

## Stern Stewart Research

The Americas

# One Way to Close the Oil Industry's Credibility Gap:

## Hedge PDP Production and Buy Back Stock

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The market values of North American E&P companies have failed to increase in proportion to commodity prices over the past year and a half. A joint study performed by Stern Stewart and John S. Herold concluded that many firms are trading at a significant discount to the intrinsic value of their proven hydrocarbon reserves.

These valuations reflect a serious managerial “credibility gap.” Implicitly, the market believes managers will waste much of the cash flow that these reserves will generate. John McCormack of Stern Stewart explains that the logical solution is for companies to commit to paying out today’s high future cash flows to shareholders now. Stern Stewart and Herold postulate that oil and gas managers could execute a three-cornered strategy:

- Price hedge volumes from proved developed producing reserves
- Borrow against the present value of those certain future cash flows
- Return that cash in the most tax efficient manner to their shareholders by repurchasing shares

Consultant Stern Stewart & Co. and independent energy research firm, John S. Herold, Inc. collaborated on this research analysis.

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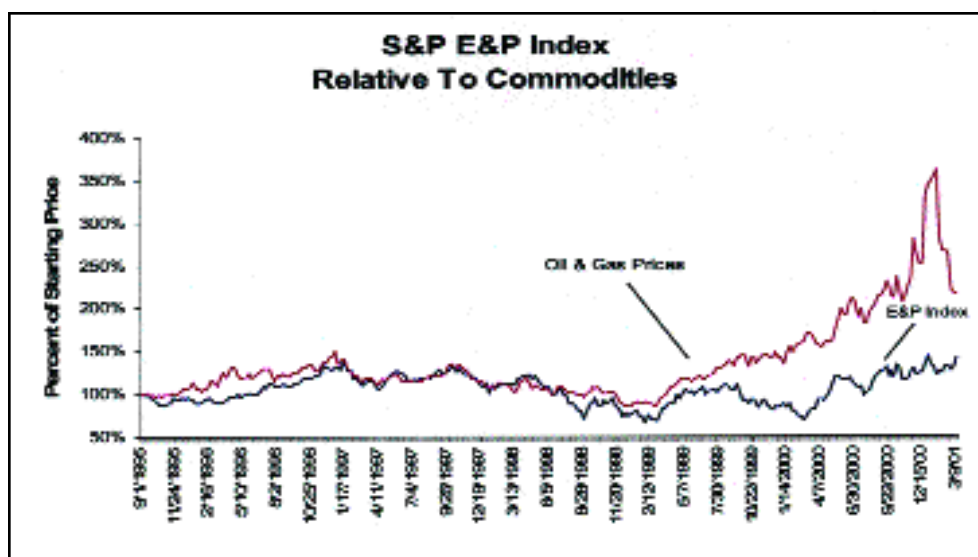
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**E&P market valuations have not kept up with oil and gas forward prices over the last year and a half.**

The oil and gas industry, and the exploration and production (E&P) sector in particular, has been blessed by the significant strength in hydrocarbon wellhead prices over the past two years. While most E&P shares have enjoyed impressive market appreciation from the low point of April 1999, they have lagged the even more robust performance of the two commodities – natural gas and oil (See Chart – S&P E&P index relative to commodity prices). Taking into consideration the “mild” backwardation in oil and gas futures prices (the forward markets indicate commodity prices are expected to drift lower by roughly 10%-15% from current spot levels of \$27 per barrel and \$5.00 per MMBtu in the future), E&P equities seem quite cheap. Arguably, many pure E&P companies – especially North American natural gas producers -- are trading at less the intrinsic value they offer based on the futures market. Energy executives are “teased by the strip.”

**The industry has a history of wasting windfall cash-flows resulting from jumps in hydrocarbon prices.**



Source: Herold analysis, Bloomberg

Why are E&P shares so undervalued? Oil companies have a depressing history of wasting free cash flows at the top of the commodity cycle. Flush with cash flow from commodity windfalls, oil executives have historically spent this largesse overpaying for acquisitions (surely, size of enterprise rather than wealth creation has been the primary driver of executive compensation) and on dubious “growth” or exploration schemes.

