



W U T I S

Global Markets Division Oil Quantamentals

Translating a fundamental view on the crude oil market into systematic trading strategy.

Investment Horizon: 12 months

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Team Overview

Global Markets



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- Storyline
- Storage and supply



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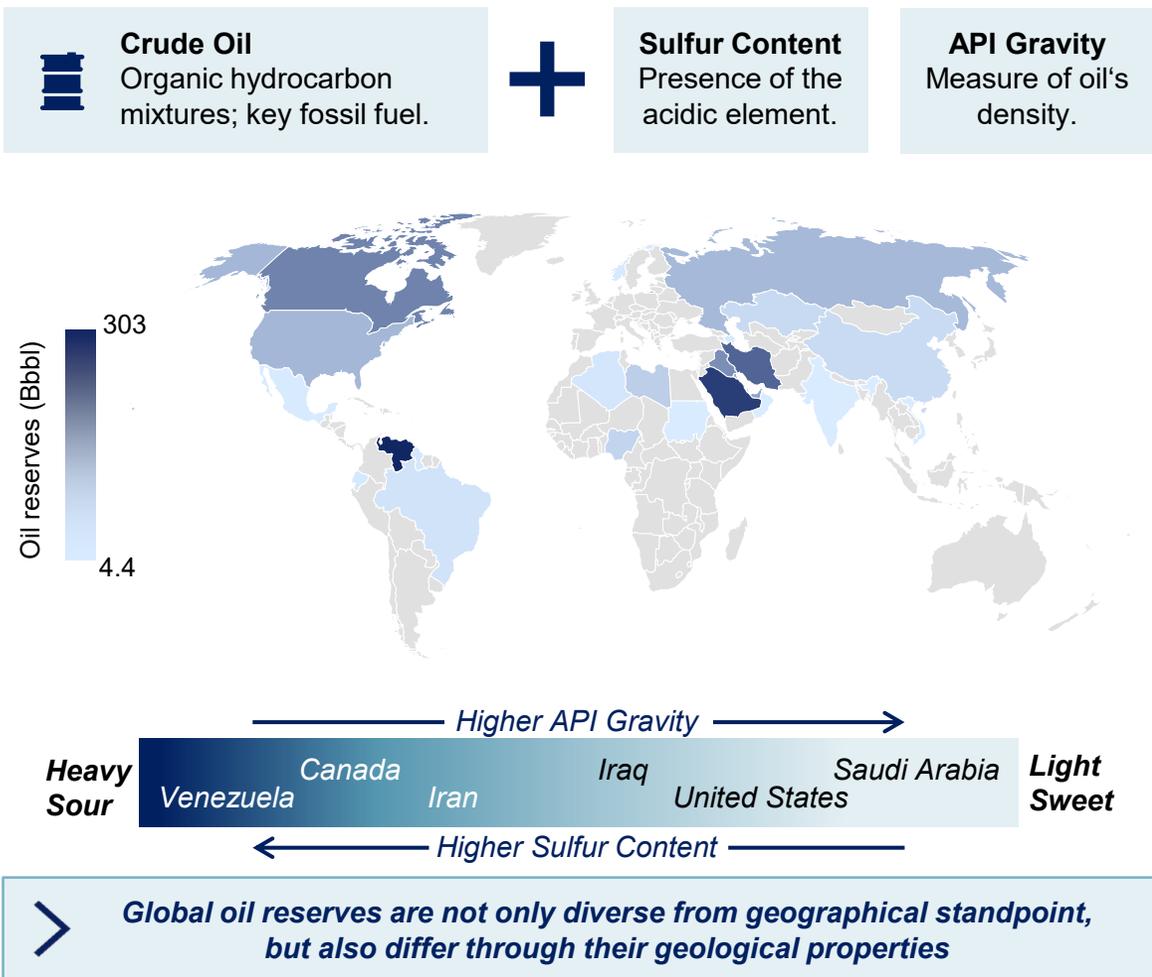
Oil Supply



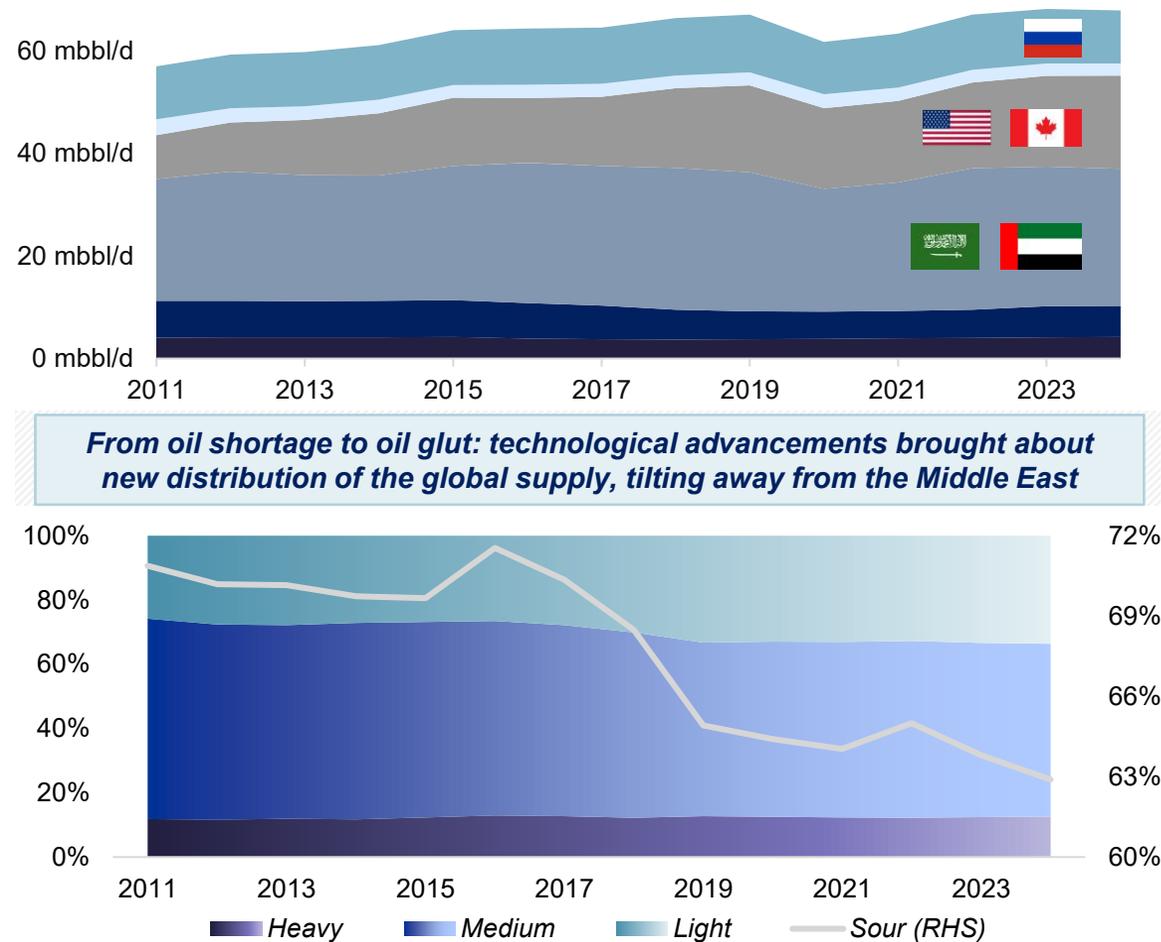
Assay of Global Supply

Reserves Remain Concentrated, but Production has Diversified across Countries and Grades

