Invesco

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

Jason Bloom
Invesco
Head of FI & Alts Product Strategy

About Risk and Other Important Information

Forward-looking statements are not guarantees of future results. They involve risks, uncertainties and assumptions, there can be no assurance that actual results will not differ materially from expectations.

The opinions expressed are those of Jason Bloom as of Oct. 21, 2021, are based on current market conditions and are subject to change without notice. These opinions may differ from those of other Invesco investment professionals.

This is not to be construed as an offer to buy or sell any financial products and should not be relied upon as the sole factor in an investment making decision. As with all investments there are associated inherent risks. Please obtain and review all financial material carefully before investing.

Commodities may subject an investor to greater volatility than traditional securities such as stocks and bonds and can fluctuate significantly based on weather, political, tax, and other regulatory and market developments.

In general, stock values fluctuate, sometimes widely, in response to activities specific to the company as well as general market, economic and political conditions.

Interest rate risk refers to the risk that bond prices generally fall as interest rates rise and visa versa. An issuer may be unable to meet interest and/or principal payments, thereby causing its instruments to decrease in value and lowering the issuer's credit rating.

The use of environmental, social and governance factors to exclude certain investments for non-financial reasons may limit market opportunities available to funds not using these criteria. Further, information used to evaluate environmental, social and governance factors may not be readily available, complete or accurate, which could negatively impact the ability to apply environmental, social and governance standards.

Investments focused in a particular industry, such as oil and gas, are subject to greater risk, and are more greatly impacted by market volatility, than more diversified investments.

A decision as to whether, when and how to use futures involves the exercise of skill and judgment and even a well conceived futures transaction may be unsuccessful because of market behavior or unexpected events.

There are risks involved with investing in ETFs, including possible loss of money. Index-based ETFs are not actively managed. Actively managed ETFs do not necessarily seek to replicate the performance of a specified index. Both index-based and actively managed ETFs are subject to risks similar to stocks, including those related to short selling and margin maintenance.

This does not constitute a recommendation of any investment strategy or product for a particular investor. Investors should consult a financial professional before making any investment decisions.

Invesco Distributors, Inc.

