

The Black Swan

Summary and Recommendation

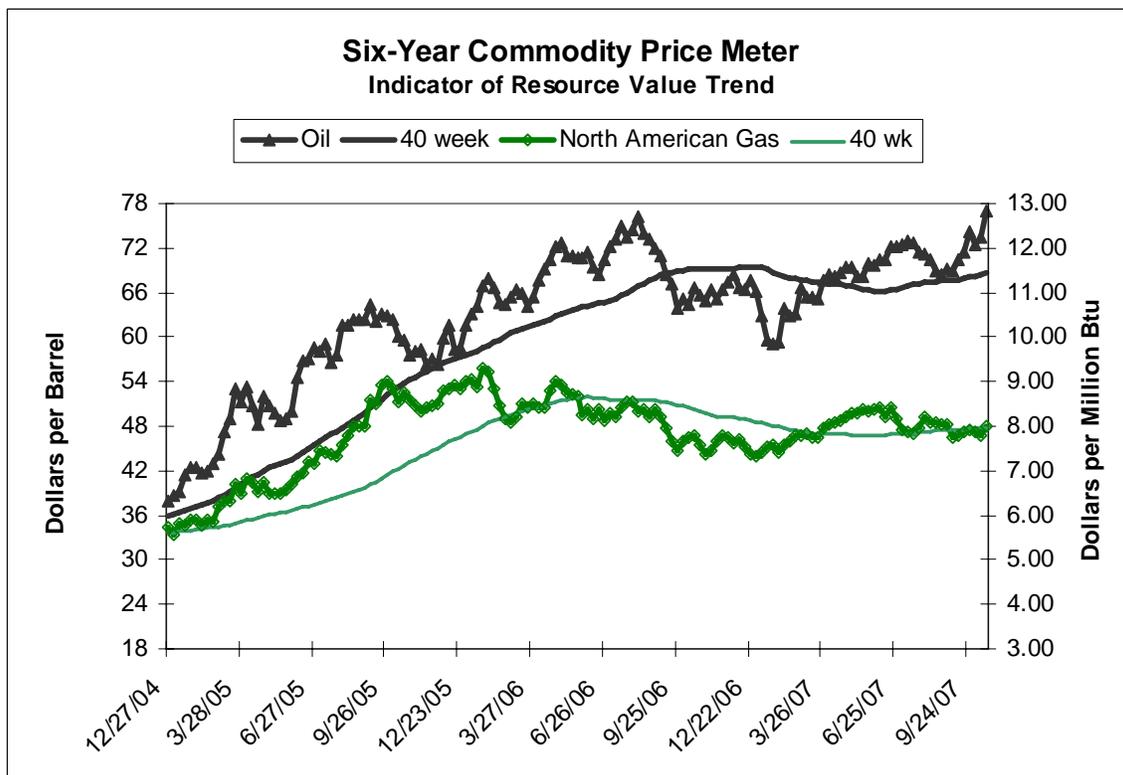
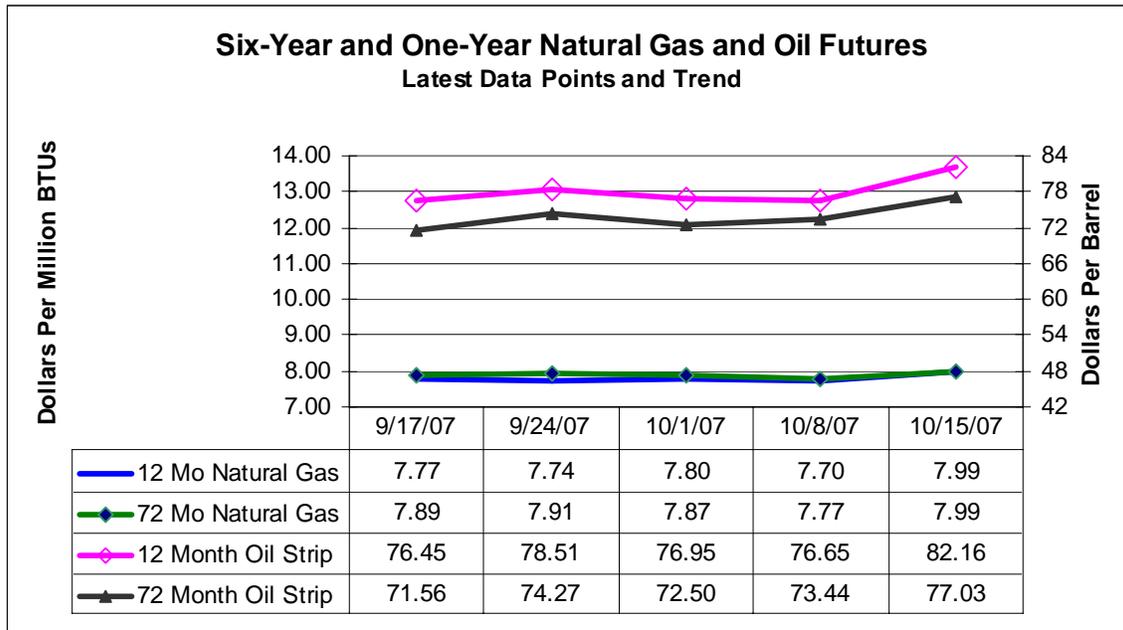
The probability of our vision of \$150 oil in 2010 being achieved may be higher than is priced in the market if it is true that investors tend to underestimate the likelihood of unusual events. Derivatives trader turned professor, Nassim Nicholas Taleb, in his best seller, *The Black Swan*, argues that investors are being misled by the wrong mathematics that don't allow enough for surprise outcomes. When we make financial valuations, Taleb urges us to throw out the probability distribution known as normal, binomial, or Gaussian, widely used in standard deviation, correlation, regression, reversion to the mean and the pricing of options. Put in its place an expression like the kind he names Mandelbrotian in honor of its IBM mathematician originator. It looks to us like the recent meltdown of computer driven hedge funds and prime-rated sub-prime debt proves his point. Our simple interpretation is to reemphasize the timeless guidance that investors be exposed to the upside and protected against the downside. To illustrate the upside, or extreme event, for our stocks, we calculate Net Present Value for \$150 oil (NPV150). Own oil and gas stocks including **Total (TOT)** and **Anadarko (APC)**; be careful selling options against them.