Distribution of Reserves

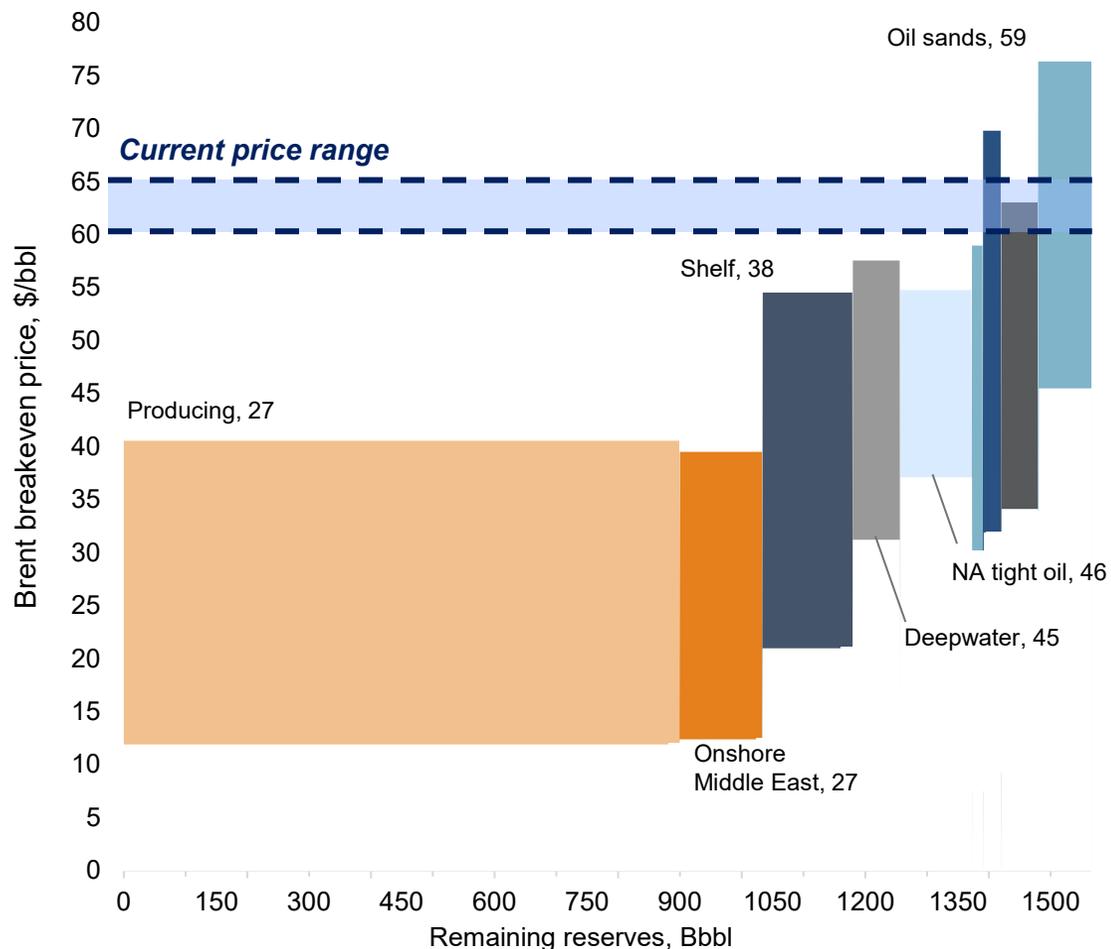


Oil Production by Country and Grade

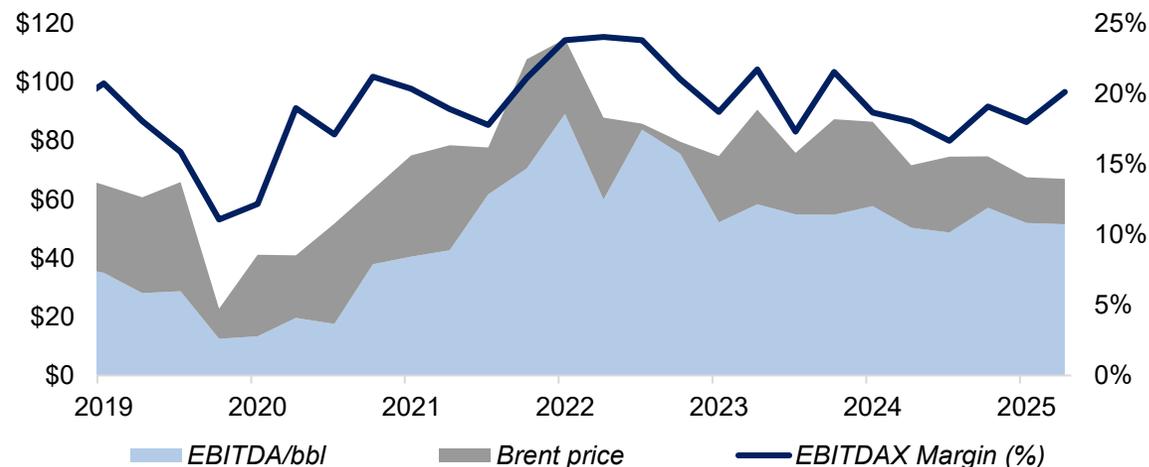


Current Pricing Approaches Breakeven Levels, but is Unlikely to Curb Private Sector's Output

Global Breakeven Price Structure



Profitability of global E&Ps



Clouded Demand Mutes Prospects

Unclear demand outlook from elevated geopolitical and macroeconomic risks **translates pose a need for financial nimbleness.**

Capital Discipline is Key

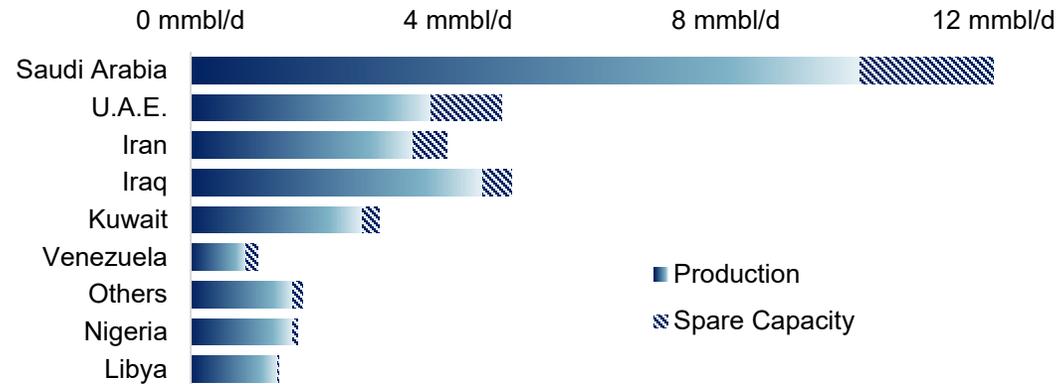
Amidst weaker pricing maturing industry **focuses on capital repayments** and financial flexibility, **in place of Growth CapEx.**

Consolidation over Expansion

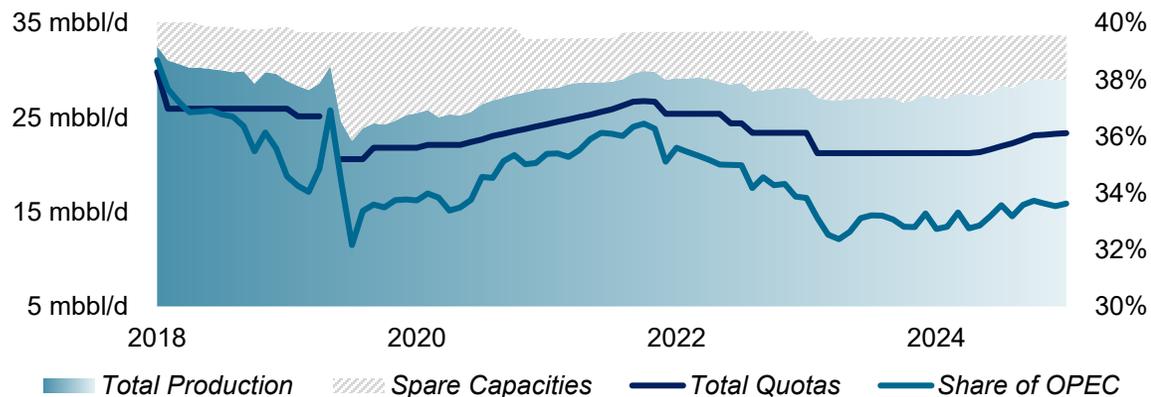
Aging asset bases prompt further integration, which will prove pivotal in the **maturing sector.**

Limited Leeway of the Largest Cartel is Posed For Sustained Output

Production and Spare Capacities



Output and Quotas



Political Developments



Faltering Market Share

Rise of non-OPEC production, particularly that of US tight oil, have **undermined OPEC's market share**. Quotas indicate **lower support for pricing** and higher focus on regaining market share.



Political and Data-Driven Alignment

Broadly **thawing political relations** in recent years among core members make a **price war an unlikely occurrence** in 2026. Nearing audit of capacities may improve quotas alignment.

