resources	3.77	76	2.86	901	2,574	4.5

Source: www.mcdep.com

Transition: The greater challenge than estimating annual cash flow is determining an appropriate multiple to pay. The quantitative answer is the present value of future cash flow or the sum of discounted cash flow. Just as the engineers do for properties, I do a similar calculation for whole companies.

Valuation Today – Reserves

- ◆ Present value of future cash flow

Basic (bcf)	Volume Enhanced (bcf)	Total (bcf)	Price (\$/mcf)	Cap Ex (\$mm)	Cash Flow (\$mm)	Present Value (\$mm)
7983	11025	19009	3.87	17241	35216	15100

Transition: Beginning about 1982 I found it necessary to pay more attention to debt as some of the early megadeals lead to a highly leveraged survivor. In the process I came up with the McDep Ratio which compares market cap and debt in the numerator to present value in the denominator.

Valuation Today - Debt Adjustment

◆ Market Cap and Debt to Present Value (McDep)

		<i>Price</i> (\$/sh)		<i>Market</i>		<i>Net</i>	
	<i>Symbol</i>	<i>8-Sep</i> <i>2000</i>	<i>Shares</i> <i>(mm)</i>	<i>Cap</i> <i>(\$mm)</i>	<i>Debt</i> <i>(\$mm)</i>	<i>Value</i> <i>(\$/sh)</i>	<i>McDep</i> <i>Ratio</i>
Dorchester Hugoton, Ltd.	DHULZ	14.81	10.7	159	-	15.40	0.96
Hugoton RT (42.5%)	HGT	13.38	17.0	227	-	15.90	0.84
Cross Timbers Royalty Trust	CRT	15.25	6.0	92	-	19.20	0.79
Burlington Resources	BR	39.50	216	8,500	3,200	55.10	0.77
San Juan Basin Royalty Trust	SJT	10.50	46.6	489	-	14.40	0.73

Source: www.mcdep.com

Transition: One of my conclusions stated up front was that valuation has become increasingly sophisticated in the quantitative sense. The unleveraged ratios I pioneered in the 1980s are now widely applied. While I was one of the first on Wall Street to use a personal computer (beginning in 1979) detailed analyses of many companies now proliferate. A new microtrend still in its early stages is to adjust estimates more frequently for changes in commodity prices, interest rates, inflation all factors frequently quoted in futures markets.

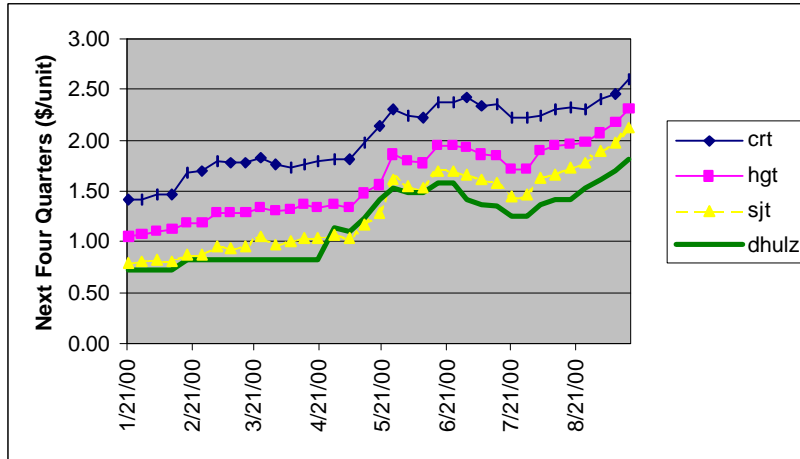


Valuation Today - Frequent Updates

- ◆ Interest and inflation rate
- ◆ Commodity price
- ◆ Volumes
- ◆ Costs
- ◆ Stock prices