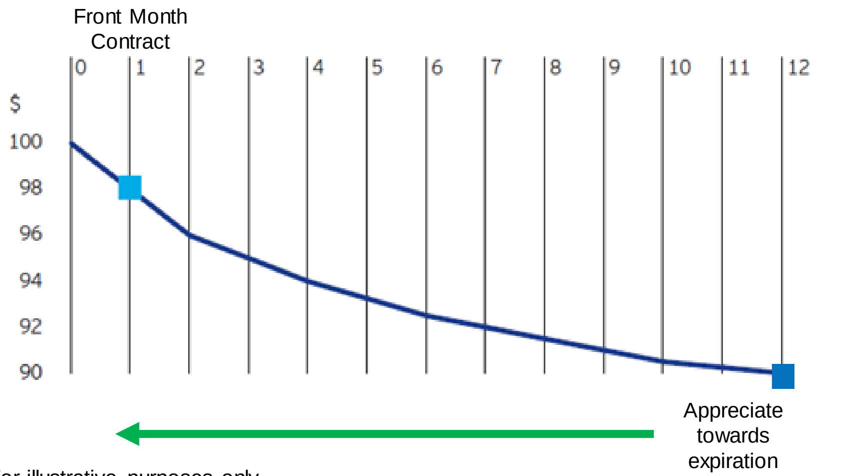
10/21 NA9798

Presentation Outline

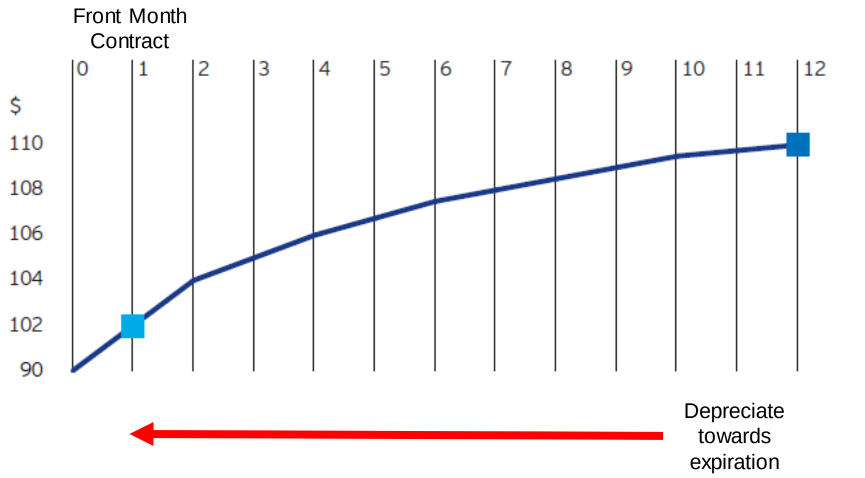
1. What Is Backwardation vs. Contango – Producers vs. Investors
2. Global Energy Fund Flows vs. Price – Not Connected
3. US Commodity Exchange-Traded Fund (ETF) Flow Trends – What's Behind the Growing Demand for Broad-Based ETFs?
4. The Effects of "Peak Oil Demand"
5. The Rise of Environmental, Social and Governance (ESG) ETFs & Its Implications
6. Takeaways From the Tobacco Analogy