NPV150 Highlights Upside

Our quick estimate of NPV150 starts with the current mix of natural gas, oil and other businesses for each stock (see table [Net Present Value at \\$150 Oil](#)). The current values presume long-term producer prices of \$11 a million btu and \$66 a barrel and long-term refining margin of \$11 a barrel. The experience of the past few years seems to support the idea that present value may be proportional to price as price increases from here. Thus, we multiply oil present value by 2.27 just as oil price of \$150 is 2.27 times \$66. Though one might have been rightly skeptical the past few years, we think natural gas has more long-term potential and multiply present value by 2.73 just as a natural gas price of \$30 would be 2.73 times \$11. Because other businesses including refining may see dampened demand as a result of higher oil price, we multiply present value for that segment by 1.82. Leverage adds to NPV gain, but we neutralize for that when we recommend portfolio weightings in proportion to unlevered value. Thus we have specified all the inputs for a simple calculation of NPV150. While life is not that simple, we do it to illustrate that stocks may have further potential beyond current estimates of NPV at oil price of \$66.

Kurt H. Wulff, CFA

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Oil and Gas Producers
Net Present Value at \$150 Oil

		<i>Present Value</i>			<i>Debt/ Present Value</i>	<i>Net Present Value (\$/share)</i>	
		<i>NatGas</i>	<i>Oil</i>	<i>Other</i>		<i>Now</i>	<i>@150</i>
Mega Cap							
BP plc	BP	0.18	0.59	0.23	0.16	87	216
ConocoPhillips	COP	0.23	0.54	0.23	0.19	112	288
Chevron Corporation	CVX	0.11	0.63	0.26	0.08	105	243
Gazprom	OGZPY	0.75	0.25	0.00	0.07	62	170
Royal Dutch Shell plc	RDS-A	0.16	0.49	0.35	0.10	94	218
Total S.A.	TOT	0.28	0.51	0.21	0.13	89	223
Exxon Mobil Corporation	XOM	0.21	0.53	0.26	0.05	92	213
Producer/Refiners - Large Cap							
Imperial Oil Limited	IMO	0.07	0.77	0.16	0.08	42	98
Lukoil Oil Company	LUKOY	0.00	0.72	0.28	0.03	121	264
Marathon Oil Corporation	MRO	0.10	0.48	0.42	0.18	62	148
Petro-Canada	PCZ	0.14	0.71	0.16	0.16	65	163
PetroChina Company Ltd	PTR	0.07	0.86	0.07	0.06	166	389
Statoil ASA	STO	0.35	0.65	0.00	0.14	35	94
Suncor Energy	SU	0.03	0.89	0.07	0.09	105	249
Independent Natural Gas and Oil - Large Cap							
Anadarko Petroleum Corp.	APC	0.56	0.41	0.03	0.35	74	247
Canadian Natural Resources	CNQ	0.30	0.70	0.00	0.22	87	245
CNOOC Limited	CEO	0.08	0.92	0.00	0.00	108	249
Devon Energy Corporation	DVN	0.56	0.44	0.00	0.14	129	359
Encana Corporation	ECA	0.67	0.25	0.08	0.18	72	208
EOG Resources	EOG	0.82	0.18	0.00	0.05	102	280
Occidental Petroleum Corp.	OXY	0.14	0.77	0.09	0.07	77	184
XTO Energy Inc.	XTO	0.80	0.20	0.00	0.15	70	206
Independent Natural Gas and Oil - Small Cap							
Berry Petroleum Company	BRY	0.27	0.73	0.00	0.23	44	124
Cimarex Energy Company	XEC	0.68	0.32	0.00	0.09	76	208
Encore Acquisition Company	EAC	0.17	0.83	0.00	0.32	54	162
Energy Partners Ltd.	EPL	0.50	0.50	0.00	0.31	38	121
Income							
Canadian Oil Sands Trust	COSWF	0.00	1.00	0.00	0.08	39	93
Enerplus Resources Fund	ERF	0.45	0.55	0.00	0.13	52	141
Hugoton Royalty Trust	HGT	1.00	0.00	0.00	0.00	34	93
Pengrowth Energy Trust	PGH	0.41	0.59	0.00	0.29	17	52
Penn West Energy Trust	PWE	0.31	0.69	0.00	0.21	36	100
San Juan Basin Royalty Trust	SJT	1.00	0.00	0.00	0.00	40	109

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Oil and Gas Producers - Rank by McDep Ratio