- 

As protests were crushed, the residual risks take the shape of labor strikes. Security apparatus and weak personal finances make it unlikely.
- 

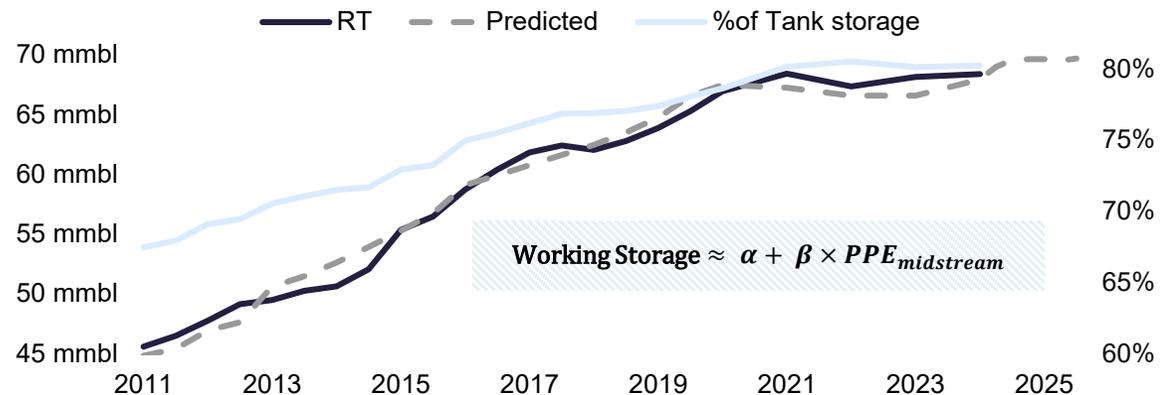
Release of accumulated inventories and re-development of more available conventional oil support output in short and medium terms.
- 

Sanctions and attacks on infrastructure limit both export prices and volumes. Revenue reached lowest value since 2022, straining Russia fiscally.
- 

Opening of Libya to foreign bidding may uncover accessible, high-quality oil.


Focused on regaining market share and with high-impact downside scenarios contained, OPEC is likely to maintain output in current pricing environment.

Midstream and Fixed Storage



Aggregate Net PPE of US midstream precisely explains working storage trends.



Shale Revolution Drove Midstream Developments

Historic rise of tight oil production in the US drove the expansion of auxiliary infrastructure.



CapEx Takes Gas Centricity

Recent increase in the midstream's net PPE mainly driven by the (liquified) natural gas demand.



„Drill, Baby, Drill“ hits the bedrock

Despite upcoming legislature on easier permitting, the rollout has been stalled by litigative hurdles.



Floating Storage

Tanker Oversupply

Boom-and-bust cycle is posed to **overextend the supply** of tanker capacities.

Red Sea Normalization

Fragile peace and recent developments in Yemen could **reopen Suez Canal**.

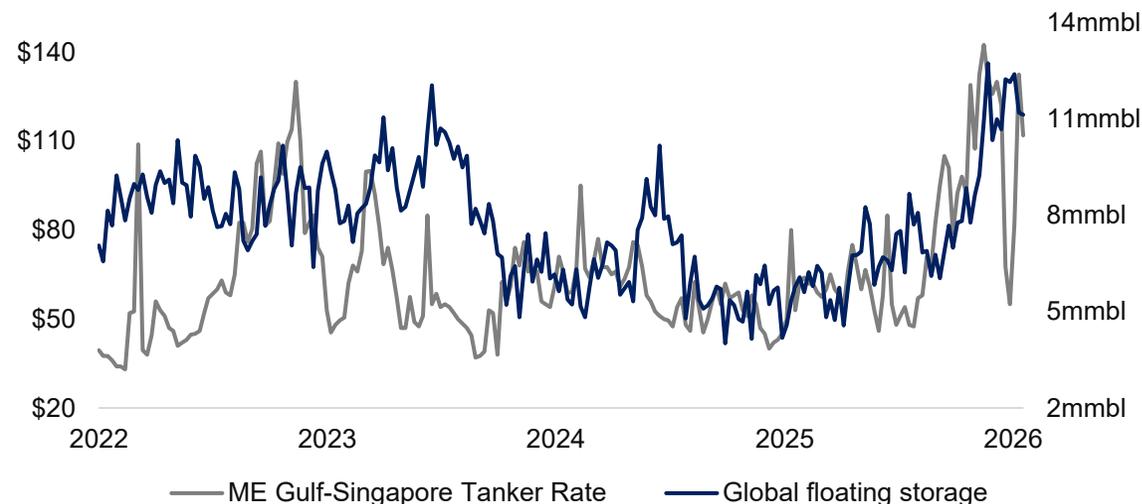


Increased sanctions pressure and seizures of VLCCs constrain the supply and up the demand.

Structural oversupply in combination with **Yemen normalization** are likely key drivers.

Sanctions Development

Bottomline



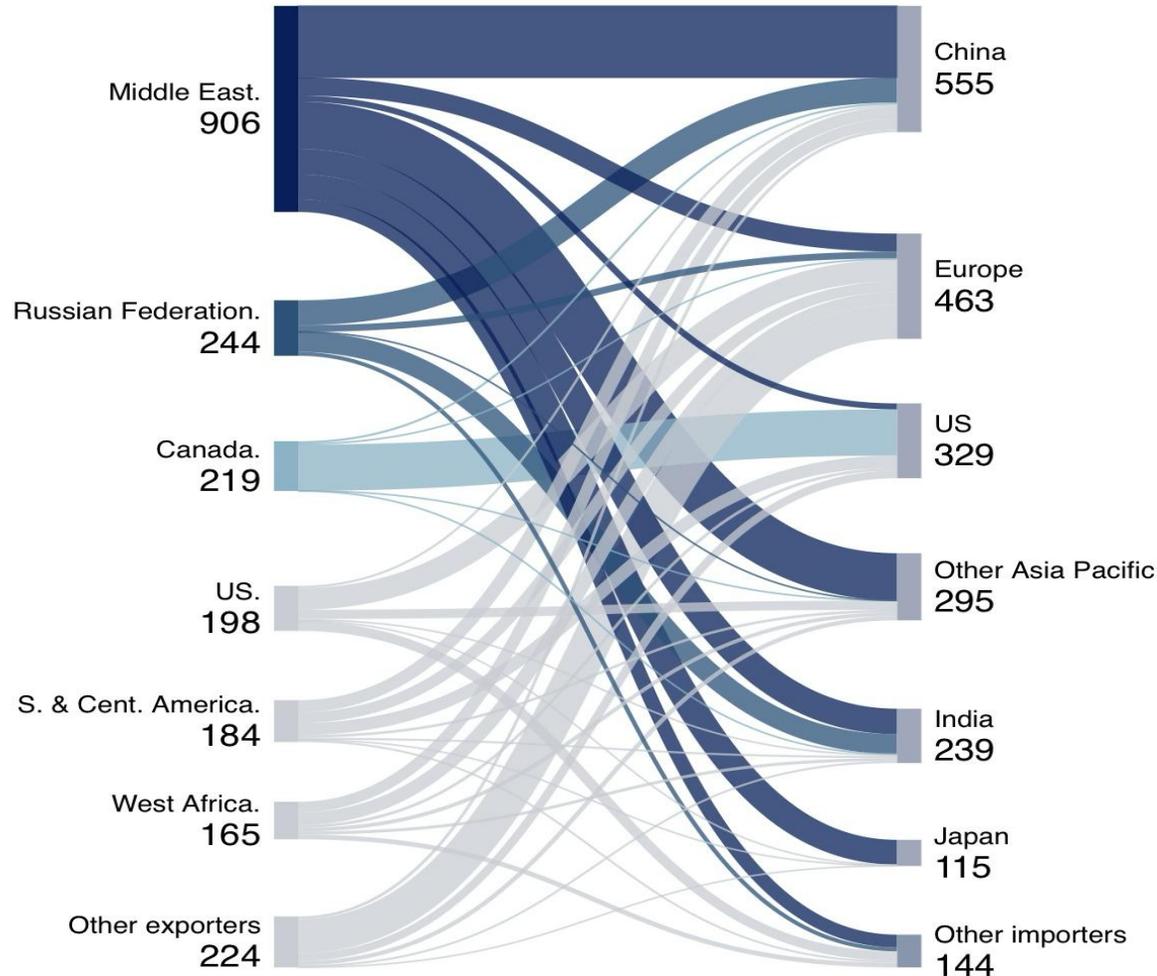


Demand for Oil

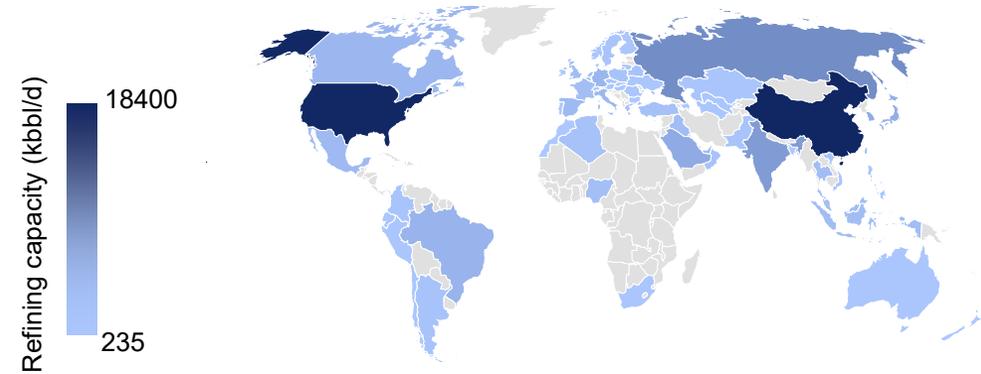
Global Crude Trade Flows and Refining Capacity