Understanding Backwardation vs. Contango

Backwardation[1] = Scarcity = Positive Roll Return



Contango[2] = Surplus = Negative Roll Return



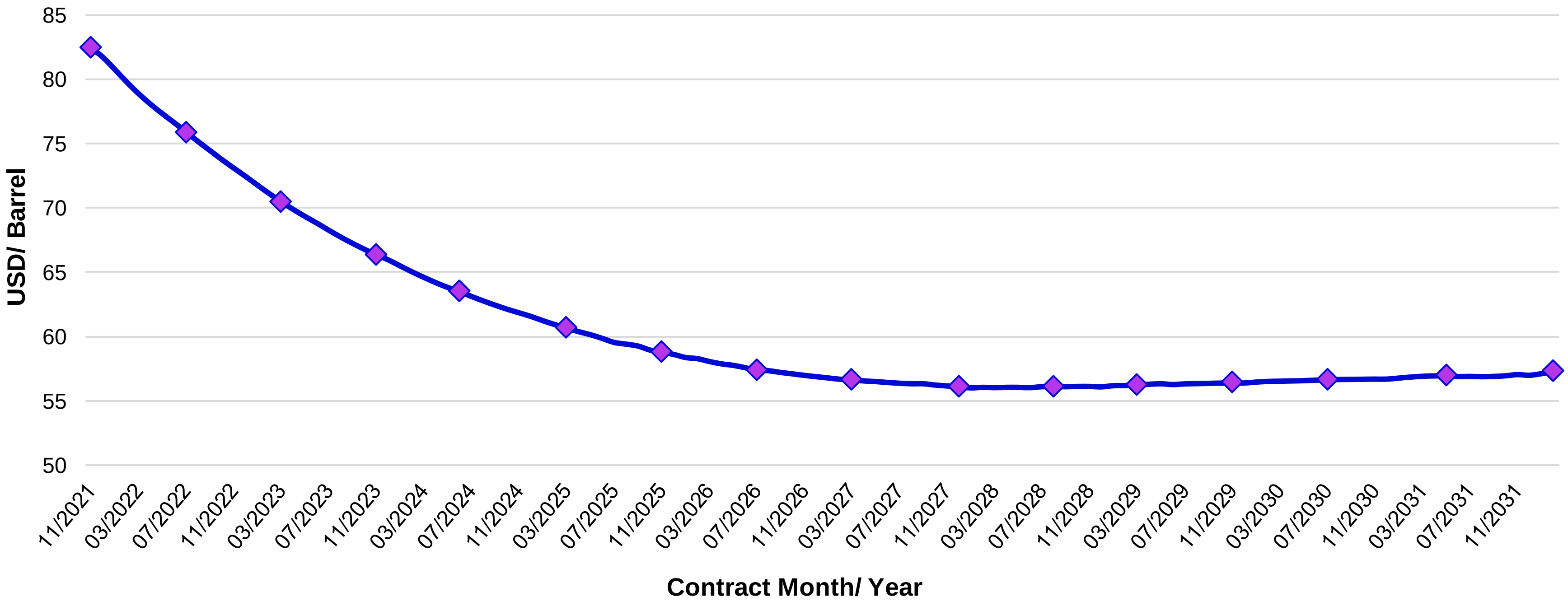
For illustrative purposes only

- **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[3] to the extent that a producer cannot hedge future production at current high prices

[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
Spot Price is the current cost of a commodity for immediate purchase, payment and delivery
[3]**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

Light Sweet Crude Oil (WTI[1]) Futures Curve

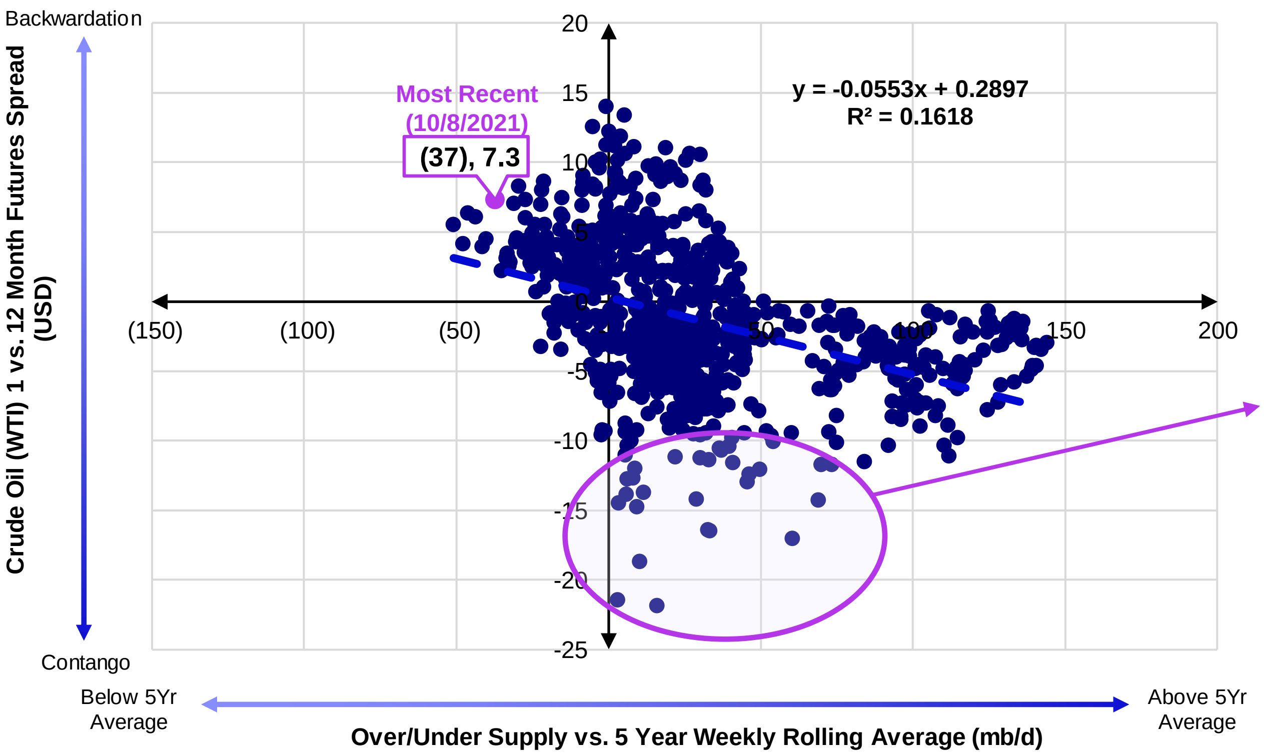
The WTI futures curve is currently in backwardation