	Symbol/ Rating		Price (US\$/sh) 15-Oct 2007	Shares (mm)	Market Cap (US\$m)	Net Present Value (US\$/sh)	Debt/ Present Value	McDep Ratio
Mega Cap								
Exxon Mobil Corporation	XOM	B	94.82	5,620	533,000	92.00	0.05	1.03
Total S.A.	TOT	B	80.27	2,278	183,000	89.00	0.13	0.92
Royal Dutch Shell plc	RDS-A	B	84.00	3,152	265,000	94.00	0.10	0.90
BP plc	BP	B	75.92	3,198	243,000	87.00	0.16	0.89
Chevron Corporation	CVX	B	92.33	2,206	204,000	105.00	0.08	0.89
ConocoPhillips	COP	B	86.36	1,658	143,000	112.00	0.19	0.81
Gazprom (50%)	OGZPY	B	47.70	2,990	142,600	62.00	0.07	0.79
<i>Total or Median</i>					<i>1,714,000</i>		<i>0.10</i>	<i>0.89</i>
Producer/Refiners - Large Cap								
PetroChina Company Ltd (10%)	PTR	B	236.44	178	42,060	166.00	0.06	1.40
Norsk Hydro ASA	NHY	H	15.26	1,241	18,940	13.00	0.12	1.15
Imperial Oil Limited (30%)	IMO	B	48.34	282	13,630	42.00	0.08	1.14
StatoilHydro ASA (29%)	STO	B	34.21	928	31,750	35.00	0.14	0.98
Marathon Oil Corporation	MRO	H	59.36	722	42,860	62.00	0.18	0.97
Suncor Energy	SU	B	99.94	472	47,170	105.00	0.09	0.96
Petro-Canada	PCZ	B	53.23	498	26,510	65.00	0.16	0.85
Lukoil Oil Company	LUKOY	B	89.00	832	74,000	121.00	0.03	0.74
<i>Total or Median</i>					<i>297,000</i>		<i>0.10</i>	<i>0.97</i>
Independent Natural Gas and Oil - Large Cap								
CNOOC Limited (34%)	CEO	H	188.26	149	28,100	108.00	-	1.74
XTO Energy Inc.	XTO	B	66.40	390	25,900	70.00	0.15	0.96
Encana Corporation	ECA	B	65.16	765	49,800	72.00	0.18	0.92
Occidental Petroleum Corp.	OXY	B	69.12	842	58,200	77.00	0.07	0.90
Canadian Natural Resources	CNQ		73.75	539	39,800	87.00	0.22	0.88
Anadarko Petroleum Corp.	APC	B	57.44	467	26,800	74.00	0.35	0.85
EOG Resources	EOG	B	81.66	247	20,200	102.00	0.05	0.81
Devon Energy Corporation	DVN	B	89.11	450	40,100	129.00	0.14	0.74
<i>Total or Median</i>					<i>289,000</i>		<i>0.15</i>	<i>0.89</i>
Independent Natural Gas and Oil - Small Cap								
Berry Petroleum Company	BRY	B	45.59	45	2,050	44.00	0.23	1.03
Encore Acquisition Company	EAC	B	35.65	54	1,930	54.00	0.32	0.77
Energy Partners Ltd.	EPL	B	15.06	35	520	38.00	0.31	0.58
Cimarex Energy Company	XEC	B	38.89	85	3,300	76.00	0.09	0.56
<i>Total or Median</i>					<i>7,800</i>		<i>0.27</i>	<i>0.68</i>
Income								
Kinder Morgan Energy Partners, L.P.	KMP	S	52.03	179	9,290	17.00	0.53	1.97
Kinder Morgan Management, LLC	KMR	S	49.76	62	3,070	17.00	0.53	1.91
Pengrowth Energy Trust	PGH		18.38	246	4,520	17.00	0.29	1.06
Penn West Energy Trust	PWE	B	31.64	242	7,640	36.00	0.21	0.90
Enerplus Resources Fund	ERF		46.17	128	5,910	52.00	0.13	0.90
San Juan Basin Royalty Trust	SJT	B	35.65	47	1,660	40.00	-	0.89
Canadian Oil Sands Trust	COSWF	B	34.02	479	16,300	39.00	0.08	0.88
Hugoton Royalty Trust	HGT	B	24.65	40	990	34.00	-	0.73
<i>Total or Median</i>					<i>49,400</i>		<i>0.17</i>	<i>0.90</i>

B = Buy, S = Sell, H = Hold

Present Value = Shares times Net Present Value divided by (1-Debt/Present Value).

Debt = Present Value times Debt/Present Value

McDep Ratio = Market cap and Debt to present value of oil and gas and other businesses

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Oil and Gas Producers - Rank by EV/Ebitda