Global Refining Capacity and Crude Trade Shape Processing Patterns

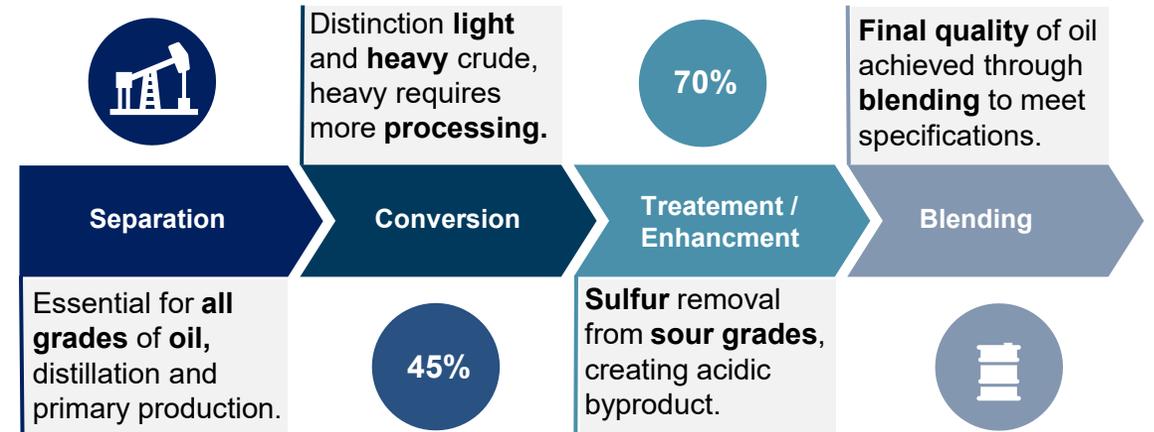
Inter- Area Movements of Crude Trade



Absolute Refining Capacities of Crude



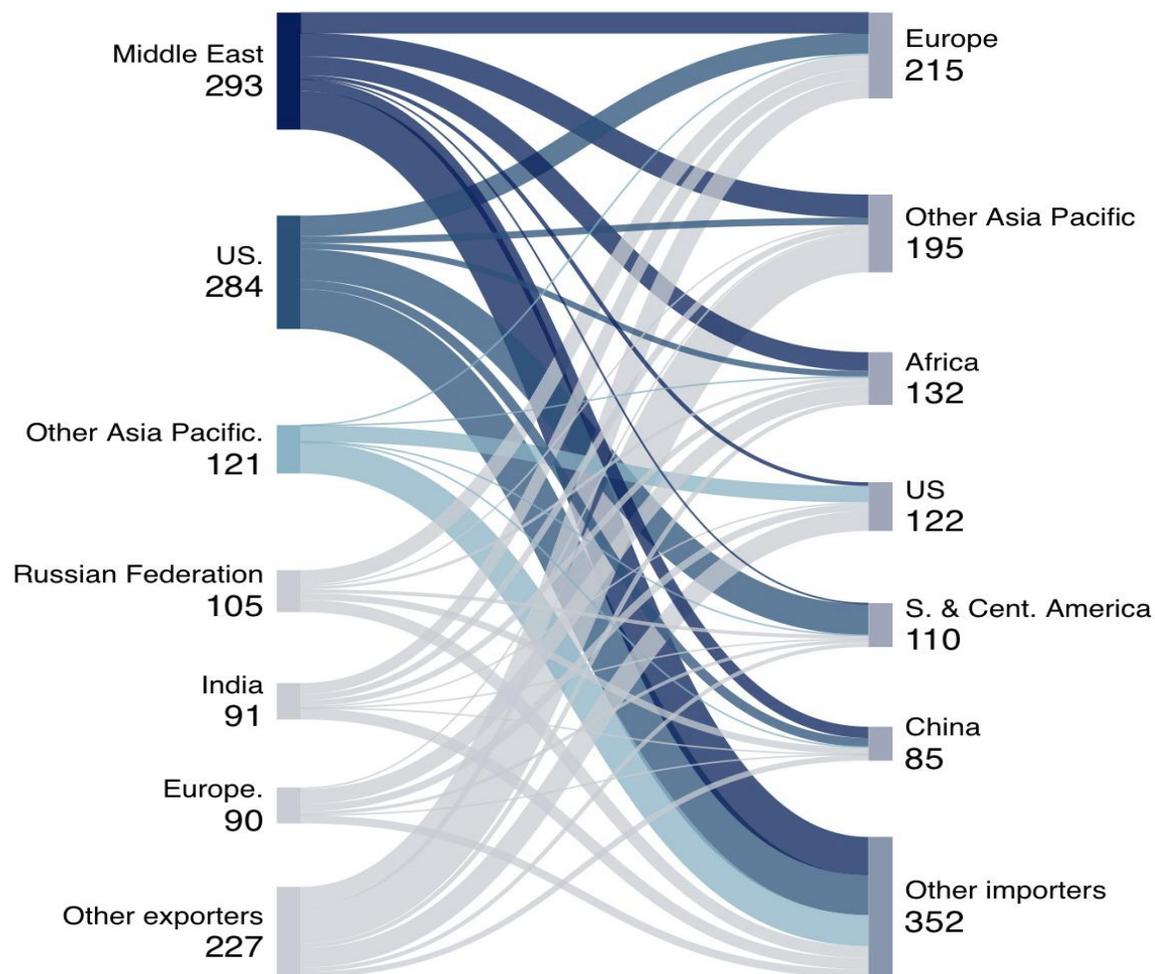
Global Refining Structure and Processing Intensity



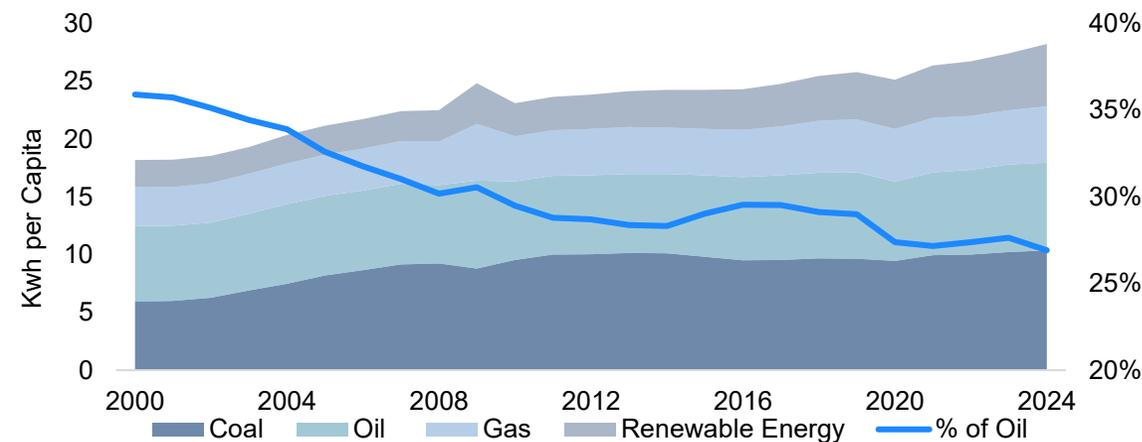
Final Takers of Refined Product and Energy Consumption

Refined-Product Consumption Reflects Global Trade Patterns and Economic Growth

Inter- Area Movements of Refined Product



Energy Consumption – OECD, India and China



Key Growth Outlooks

In **China**, despite **export-centric** GDP growth estimate of 4.5%, the economy remains in **deflationary limbo**. In combination with **rapid energy security policy**, demand growth may slack.

With **tariff-passthrough largely behind**, economy is posed to be boosted by lighter fiscal policy. **Runaway inflation risks appear muted**, while the **weaker labor** market could affect consumption.

Growth in the Euro-Area remains muted amidst the trade pressures, even with overall stable labor market and consumption, the **outlook for key participants is more gleem** due to local structural issue.