[1]**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**

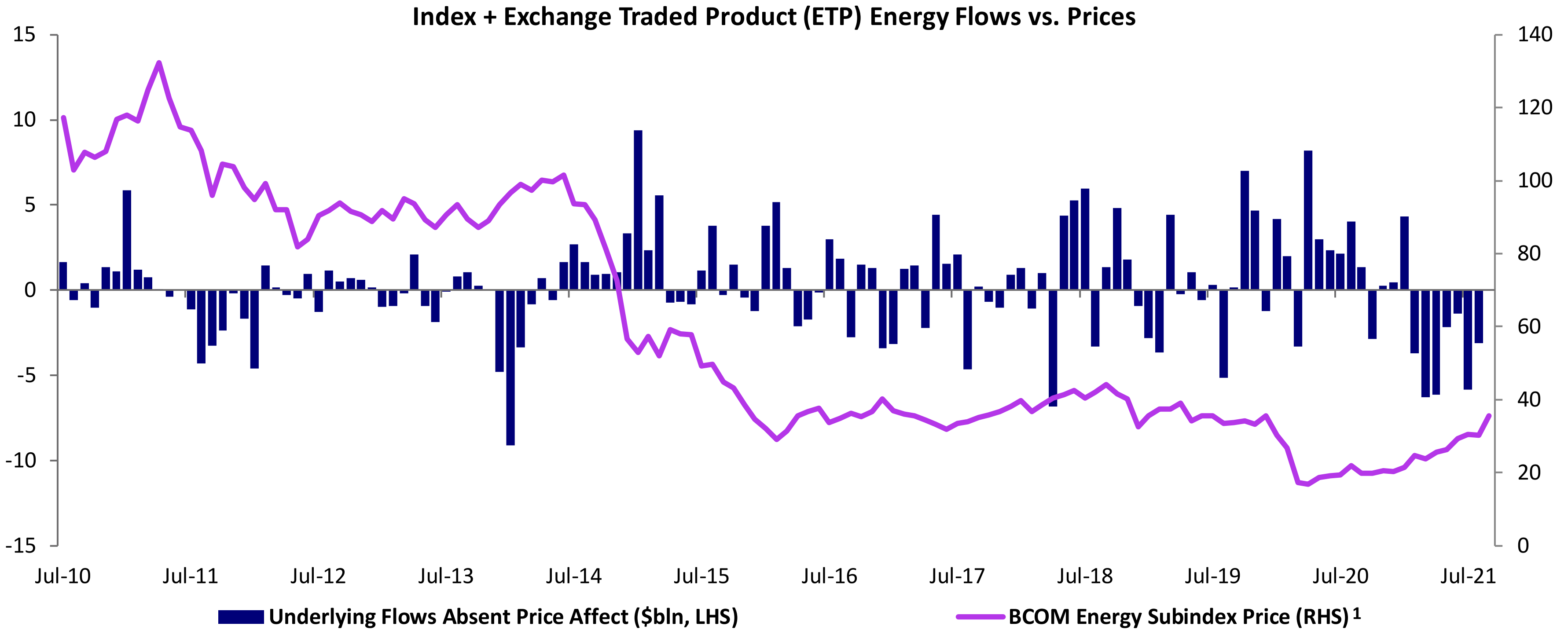
Outliers Explained…

Rank	WTI 1 vs. 12 Month Spread[1]	Data Date
1	-21.82	1/16/2009
2	-21.41	12/19/2008
3	-18.65	1/9/2009
4	-16.99	4/17/2020
5	-16.50	2/6/2009
6	-16.42	2/13/2009
7	-14.71	1/2/2009
8	-14.46	12/26/2008
9	-14.23	4/24/2020
10	-14.21	1/30/2009