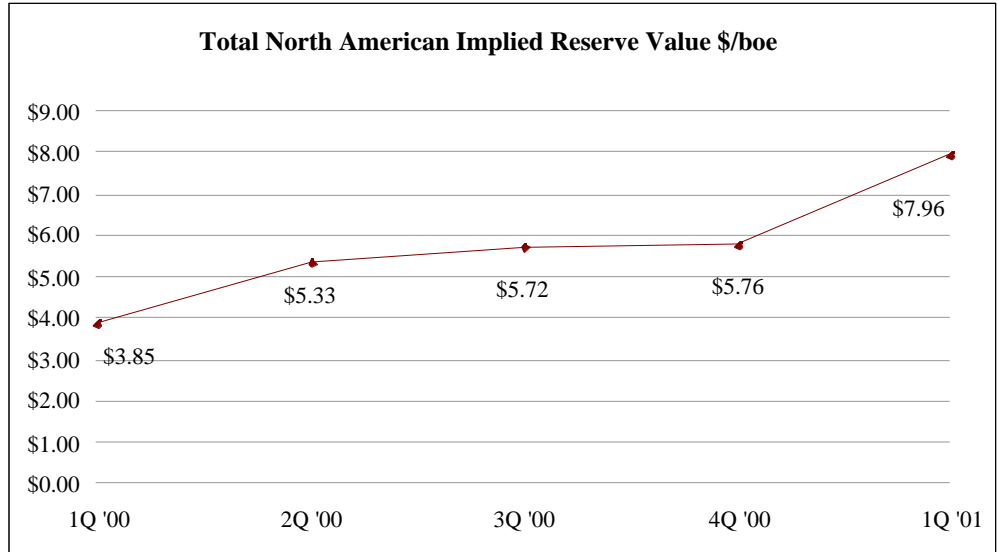
Also, E&P companies have had a poor track record of spending capital wisely amid strong commodity prices. For example, the short-lived “drilling boom” in 1997 resulted in a spike in finding and development costs (Herold’s analysis found that average FDC in 1998 among large domestic E&P companies were an eye-popping \$10.53/boe). Similarly, prices paid for acquisitions of producing oil and gas properties spike during periods of strong wellhead values; Herold’s M&A Transaction Review chronicled a dramatic doubling of the implied value of

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reserves acquired in North America in the first quarter of 2001 compared with year-ago levels. (See Chart below) Herold analysts gauge Shell Oil's spurned \$55 per share offer for Barrett Resources as equivalent to \$9.00 per proved boe Mcfe of reserves (\$1.50 per Mcfe ).

**Increasing drilling costs are reminiscent of prior cycles in which bust eventually follows boom.**



Source: Herold M&A Database

**A managerial credibility gap has emerged between intrinsic values and market values.**

In the wake of the sharp rebound of drilling activity from the depressed 1998 – 1999 period, preliminary 2000 data indicate finding costs are creeping up again. With nearly all E&P companies planning to raise spending, Herold expects that North American finding costs will surge again in 2001. Anecdotal evidence from Houston's Louisiana Street points to a 30-35% advance in drilling and completion costs this year. That's right, spend 35% more for the same level of activity as last year.

The boom/bust track record of the petroleum sector over the past two decades continues to haunt oil executives. Only a handful of E&P companies have managed to create wealth for their shareholders, (i.e. a better than 10% Internal Rate of Return (IRR) for investors on common shares over the 1980s and 1990s). Consequently, despite the solid profitability of E&P companies of late, Wall Street investors are taking a cautious – even cynical – approach to the sector. This should be no surprise. If investors reasonably expect a large amount of future cash flows to be squandered, they will heavily discount the present value of future cash flows in E&P company valuations – which has precisely been the case.

What can be done to close this so-called value and credibility gap? Herold and Stern Stewart have concluded that one logical answer would be for E&P companies to commit to paying out today's high future cash flows to shareholders now. By paying out cash windfalls to shareholders in a tax-efficient manner, companies can create tremendous wealth for shareholders, while holding on to the upside of future growth and development opportunities. To accomplish this, management could execute a three-cornered strategy:

- Price hedge those volumes from the proven, developed, producing (i.e. PDP) layers;
- Borrow against the present value of those now certain future cash flows and, finally;
- Return that cash in the most tax-efficient manner to their shareholders by repurchasing shares.