Oil Stocks and Storage are Parts of Dynamic System that Function as Flow and Stock

Role of Inventories



Oil is **non-perishable**, meaning that it may be stored for effectively **indefinite periods of time** unlike some foods.



Unlike metals, energy commodities **cannot be "piled"** and **require specialized storage**.



Storage is complex, it is a scarce resource whose **marginal cost increases** as utilization rises.



As supply and demand are **highly inelastic**, trends in storage utilization are **very persistent**.

Cost and Convenience of Storage



Border conditions of the dynamic system
Treating oil storage as a **stock of a dynamic system** with mean-reverting flows leads to border conditions, that establish **model of squeeze**.

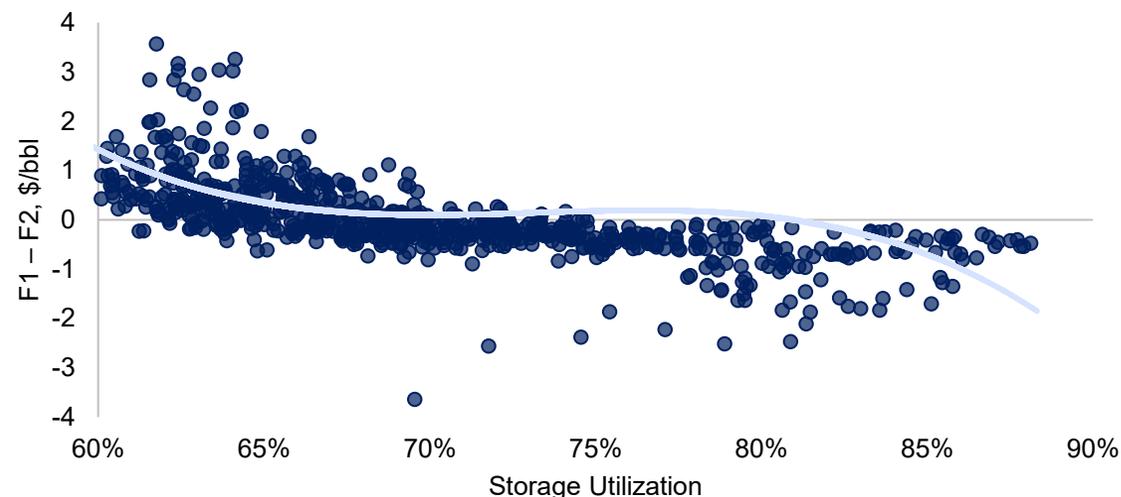
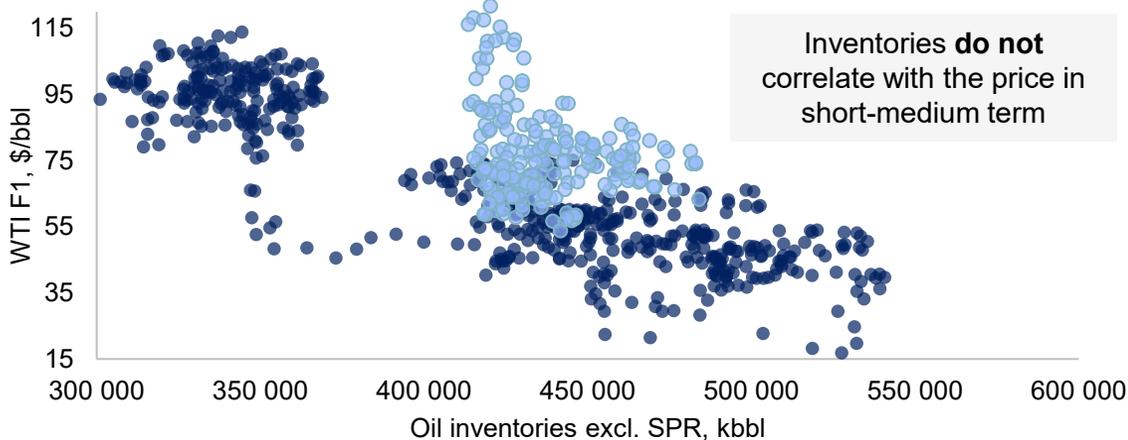


Overflowing storage
Approaching maximum working **capacity increases marginal storage costs**, decreasing the **spot price** relative to second future.



Empty coffers
As oil enters shortage state the curve becomes **identical with inverse demand function**, intensifying backwardation.

"You cannot count the barrels!"

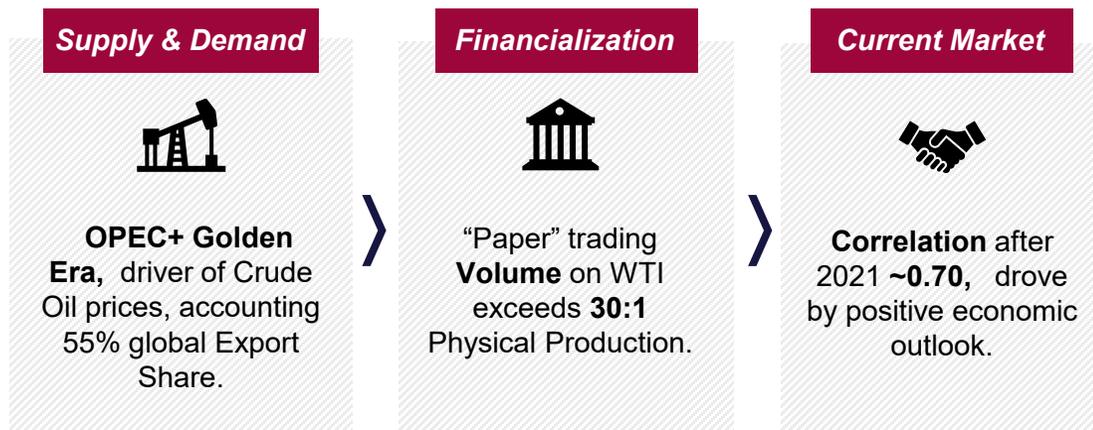




Trading Strategy

From Energy Product to Inflation Hedger

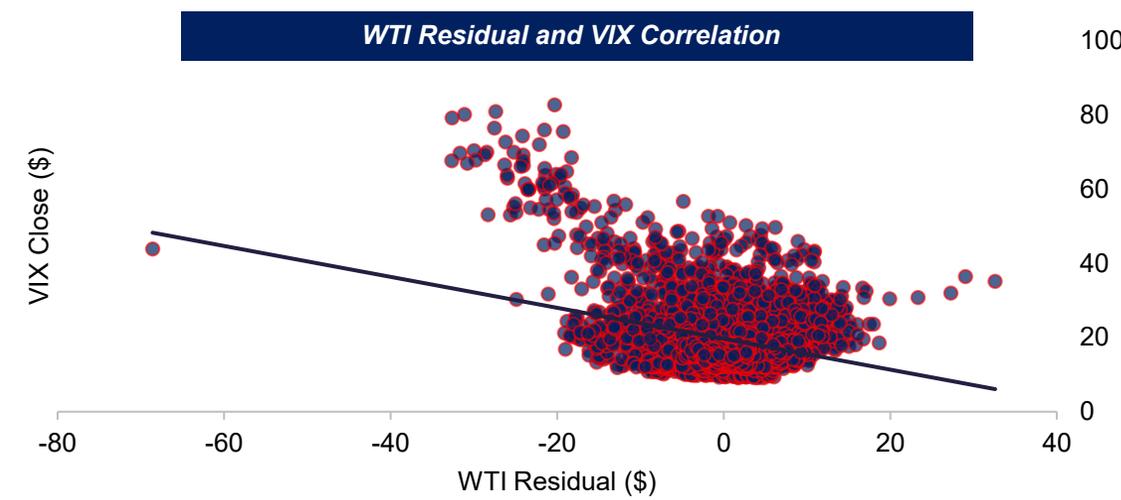
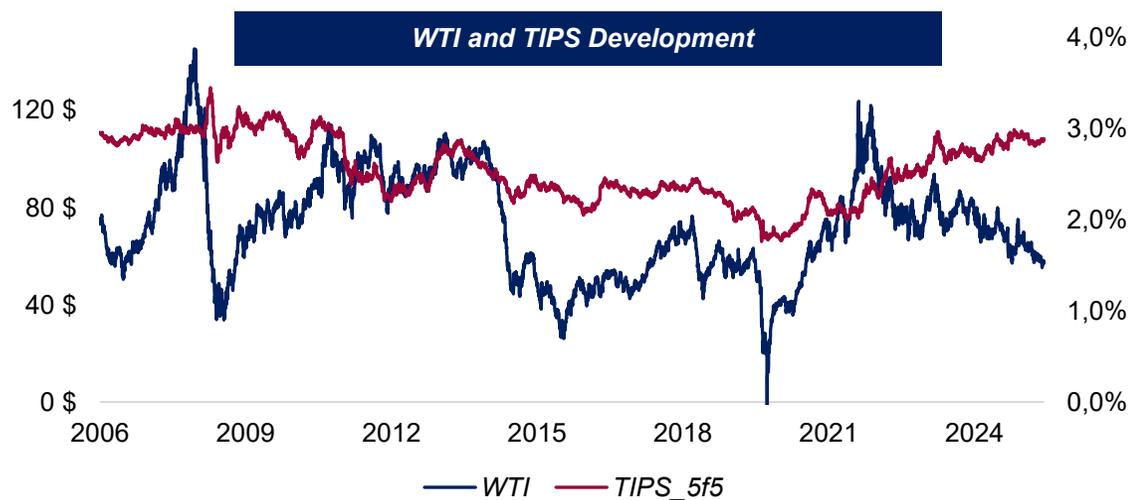
WTI Residual as a Liquidity Barometer, Exploiting Oil's Transition into a Macro-Risk Proxy