[1]Negative numbers mean the WTI futures curve was in contango i.e., the front month futures contract cost more than later futues 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)

Global Energy Fund Flows vs. Price – Not Connected

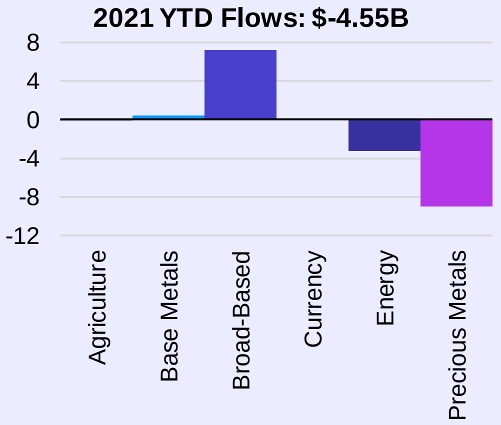
Despite negative flows in recent months, energy prices continued to rally



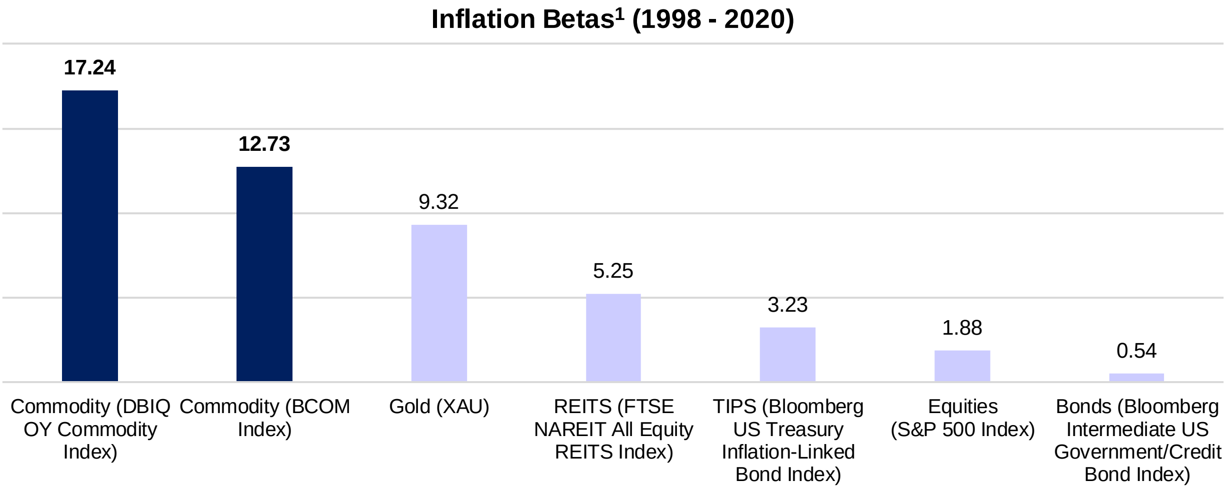
[1]**BCOM Energy Subindex:** Energy commodity group subindex of the Bloomberg Commodity Index (BCOM), composed of futures contracts on Crude Oil, Heating Oil, Unleaded Gasoline and Natural Gas
Source: CFTC, Bloomberg, ETP issuers, RBC Capital Markets estimates
Note: Index includes benchmark and similar, 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