**E&P companies can enhance managerial credibility and reward shareholders with a three-pronged strategy.**

Not all reserve value layers lend themselves to such monetization strategies. Reserves that are both “hedgible” and “monetizable” are generally Proved Developed Producing (PDP) reserves (i.e. with established production decline curves and therefore relatively little volume risk) in politically stable environments such as North America and Europe. To a certain extent, Proved Undeveloped (PUD), Probable and Possible reserves are valued by the stock market, but these reserves are too “soft” to be used aggressively as collateral in issuing debt securities. Reserves in riskier third world countries also have equity market value but cannot be monetized nearly to the same extent as hedged reserves in the more developed nations.

We refer to the hedgible and monetizable reserves of North American E&P companies as the “hard value layers (HVL).” North American companies also possess another tier of “semi-hard layers” of proven, undeveloped reserves (PUD) which are partially hedgible and monetizable. Beyond this are “soft-layers” of generally non-hedgible/monetizable reserves (e.g. exploratory real options). The soft layers should continue to be funded with equity.

To identify upstream companies that would be best served to hedge PDP production, we sorted through our database and ranked a group of 15 companies by HVL to Enterprise Value (EV). E&P companies with higher ratios indicate that the present value of their PDP reserves exceeds their EV. (We used PDP reserves from U.S. and Canada only in our valuation of HVLs.) Our analysis assumes that 12/31/00 PDP reserves were the same as those in 12/31/99. The adjusted EV deducts JSH’s 1999 valuation of non-North American reserves, since they aren’t considered hedgible and monetizable. Also, our 10-year oil and natural gas price assumptions do not account for hedges already in place.

**“Hard-value layers” are the key to executing the strategy:**

1. Hedge prices
2. Monetize via borrowing
3. Repurchase shares

		Adjusted Enterprise Value, \$MM*	Hard Value Layers \$MM	Remaining EV \$MM	HVL/Share	EV/Share	HVL/EV
<b>North American E&amp;Ps</b>							
BR	Burlington Resources Inc.	10,487.7	14,566.4	4,078.7	\$ 67.64	\$ 48.70	1.4
COG	Cabot Oil & Gas Corp.	1,091.4	1,496.7	404.9	\$ 51.57	\$ 37.62	1.4
BRP	Berry Petroleum	332.6	453.4	120.9	\$ 20.32	\$ 14.91	1.4
PXL	Pioneer Natural Resources Co.	2,890.2	3,779.8	889.6	\$ 37.24	\$ 28.47	1.3
BOG	Belco Oil & Gas Corp.	781.8	941.0	179.2	\$ 29.88	\$ 24.19	1.2
PCP	PanCanadian Petroleum Ltd.	6,374.0	7,792.9	1,418.9	\$ 30.72	\$ 23.13	1.3
L.D.	Louis Dreyfus Natural Gas Corp.	2,437.8	2,665.4	227.5	\$ 61.66	\$ 56.17	1.1
HTR	Canadian Hunter Exploration Ltd.	1,599.7	1,716.9	117.2	\$ 28.76	\$ 26.80	1.1
EOG	EOG Resources, Inc.	5,491.5	5,578.4	86.9	\$ 47.72	\$ 46.98	1.0
MTI	Cross Timbers Oil Co.	3,222.7	2,906.6	(316.0)	\$ 41.23	\$ 41.71	0.9
NFX	Newfield Exploration Co.	1,770.3	1,597.9	(172.2)	\$ 37.32	\$ 41.63	0.9
OEI	Ocean Energy Inc.	3,108.2	2,765.2	(343.0)	\$ 16.51	\$ 18.56	0.9
PNT	Petromat Resources	365.8	310.9	(54.8)	\$ 5.99	\$ 7.05	0.9
DRR	Damett Resources Corp.	2,100.7	1,612.7	(488.0)	\$ 49.57	\$ 63.39	0.8
NGV	Stena Energy Corp.	1,088.2	722.8	(365.4)	\$ 39.00	\$ 57.64	0.7
<b>Peer Group Median</b>							<b>1.1</b>