Risk- Off Sentiment:
 VIX spikes trigger **systematic liquidations** of financialized oil positions, providing a high-conviction signal for **emerging 'Risk-Off'** macroeconomic environments.

Economic Outlook Sensitivity:
Negative correlation with VIX implies **greater sensitivity** to the economic outlook than in the last Decade.

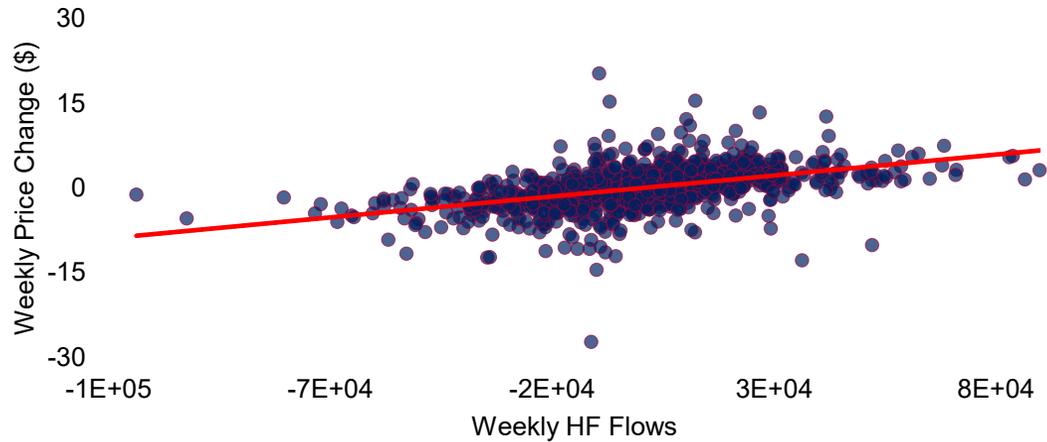
A High Beta Financial Assets:
 The WTI residual acts as a **barometer for global liquidity**. Tightening correlations with the VIX prove that WTI is a high-beta financial asset before it is a physical commodity.



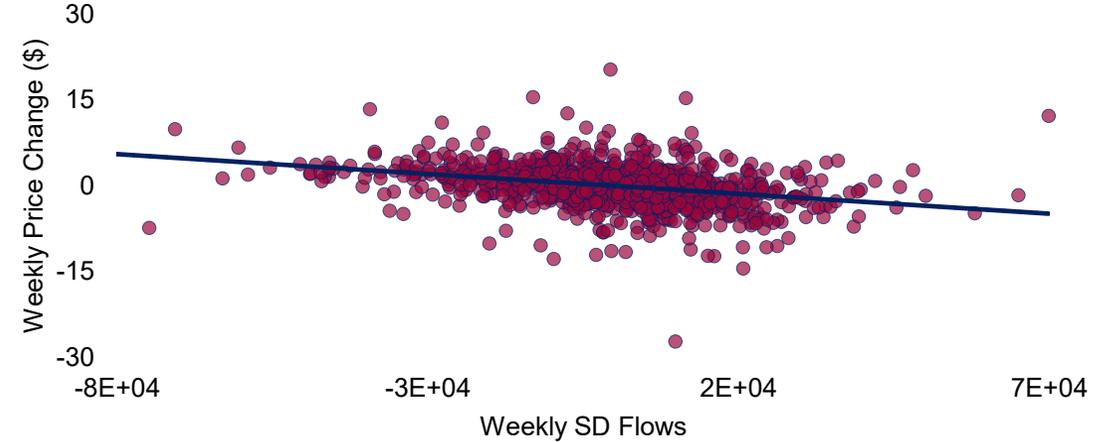
Weekly COT positioning of Hedge Fund and Swap Dealer on Crude Oil

Strong correlation among Hedge Funds & Swap Dealers against WTI Prices

Hedge Fund Net Flows against WTI Prices Regression



Swap Dealers Net Flows against WTI Prices Regression



The “**chase mechanic**” follows the direction of the trend. Creating Self-Reinforcing Feedback loop.



Speculative inflows amplify volatility, accounting for **~25% of all weekly price variance**.



High positive correlation (0.48), suggests “**crowded trades**” driving steady longer trade.



Negative correlation (-0.33), Swap dealers works as liquidity absorption of Market position.



Almost 100% of producers' flows, hedged via the swap dealer's flow, make them irrelevant for the flows analysis.



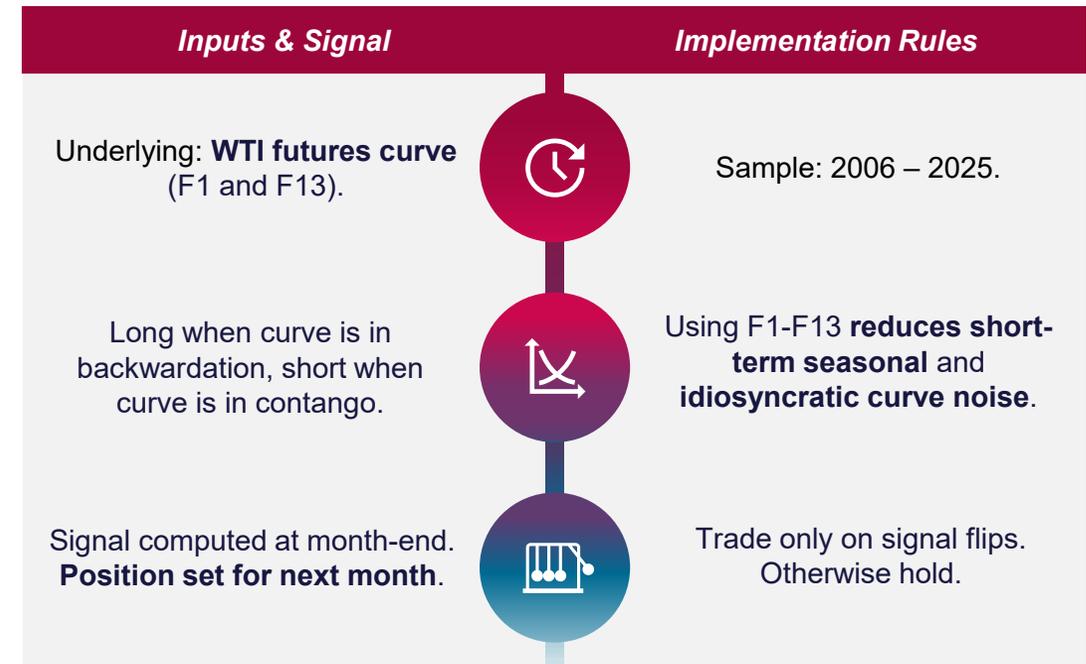
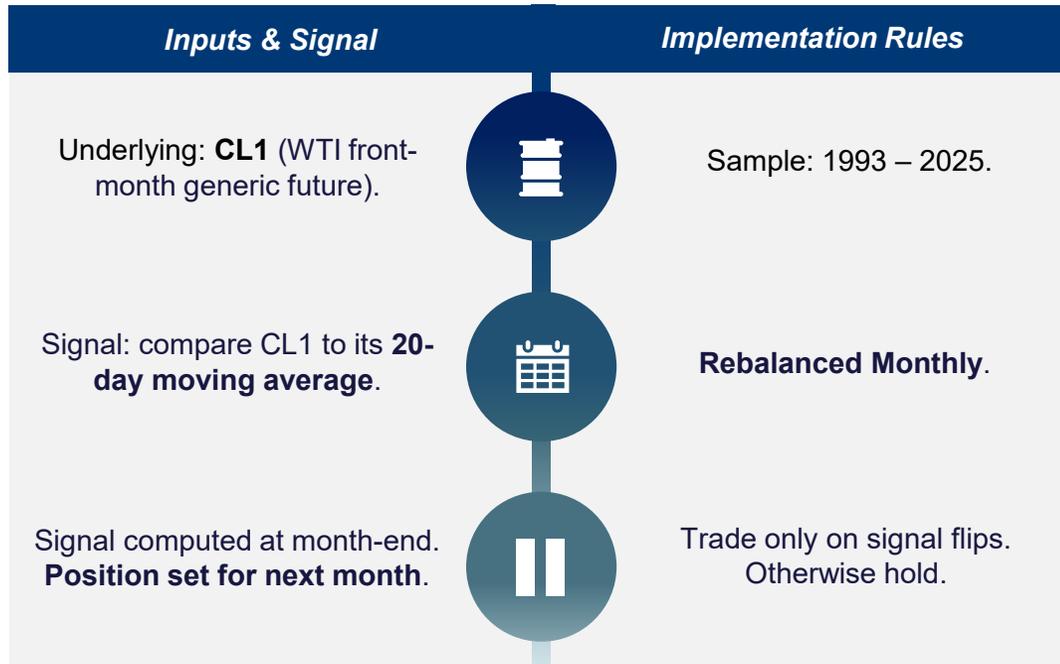
Swap Dealers flow represents the entry of **real physical supply** into the “paper” futures market, serving as a structural anchor.