Source: IVZ Global Product & ETF Research and Bloomberg L.P., September 30, 2021

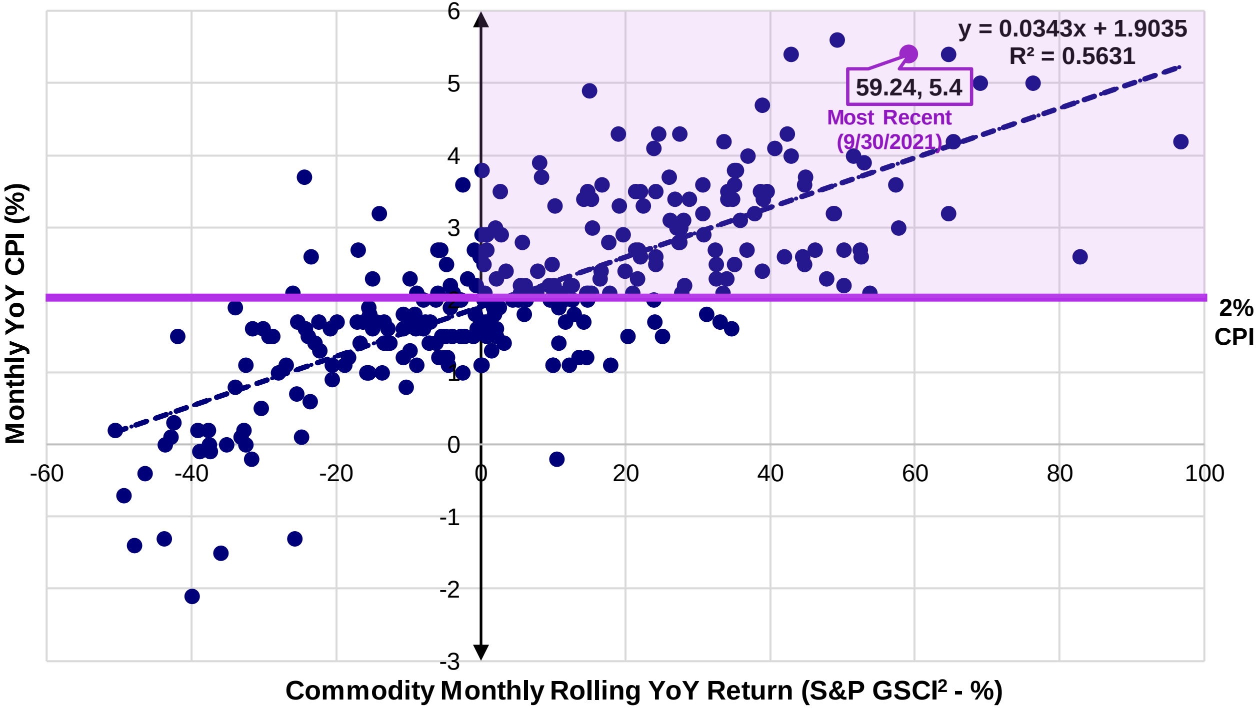


- Unlike 2019 & 2020, flows into precious metals ETFs have dropped off in 2021 – YTD outflows of **$9.0B**… while broad-based ETFs captured **$7.2B** in 2021 YTD
- U.S. clients are telling us that higher inflation (and accompanying higher interest rates) are becoming a serious concern. Diversified commodity 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

[1] **Inflation 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.

Commodity Returns vs CPI[1] - Regression Line

Very strong relationship between high inflation and strong commodity price performance



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

When CPI was greater than 2%:

Positive Returns	86%
Negative Returns	14%

When CPI was less than 2%:

