The Potential Impact of Price Signals and Investment Trends on Oil & Gas Capital Investment

Jason Bloom
Invesco
Head of FI & Alts Product Strategy
Presentation Outline

1. What Is Backwardation vs. Contango – Producers vs. Investors
3. US Commodity Exchange-Traded Fund (ETF) Flow Trends – What’s Behind the Growing Demand for Broad-Based ETFs?
4. The Effects of “Peak Oil Demand”
5. The Rise of Environmental, Social and Governance (ESG) ETFs & Its Implications
6. Takeaways From the Tobacco Analogy
Understanding Backwardation vs. Contango

**Backwardation** = **Scarcity** = **Positive** Roll Return

- Producers who prefer to hedge future production tend to benefit from a contangoed market, which allows them to lock in a higher price for future production.
- On the other hand, investors tend to benefit from backwardated markets due to the positive roll return – they will sell the more expensive front month contract & buy a cheaper later month contract which, assuming a stable spot price, will appreciate over time as it approaches expiration near the front of the curve.
- Steep backwardation discourages CapEx to the extent that a producer cannot hedge future production at current high prices.

**Contango** = **Surplus** = **Negative** Roll Return

1. **Backwardation**: Market condition where the price of the commodity’s futures contracts are trading **below** the spot price.
2. **Contango**: Market condition where the price of the commodity’s futures contracts are trading **above** the spot price.
3. **Spot Price** is the current cost of a commodity for immediate purchase, payment and delivery.
4. **Capital Expenditure**: Funds used by a company to acquire, upgrade, and maintain physical assets such as property, plants, buildings, technology, or equipment. CapEx is often used to undertake new projects or investments by a company.

For illustrative purposes only.
The WTI futures curve is currently in backwardation

*WTI* (West Texas Intermediate) refers to the price of the New York Mercantile Exchange (NYMEX) WTI Crude Oil futures contract or the contract itself. WTI is one of the main global oil benchmarks.

Source: Bloomberg, L.P. Last price as of 10/19/2021
The Affect of Oil Supply on the WTI Term Structure

When supply was greater than the 5yr average, the WTI futures curve tended to be in **contango**

When supply was lower than the 5-year average, the curve tended to shift into **backwardation**

**Outliers Explained…**

<table>
<thead>
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<th>Rank</th>
<th>WTI 1 vs. 12 Month Spread</th>
<th>Data Date</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>-21.82</td>
<td>1/16/2009</td>
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<tr>
<td>2</td>
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</tr>
<tr>
<td>10</td>
<td>-14.21</td>
<td>1/30/2009</td>
</tr>
</tbody>
</table>

\[ y = -0.0553x + 0.2897 \]
\[ R^2 = 0.1618 \]

- Negative numbers mean the WTI futures curve was in contango i.e., the front month futures contract cost more than later futures contracts
- **R-Squared**: Statistical measure that represents how much variation of a dependent variable (WTI 1 vs 12 month spread) is explained by the variations in the independent variable (Over/under supply to the 5-year weekly rolling average)
- **Source**: Bloomberg, EIA as of October 08, 2021, Weekly Data (Jan 2006 – Oct 2021)

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Global Energy Fund Flows vs. Price – Not Connected

Despite negative flows in recent months, energy prices continued to rally

![Graph showing Index + Exchange Traded Product (ETP) Energy Flows vs. Prices]

**Index + Exchange Traded Product (ETP) Energy Flows vs. Prices**

- **Underlying Flows Absent Price Affect ($bln, LHS)**
- **BCOM Energy Subindex Price (RHS)**

**Note:**
- **BCOM Energy Subindex:** Energy commodity group subindex of the Bloomberg Commodity Index (BCOM), composed of futures contracts on Crude Oil, Heating Oil, Unleaded Gasoline and Natural Gas.
- **Source:** CFTC, Bloomberg, ETP issuers, RBC Capital Markets estimates.
- **Note:** Index includes benchmark and similar, ETP estimates are based on monthly average inputs.
US Commodity ETF Flow Trends

Why the demand for broad-based commodity ETFs in 2021? High Investor Demand for Inflation Hedge

➢ Unlike 2019 & 2020, flows into precious metals ETFs have dropped off in 2021 – YTD outflows of $9.0B… while broad-based ETFs captured $7.2B in 2021 YTD

➢ U.S. clients are telling us that higher inflation (and accompanying higher interest rates) are becoming a serious concern. Diversified commodity portfolios have historically performed well when inflation and U.S. interest rates were high or rising

➢ Outflows in gold ETFs signal investors’ expectation of a continued rise in U.S. rates, which, historically creates a headwind for gold

1Inflation Beta is a metric used to evaluate an asset class’ ability to hedge inflation. It measures the change in inflation against the return of the asset class over a specific time period (1998 – 2020 in the chart above). Inflation Beta = slope of the regression line between the asset’s yearly returns and YoY CPI on the last day of each year (Ex: For 2020, use YoY CPI on Dec 31, 2020). Source: Bloomberg L.P., US Bureau of Labor Statistics, as of December 2020. An investment cannot be made into an index. See page 13 for index definitions.
Consumer Price Index (CPI) is the price of a weighted average market basket of consumer goods and services purchased by households. Changes in the CPI are used to assess price changes associated with the cost of living and is one of the tools used to identify periods of inflation/deflation.