Signal Construction and Implementation

Two Monthly WTI Signals: Trend (MA20) and Curve Slope (F1-F13)

Momentum: Buy Winners, Sell Losers

Carry: Long Backwardation, Short Contango



$$M_t(n) = CL1_t - MA_t(n)$$

$$\pi_M(F_t) = \begin{cases} +1, & \text{if } M_t(CL1_t, n) \geq 0 \\ -1, & \text{if } M_t(CL1_t, n) < 0 \end{cases} = \text{sign}(M_t)$$

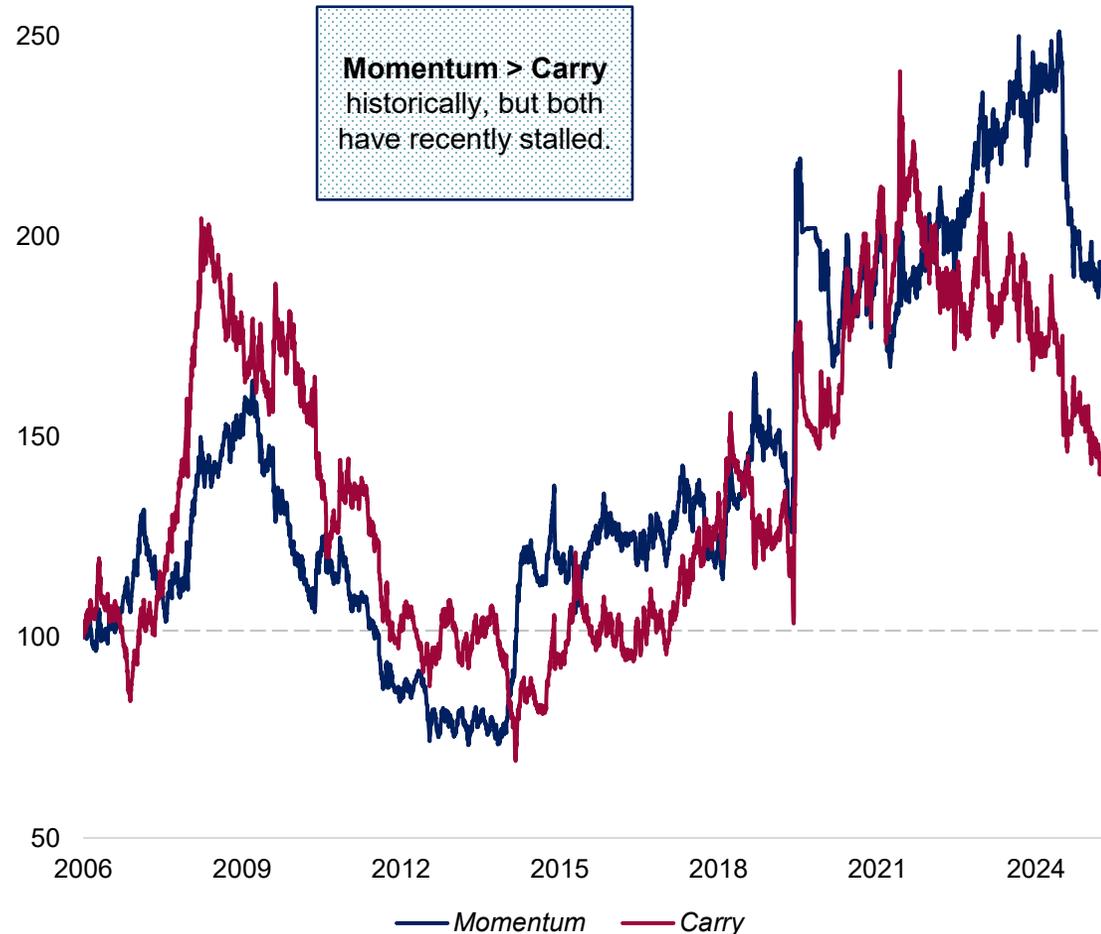
$$C_t(M, N) = F_{t,M} - F_{t,N}$$

$$\pi_C(F_t) = \text{sign}(C_t(M, N))$$

Momentum vs Carry in Oil Futures

Well Established Quantitative Strategies Stopped Outperforming

Momentum vs Carry Strategy (Index Base 100)



Performance

Total Return	Sharpe Ratio	Volatility	Max Drawdown
Momentum			
88%	0.28	17.8%	-55.4%
Carry			
46%	0.20	21.2%	-66.2%

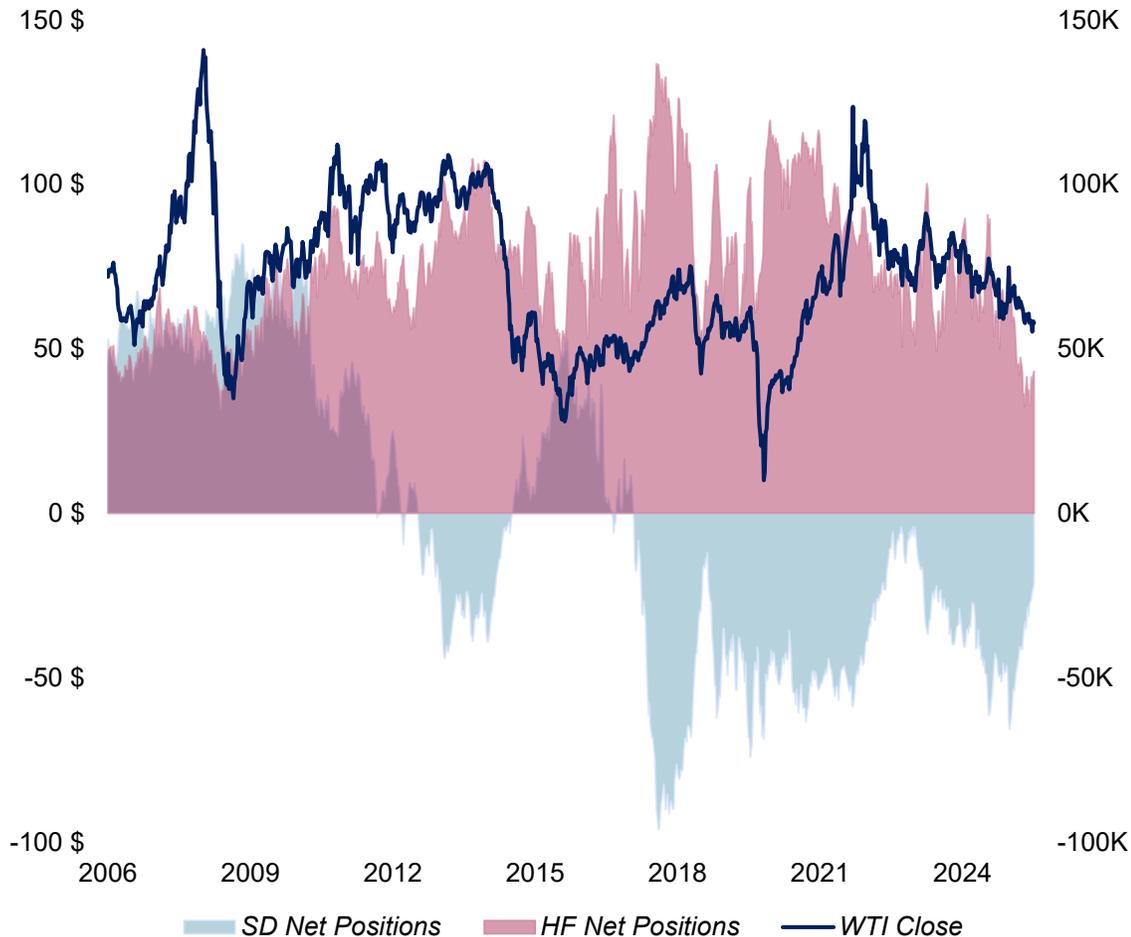
Comparison

- 
Regime Shifts: Oil's structural breaks **make both signals less persistent**, so leadership alternates across cycles.
- 
Curve Compression: When the futures curve flattens or rapidly flips between contango and backwardation, carry weakens and momentum trends become less durable.
- 
Recent Underperformance: Both momentum and carry have **largely stalled in the last few years**, with weaker and less consistent returns.