Companies with a HVL/EV ratio or one or greater -- Burlington Resources, Cabot Oil & Gas, Berry Petroleum, Pioneer Natural Resources, Belco O&G, PanCanadian, Louis Dreyfus Canadian Hunter and EOG -- are the best candidates to implement the three-pronged strategy outlined above. Theoretically, these companies could hedge all of their production from PDP reserves, then use cash proceeds to buy back all outstanding shares (effectively taking the companies private), and pay down all their debt. Afterwards, these companies could focus on turning their PUDs and undeveloped leasehold assets in producing assets with the money left over.

Burlington Resources tops the list of companies that could implement this strategy. BR has an estimated HVL/EV of 1.4, which means the imputed present value of its PDP reserves is valued at a 40% premium to its Enterprise Value. Burlington Resources also has the highest estimated “remaining EV” of more than \$4 billion, or the level by which its present value PDP reserves



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exceeds Enterprise Value. Cabot Oil & Gas also has a HVL/EV ratio of 1.4 times, which translates to \$405MM in Remaining EV. It would also be a smart move for oil producer Berry Petroleum to hedge all of its PDP production, as its HVL value is trading at a 40% premium to its Enterprise Value. PanCanadian would have \$1.4 billion “left over” after buying back shares and paying back debt.

A low HVL/EV ranking does not mean that an E&P company would not benefit from the PDP forward sale strategy. Rather, a lower ratio indicates that the stock market may have already applied a premium to the share price in anticipation of successful exploration drilling, or other factors, above and beyond the value of their HVLs. Moreover, since the objective is building “per share value”, share repurchases funded by the “PDP kitty” would concentrate more value in the hands of shareholders focused on the drilling and new resource development function.

We emphasize that with any valuation approach, however sound the theory, there may be pitfalls in the actual implementation. First, we have applied a recent forward market 10-year oil and natural gas “strip” to our valuation of PDP reserves. We realize that it would be difficult, if not impossible, to hedge 100% of production from PDP reserves over the next ten years. A more realistic hedging program could entail 75% of PDP production in the forward three-to-five years – and 50% thereafter. Secondly, even if it is feasible to lock in prices for 10 years of future production, we realize that plowing all of the cash flow into share buybacks will expose the firm to potential financial distress\* (a not uncommon problem in this industry). Thirdly, if commodity prices weaken further (both oil and natural gas have declined appreciably from their recent peaks), the valuation of PDP reserves (which assumes relatively high natural gas prices compared with historical levels) will be “overstated” in our estimates. Finally, transportation differentials, a.k.a. “basis”, especially for natural gas, are a particularly difficult issue. While today’s tight demand market for natural gas has led to a narrowing in regional transportation differentials, “basis” is subject to great volatility that must be recognized and taken into account.

Returning cash via share repurchases appears to make the most sense under the U.S. tax regime, especially for E&P companies whose shares are relatively undervalued. The realities of corporate taxation make paying out cash dividends over time prohibitively expensive. While interest payments on debt are paid out of pre-tax cash flows, dividends must come out of after-tax cash flows. Furthermore, individual shareholders must pay personal income taxes (at graduated, ordinary income, rates) on common and preferred dividends received. Gains from selling shares back to the firm are taxed at the lower (currently 20%) long-term capital gains tax rate (if held more than one year) and then only on the gain rather than on the entire amount.

To summarize, North American E&P companies faced with the dilemma of undervalued equities relative to the future value of reserves should consider hedging the value of their PDP reserves, and returning the cash to shareholders via stock buybacks.

For further information, contact John McCormack at Stern Stewart & Co. (212) 261-0600 or Arthur L. Smith (713) 651-1399 and Aliza C. Fan (203) 847-3344 of John S. Herold, Inc.

\*On the other hand, Harvard’s Michael Jensen, a proponent of financial engineering and leveraged buyouts, has argued the merits of “the discipline of debt.”

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