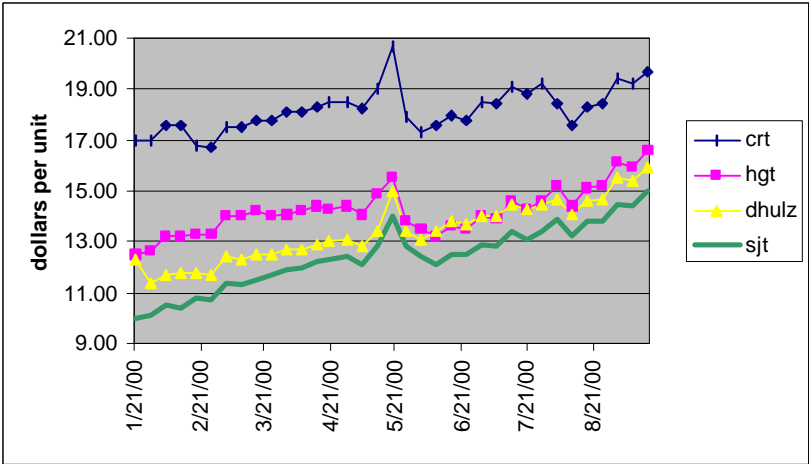
Transition: Here is how valuation measures have changed with weekly changes in inputs.

Valuation Trends – Projected Distribution



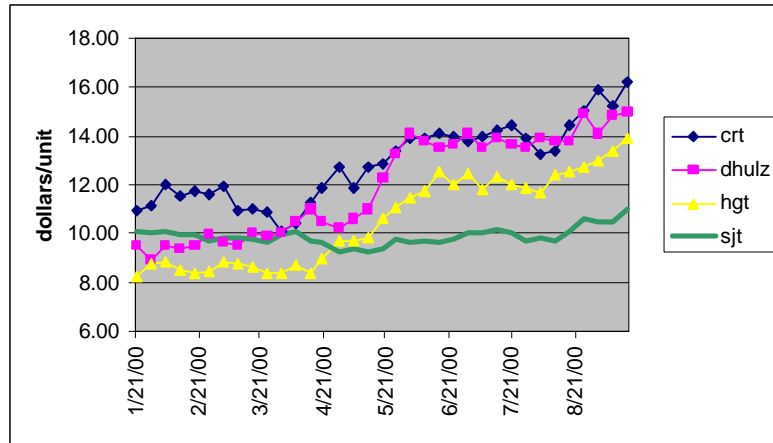
Transition: The long term impact on present value has also been positive, but not to the same degree.

Valuation Trends – Present Value



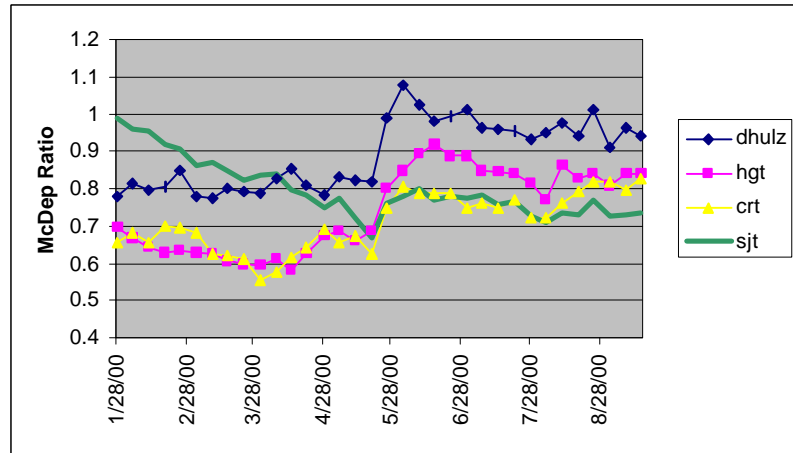
Transition: Stock prices are also gaining.

Valuation Trends – Stock Price



Transition: Relative valuation is constantly shifting.

Valuation Trends – McDep Ratio



Transition: While we are increasingly getting better with numbers in oil and gas valuation, are we getting better qualitatively?

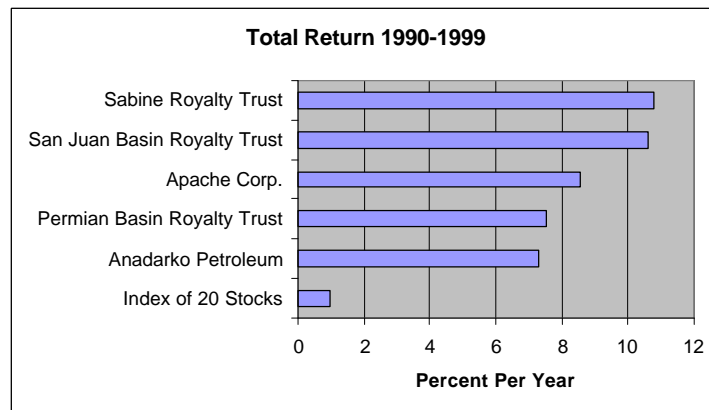


Valuation Today – Qualitative Factors

- ◆ Assets
- ◆ Management
 - Long-Term Credibility
 - Commitment

Transition: Some assets are higher quality.