Hedge Fund and Swap Dealer Net flows

Speculative Conviction Drives WTI Price Action as Structural Dealer Shorts Anchor Market Liquidity

Swap Dealer and Hedge Fund Net Positioning Against WTI Prices



Key Findings

- 
Opposite Positioning: Hedge Funds and Swap Dealers act as **direct counterparts**. The divergence widens in a period of market uncertainty, **resulting in higher volatility**.
- 
Structural Shift: **Drastically increase in U.S Crude Oil Supply** from 2015, resulting in a permanent short net position from the Swap Dealer, used as a hedger.
- 
Price Drivers: WTI Prices **track** Hedge Funds net position very closely. Price peaks and correction aligns with **expansion or contraction on Net positions**.

Swap Dealer	Hedge Fund
	
<ul style="list-style-type: none"> Act as liquidity provider in the Oil market. Sharp movements in the Net flow, underline the speedy closure of positions from the producer's side. 	<ul style="list-style-type: none"> Act as primary drivers of price momentum. Extreme Net positions suggesting overcrowded trade, signaling tops or bottoms.

Trading Model on COT positioning

Taking Advantage of Hedge Fund Position with Trend Confirmation from Swap Dealers Positioning

Trading System Entry Order & Momentum Indicator on COT Positioning



Trading System Set Up

- I Hedge Fund**
 Normalized momentum spread indicator, based on two Net Positioning EMAs at 4/34 period, identifies the most powerful direction of the momentum from the HF position.
- II Swap Dealer**
 Momentum spread indicator, based on two Net Positioning EMAs at 4/34 period, identifies the primary trend via the counterparty of producers and detects shifts in industrial hedging demand that precede price reversals.

Entries & Exit Condition

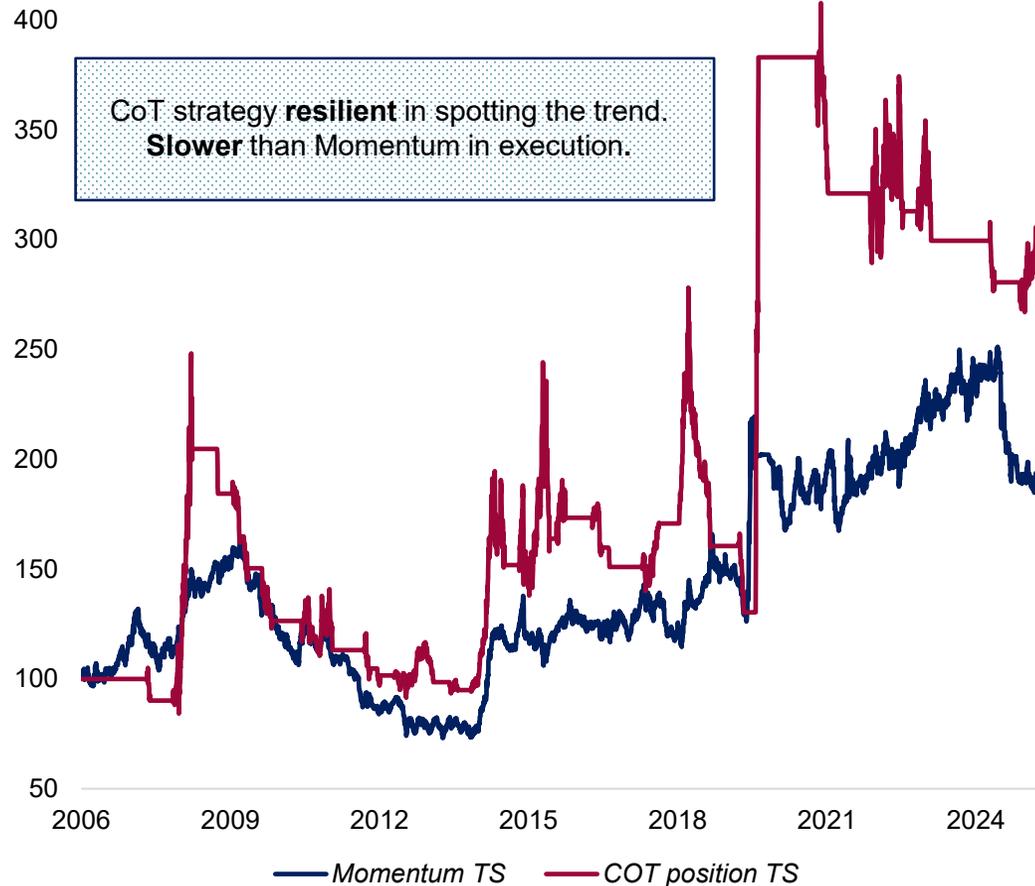
Long	Short
$\text{Position} = 1 \iff \begin{cases} Z_{HF} > \text{threshold} = 1.5 \\ SD_{\text{Momentum}} < 0 \\ HF_{\text{Momentum}} \leq 0 \\ \text{OR} \\ SD_{\text{Momentum}} \geq 0 \end{cases}$	$\text{Position} = -1 \iff \begin{cases} Z_{HF} < -\text{threshold} = -1.5 \\ SD_{\text{Momentum}} > 0 \\ HF_{\text{Momentum}} \geq 0 \\ \text{OR} \\ SD_{\text{Momentum}} \leq 0 \end{cases}$

The model exploits the imbalance between speculative positioning and industrial hedging, using Swap Dealers as a liquidity filter to capture more durable trends.

Comparison of Momentum and COT Positions Trading Model

Stop Chasing Price, Start Following Flow: Structural Alpha over Simple Momentum

Cumulative Return Comparison (Index Base 100)



Performance Comparison

Total Return	Sharpe Ratio	Volatility	Max Drawdown
COT Positions			
192%	0.34	32.1%	-55.6%
Momentum			
88%	0.28	17.8%	-55.4%

Key Advantages

- Anti-Momentum Protection:** Detects speculative "crowding" to exit or flip before a trend crashes, avoiding the peaks where momentum often fails.
- Follow the Information not the prices:** Uses COT data to identify **why prices move**, capturing structural misalignments between speculators and hedgers that price-trackers miss.
- Lower Execution Costs :** Fewer, higher-conviction signals reduce turnover and transaction fees compared to hyper-active momentum.



Appendix

Sources

Source Name	Link	Date of Retrieval	Used for
Commodity Futures Trade Commision	CFTC	03/01/2026	Financialization of Oil , Cot Momentum Strategy.
Virtual Barrels	Book	03/01/2026	Financialization of Oil , Cot Momentum Strategy.
Bloomberg L.P	Software	20/01/2026	<i>As per relevant slides</i>
World Oil Outlook - 2025	Document	20/01/2026	Overview of Demand
Statistical Review of World Energy	Document	20/01/2026	Overview of Demand
Oil 101	Book	20/01/2026	Overview of Demand
Our World in Data	Energy Production and Consumption	25/01/2026	Overview of Demand
Eni SpA – World Energy Review	Document	19/01/2026	Assay of Global Supply
U.S. Energy Information Administration (EIA)	Datasets	25/01/2026	<i>As per relevant slides</i>
Reuters	Reuters Energy	18/01/2026	<i>As per relevant slides</i>
Middle East Institute	OPEC and OPEC+	18/01/2026	OPEC and OPEC+
Rystad Energy	Dataset	15/01/2026	Pricing Backdrop

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