S&P Goldman Sachs Commodity Index (GSCI). See page 13 for index definition.


Very strong relationship between high inflation and strong commodity price performance. 

When CPI was greater than 2%:
- Positive Returns: 86%
- Negative Returns: 14%

When CPI was less than 2%:
- Positive Returns: 26%
- Negative Returns: 74%

Percentage of Time CPI was Above or Equal 2%: 56%
Percentage of Time CPI was Below 2%: 44%

Commodity Returns vs CPI\(^1\) - Regression Line

\[ y = 0.0343x + 1.9035 \]

\[ R^2 = 0.5631 \]

Most Recent (9/30/2021) CPI: 59.24, 5.4

\(^1\)Consumer Price Index (CPI) is the price of a weighted average market basket of consumer goods and services purchased by households. Changes in the CPI are used to assess price changes associated with the cost of living and is one of the tools used to identify periods of inflation/deflation.

\(^2\)S&P Goldman Sachs Commodity Index (GSCI). See page 13 for index definition.

Peak Oil Demand? Many Different Opinions, But..

Dominant public perception of *future* decline in demand risks *current* decline in capital allocated to Oil Energy & Production

Oil Demand Forecasts Compared

- We are now experiencing the shortage in coal and gas, is oil next?
- From the U.S. investor’s perspective, *when* peak demand occurs is not as important as *that* it will occur within their investment time horizon
- An investor who believes that peak demand is within sight may decide to abandon their investment in E&P now, causing an immediate reduction in capital investment that may pressure non-OPEC oil production lower long before global demand peaks

Source: Bloomberg New Energy Finance (BNEF), British Petroleum (BP), Energy Information Administration/US Department of Energy (EIA/DOE), International Energy Agency (IEA), Morgan Stanley Research (Oil Intensity Model), The Organization of the Petroleum Exporting Countries (OPEC)

All data sourced from Morgan Stanley Research, *The Oil Manual: Oil, OPEC and ESG – Raising Long-Term Oil Price Forecasts*, June 1, 2021
The Growth of ESG ETFs…Investment Trend is Blind to Oil Price Signals

ESG ETFs are growing much faster than non-ESG ETFs in a $5.5 Trillion U.S. equity ETF market

ESG ETF Net Flows ($B)

Trends in ESG ETFs

➢ ESG ETF flows accelerated in 2020/21
➢ Flows of ~$30B YTD (nearly 1/3 of the sector’s $100B AUM)
➢ Despite current market share of 1.5%, ESG ETFs captured 6% of ETF equity flows in September, above both Q3 2021 and YTD numbers
➢ Product development also showed growth, with ESG ETFs representing 11% of new ETFs launched YTD

Why Does This Matter?

➢ ESG ETFs allocate a smaller weight to traditional energy names and eliminate many Oil E&P companies
  ○ Ex: S&P 500 ETF (SPY) owns 21 energy names vs. only 14 in the S&P 500 ESG ETF (EFIV)
➢ Growing market share of ESG ETFs is expected to reduce capital allocated to publicly listed oil & gas producing companies, potentially raising E&P cost of capital – regardless of profit opportunity in the sector

Source: Bloomberg L.P., as of September 30, 2021
The Tobacco Analogy – Flawed as it may be…

Decline in investor interest may result in a decline in the level of producer competition.

Cigarette smoking rates have fallen significantly for both youths & adults


Tobacco Producer Price Index (Dec 2003 – Dec 2021)

Index Definitions

➢ **DBIQ OY Commodity Index** – The DBIQ Optimum Yield Diversified Commodity Index is a rule-based index composed of futures contracts of the 14 most heavily-traded and important global commodities

➢ **BCOM Index** – The Bloomberg Commodity Index (BCOM) tracks the performance of a diversified basket of global commodities

➢ **XAU** – Gold spot price quoted in US Dollars

➢ **REITs (FTSE NAREIT All Equity REITs Index)** – Real Estate Investment Trusts are companies that own and/or operate income-producing real estate. The index is an unmanaged index considered representative of US REITs

➢ **TIPS (Bloomberg US Treasury Inflation-Linked Bond Index)** – Treasury Inflation-Protected Securities are Treasury bonds indexed to inflation to protect investors against a decline in purchasing power. The index measures the performance of the US TIPS market

➢ **S&P 500 Index** – This is an unmanaged index considered representative of the U.S. stock market. It is widely regarded as the best single gauge of large-cap U.S. equities and includes 500 leading companies

➢ **Bloomberg Intermediate US Government/Credit Bond Index** – The index is a broad-based benchmark that measures the non-securitized component of the US Aggregate Index with less than 10 years to maturity. The index is comprised of the Intermediate U.S. Treasury and U.S. Agency Indices

➢ **S&P Goldman Sachs Commodity Index (GSCI)** – Diversified benchmark commodities index tracking the performance of the global commodities market