Positive Returns	26%
Negative Returns	74%

[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

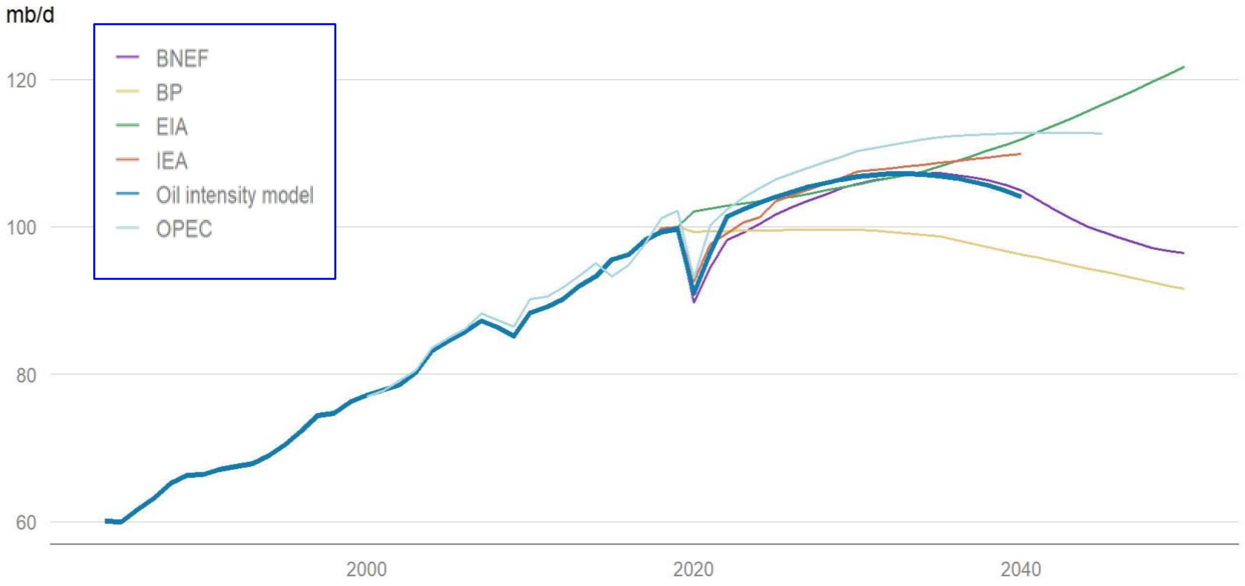
[2]**S&P Goldman Sachs Commodity Index (GSCI).** See page 13 for index definition

Source: Bloomberg L.P., Jan 1998 - Sep 2021. Past performance is not a guarantee of future results. An investment cannot be made into an index.

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



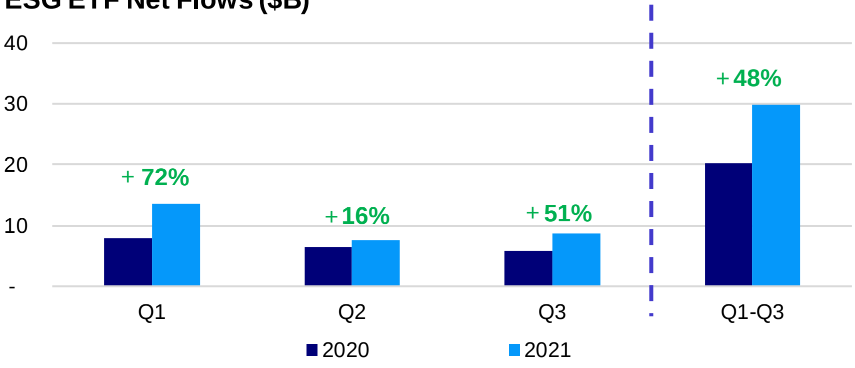
- We are now experiencing the shortage in coal and gas, is oil next?
- From the U.S. investor's perspective, ***when*** peak demand occurs is not as important as ***that*** it will occur within their investment time horizon
- An investor who believes that peak demand is within sight may decide to abandon 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

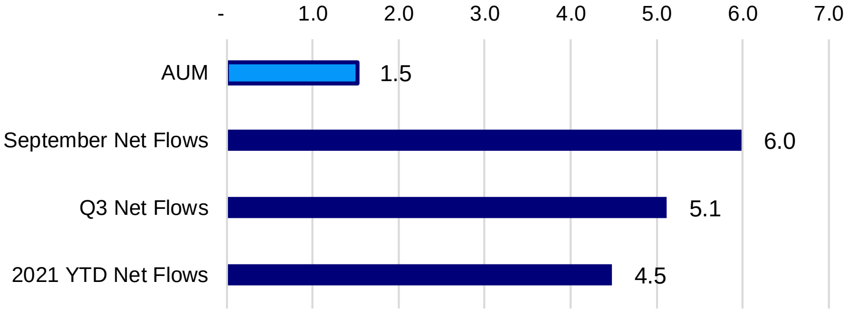
The Growth of ESG ETFs…Investment Trend is Blind to Oil Price Signals