	Symbol/ Rating		Price (US\$/sh) 15-Oct 2007	Adjustd Resrvs/ Prod NTM	PV/ Ebitda NTM	EV/ Ebitda NTM	P/E NTM	Divd or Distrib NTM (%)
Mega Cap								
Gazprom (50%)	OGZPY	B	47.70	24.6	9.7	7.6	11	0.9
Exxon Mobil Corporation	XOM	B	94.82	11.7	6.2	6.4	11	1.5
BP plc	BP	B	75.92	9.6	6.4	5.7	9	3.4
Total S.A.	TOT	B	80.27	9.7	5.9	5.4	10	3.5
Chevron Corporation	CVX	B	92.33	10.1	5.7	5.0	9	2.5
ConocoPhillips	COP	B	86.36	10.3	6.0	4.9	8	1.9
Royal Dutch Shell plc	RDS-A	B	84.00	8.1	5.3	4.8	9	3.4
	<i>Median</i>			<i>10.1</i>	<i>6.0</i>	<i>5.4</i>	<i>9</i>	<i>2.5</i>
Producer/Refiners - Large Cap								
PetroChina Company Ltd (10%)	PTR	B	236.44	15.0	7.1	9.9	20	2.0
Suncor Energy	SU	B	99.94	23.8	9.4	9.0	16	0.4
Imperial Oil Limited (30%)	IMO	B	48.34	13.3	7.1	8.0	13	0.8
Norsk Hydro ASA	NHY	H	15.26	-	6.2	7.1	12	1.2
StatoilHydro ASA (29%)	STO	B	34.21	7.7	5.4	5.3	11	4.9
Lukoil Oil Company	LUKOY	B	89.00	17.8	6.7	5.0	8	1.7
Marathon Oil Corporation	MRO	H	59.36	8.6	5.1	5.0	8	1.6
Petro-Canada	PCZ	B	53.23	6.5	5.1	4.4	8	1.0
	<i>Median</i>			<i>10.9</i>	<i>6.4</i>	<i>6.2</i>	<i>11</i>	<i>1.4</i>
Independent Natural Gas and Oil - Large Cap								
CNOOC Limited (34%)	CEO	H	188.26	10.7	5.9	10.4	19	1.9
XTO Energy Inc.	XTO	B	66.40	11.3	7.8	7.5	14	0.7
Canadian Natural Resources	CNQ		73.75	8.1	8.2	7.3	15	0.5
Encana Corporation	ECA	B	65.16	9.2	7.1	6.6	12	1.2
EOG Resources	EOG	B	81.66	9.3	7.9	6.4	16	0.4
Anadarko Petroleum Corp.	APC	B	57.44	11.2	7.5	6.4	11	1.3
Occidental Petroleum Corp.	OXY	B	69.12	11.5	6.2	5.7	11	1.4
Devon Energy Corporation	DVN	B	89.11	9.0	7.6	5.6	11	0.6
	<i>Median</i>			<i>10.0</i>	<i>7.5</i>	<i>6.5</i>	<i>13</i>	<i>1.0</i>
Independent Natural Gas and Oil - Small Cap								
Berry Petroleum Company	BRY	B	45.59	10.2	7.7	7.9	15	0.7
Encore Acquisition Company	EAC	B	35.65	15.5	7.5	5.8	13	-
Cimarex Energy Company	XEC	B	38.89	8.0	6.8	3.8	9	0.4
Energy Partners Ltd.	EPL	B	15.06	5.9	5.5	3.2	-	-
	<i>Median</i>			<i>9.1</i>	<i>7.1</i>	<i>4.8</i>	<i>13</i>	<i>0.2</i>
Income								
Kinder Morgan Energy Partners, L.P.	KMP	S	52.03		8.0	15.8	36	6.5
Kinder Morgan Management, LLC	KMR	S	49.76		8.0	15.3	34	6.8
San Juan Basin Royalty Trust	SJT	B	35.65	10.0	12.9	11.5	14	7.0
Hugoton Royalty Trust	HGT	B	24.65	13.9	11.6	8.5	12	8.2
Canadian Oil Sands Trust	COSWF	B	34.02	21.7	9.3	8.2	10	9.2
Pengrowth Energy Trust	PGH		18.38	7.1	7.0	7.4	37	15.9
Enerplus Resources Fund	ERF		46.17	9.4	8.2	7.4	15	11.2
Penn West Energy Trust	PWE	B	31.64	7.7	7.2	6.5	13	13.2
	<i>Median</i>			<i>9.7</i>	<i>8.1</i>	<i>8.4</i>	<i>14</i>	<i>8.7</i>