Some Assets Beat Management in U.S. Independent Oil & Gas



Transition: Some managements are more effective than others. Ironically, the best performers have been royalty trusts, which have no management.



Long-term Credibility

- ◆ Some have it
 - Apache
 - Anadarko
 - Devon
- ◆ Some don't
 - Pennzoil
 - Union Pacific Resources
 - Burlington Resources

Transition: Commitment is another intangible I rate as extremely important.

Commitment

- ◆ Annoying moments in the life of an investor
 - Hear management tell how great their company is at a high stock price
 - Then at a later time hear the same management say what a good deal it is to sell company at a lower stock price
- ◆ Non-performers buy high, sell low

Transition: One of the all-time most annoying decisions was made by Pennzoil.

Who Has Not Performed: Pennzoil

- ◆ Refused \$84 a share offered by Union Pacific Resources in 1998.
- ◆ Spun off PennzEnergy in 1999.
- ◆ Two pieces priced under \$10 each in the stock market at low point.
- ◆ Sold PennzEnergy to Devon Energy in 2000 for stock now worth about \$25.

Transition: One of the most respected names in business was no protection for investors in Union Pacific Resources.

Who Has Not Performed: Union Pacific Resources

- ◆ Choice Land Grant assets spun off from Union Pacific Railroad in 1997 at about \$25 a share.
- ◆ Spurned by Pennzoil, bought Norcen Energy for cash in 1998.
- ◆ High financial leverage drove stock to single digits in 1999.
- ◆ Sold to Anadarko in 2000 for stock now worth about \$23.

Transition: Finally we have a painful example of a management still in charge that stands out for poor performance.

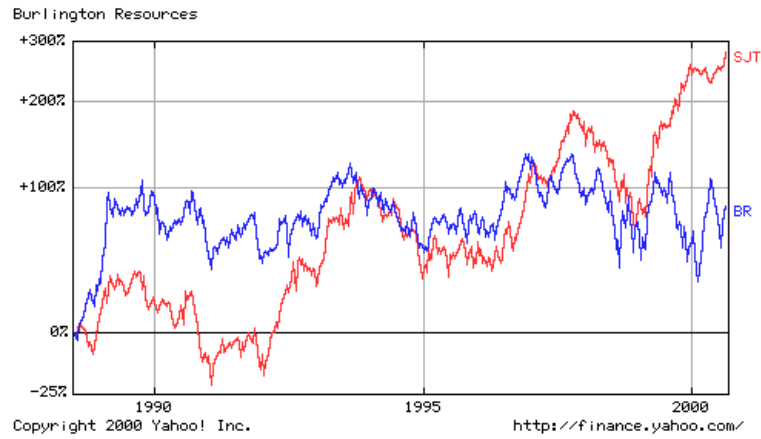


Who Has Not Performed: Burlington Resources

- ◆ Same producing properties as San Juan Basin Royalty Trust.
- ◆ Diversified to Gulf of Mexico without success.
- ◆ Acquired Louisiana Land; diluted stock.
- ◆ Acquired Poco; Canadians dumped BR stock.
- ◆ Sold half of 2000 gas in 1999 at low price.

Transition: The alternative road for Burlington Resources appears obvious.

Burlington Resources (BR)/ San Juan Basin RT (SJT)



Transition: That concludes our discussion of qualitative factors of valuation, quantitative factors of valuation, a history of valuation and the current demand/supply situation. The conclusions are:



Recap

- ◆ Current demand/supply balance tight
- ◆ Oil and gas faces several years of better returns similar to the 1970s
- ◆ There will still be volatility
- ◆ Some management have credibility while others destroy value
- ◆ Skillful valuation enhances performance