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)



ESG Market Share (%)



Source: Bloomberg L.P., as of September 30, 2021

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

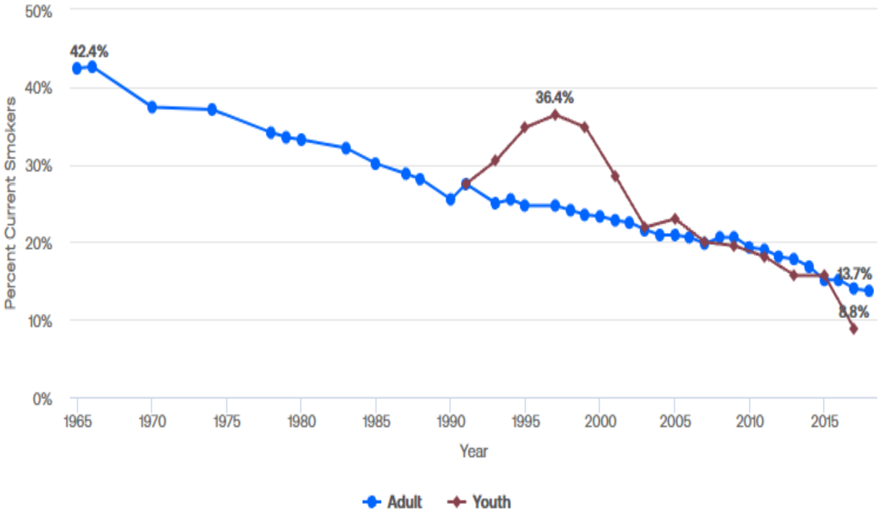
Why Does This Matter?

- 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

The Tobacco Analogy – Flawed as it may be…

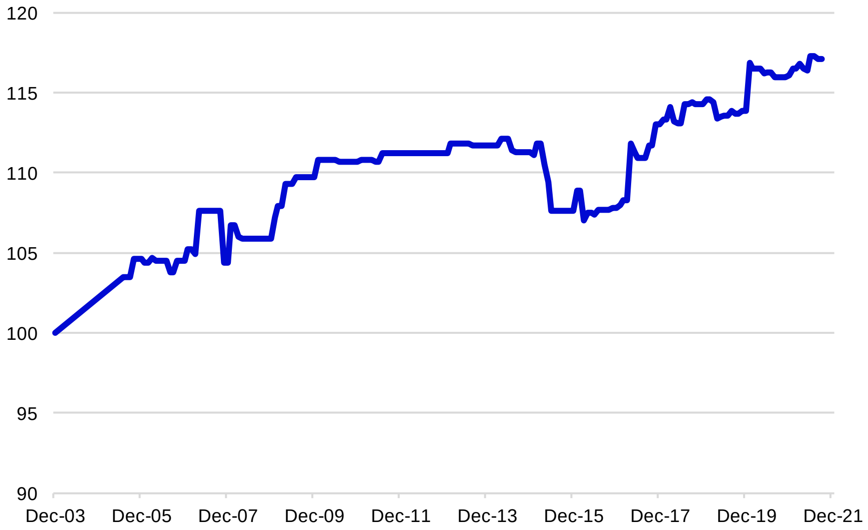
Decline in investor interest may result in a decline in the level of producer competition.

Cigarette smoking rates have fallen significantly for both youths & adults



Source: American Lung Association analysis of CDC Data: National Health Interview Survey (NHIS) 1965 – 2018 & Youth Risk Behavior Surveillance System (YRBSS) 1995 - 2017

Tobacco Producer Price Index (Dec 2003 – Dec 2021)



Source: U.S. Bureau of Labor Statistics, Producer Price Index by Industry: Tobacco Manufacturing: Tobacco, Unstemmed Leaf, Redried Before Packing [PCU31223031223001], retrieved from FRED, Federal Reserve Bank of St. Louis

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