EV = Enterprise Value = Market Cap and Debt; Ebitda = Earnings before interest, tax, depreciation and amortization; NTM = Next Twelve Months Ended September 30, 2008; P/E = Stock Price to Earnings; PV = Present Value of oil and gas and other businesses

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Index of Recent Research**Stock Ideas**

<u>Date</u>	<u>Symbol</u>	<u>Stock</u>	<u>Theme</u>
15-Oct	PTR	PetroChina Company Limited	Stock Price Advance Carries Higher Risk
8-Oct	OGZPY	Gazprom	The Saudi Arabia of Natural Gas
2-Oct	COSWF	Canadian Oil Sands Trust	Operating Interruption
24-Sep	CEO	CNOOC Ltd	Revise to Hold from Buy on Price
12-Sep	* LUKOY	Lukoil Oil Company	Emerging Oil Blue Chip
6-Sep	* SJT	San Juan Basin Royalty Trust	Mountains and Valleys
5-Sep	* COSWF	Canadian Oil Sands Trust	Record 375,000 Barrels Daily for August
29-Aug	* CEO	CNOOC Ltd	Making Money Offshore China
23-Aug	* PTR	PetroChina Company Limited	Price Controls Ease in 2007 Half
8-Aug	* EPL	Energy Partners, Ltd.	Oversold
3-Aug	* EOG	EOG Resources Inc.	Natural Gas with North Dakota Oil
3-Aug	* PWE	Penn West Energy Trust	High Return from Distributions
3-Aug	* IMO	Imperial Oil Limited	High Return from Stock Repurchase
2-Aug	* TOT	Total S.A.	Constructive Russo-French Interdependence
2-Aug	* BRY	Berry Petroleum	Rocky Mountain Constraints
1-Aug	* XEC	Cimarex Energy Company	Stable Volume
1-Aug	* DVN	Devon Energy Corporation	Volume Advances
1-Aug	* EAC	Encore Acquisition	Nice to be Oily
31-Jul	* MRO	Marathon Oil Corporation	Oil Sands Acquirer
31-Jul	* APC	Anadarko Petroleum Corporation	Transition Maturing
30-Jul	* STO	Statoil ASA	Norwegian Oil and Gas Champion
27-Jul	* CVX	Chevron Corporation	Oil and Downstream Vigor
26-Jul	* SU	Suncor Energy	Oil Sands Growth Stock
26-Jul	* XOM	Exxon Mobil Corporation	Steady Strength
26-Jul	* PCZ	Petro-Canada	Raise NPV to US\$65 a Share
26-Jul	* RDSA	Royal Dutch Shell plc	Downstream Benefit
25-Jul	* ECA	EnCana Corporation	Downstream Blessing
25-Jul	* COP	ConocoPhillips	Downstream Blessing
25-Jul	* BP	BP p.l.c.	Controversy Diminishing
24-Jul	* XTO	XTO Energy Inc.	Volume Growth in Underpriced Natural Gas
24-Jul	* OXY	Occidental Petroleum Corporation	Ready for Peak Oil Test
24-Jul	* NHY	Norsk Hydro ASA	Confidence in Aluminium
23-Jul	* HGT	Hugoton Royalty Trust	Paying Unitholders to Wait
19-Jul	* KMx	Kinder Morgan	Suggestions for New General Partner Owners

Meter Reader - A Weekly Analysis

15-Oct		The Black Swan
9-Oct		Oil Stocks Lead Natural Stocks
2-Oct	*	Peak Oil is Here
25-Sep	*	The Long-Term Energy Squeeze

Oil and Gas Income Stocks (previously Natural Gas and Oil Royalty Trusts) - A Weekly Analysis

12-Oct		Caution in Buoyant Times
5-Oct		Linn Energy, LLC
28-Sep	*	Takeover Bid for PrimeWest Energy Trust
21-Sep	*	A Royalty Out for Syncrude

Industry Ideas

19-Sep	*	Flash	Alberta Royalty Panel Bomb
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* Archived on www.mcdep.com

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