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## Today's Oil Price Puzzle; Demystifying the Current Landscape

In today's landscape marked by high volatility, the global energy transition, and shifting geopolitical landscapes, the global oil market remains a complex and unpredictable puzzle. In just the last year, Brent crude prices have swung dramatically, from highs of \$91 to lows of \$70—a fluctuation of over 20%. Predictions have oscillated wildly, with optimism declining and rebounding alongside each new global development. The question arises: In such a turbulent environment, how can we make sense of the forces driving oil prices?

This paper seeks to demystify the current oil landscape by providing a comprehensive overview of the factors shaping the market today. By examining both bullish and bearish perspectives, we aim to emphasize the intricate dynamics that make predicting oil prices a formidable challenge. We view the oil market through the lens of an ecosystem, where various 'species'—geopolitical events, OPEC+ decisions, technological advancements, shifts in consumer behavior—interact and influence one another. Just as ecosystems thrive on the delicate balance of their components, the oil market is shaped by the continuous interplay of these complex factors.

Building on this ecosystem perspective, we will explore both the bullish and bearish factors that shape the oil market, delving into the bullish factors that could drive oil prices higher, such as tightening supply chains, production cuts, and escalating geopolitical tensions. We then examine the bearish factors, including potential supply gluts and weakening demand due to economic slowdowns and a global shift toward renewable energy. By juxtaposing these perspectives, we highlight how intertwined and dynamic these forces are.

In a market where supply and demand predictions shift almost monthly and geopolitical events can alter the landscape overnight, certainties are fleeting. This paper does not attempt to predict the direction of future oil prices but aims to provide insights into the complexities and considerable factors that define the current market. Moreover, we strive to make this analysis accessible to readers who may be less versed in the intricacies of the oil industry, aiming to educate as well as inform.

By exploring these multifaceted dynamics, we hope to offer a clearer understanding of the forces at play in the oil market, recognizing that adaptability and the continuous commitment to learning are essential in navigating this ever-changing landscape.

*Bullish Thesis:*

*Supply-Side Constraints Fueling Bullish Sentiment in the Oil Market:*

With the US currently producing over 13 mm b/d, an increase of over 6 mm b/d in just under a decade, US’s oil production boom has fundamentally shaken up global supply and demand dynamics. This unprecedented growth has transformed the U.S. into a dominant player in the global energy market, reducing its dependence on foreign oil and shifting the balance of power in the global oil trade, weakening OPEC’s grip.

With that in mind, analyzing US’s projected production is pivotal to understanding crude’s direction. US Oil Production Growth is on the decline YoY (Figure 1), currently sitting at around 0.5mm b/d, down about half of the growth experienced in 2022/2023 and significantly below the peak years in 2018 and 2019. Why? A complicated answer simplified, lower oil prices and a decline in tight oil production from the shales. Touching on the latter, tight oil production (Figures 1,2) is struggling due to declining well productivity and lower capital investment. While technological advancements and productivity gains have supported growth in recent years, the industry’s facing challenges like falling rig counts, reduced drilled but uncompleted wells (DUCs), and the overproduction of Tier 1 wells (most productive wells), which limit future growth potential. As we approach peak production in the Permian and other shale plays, the likelihood of continued rapid growth diminishes, making sustained increases in output unlikely.

OPEC+ is still responsible for 48% of world supply, according to Reuters calculations based on IEA figures. The question then begs, what’s OPEC+’s next move? Having cut supplies since 2022 by over 5.86 mm b/d, or 5.7% of global demand, in an attempt ‘to support the market due to uncertainty over the demand outlook and rising supply outside the group,’ a decision to hike output could lead to an obvious imbalance in supply and demand. A worrying sign for crude when prices have dropped over 10% this time last year, even with the recent surge with the political tensions in the Middle East. However, if you delve slightly deeper in, the simple ‘5.86mm b/d’ statistic does not tell the whole story. During the first 6 months of the year, Russia, Iraq, and Kazakhstan collectively overproduced 2.284mm b/d<sup>15</sup> (figure 3). Subsequently, they agreed for compensation cuts. At the recent OPEC+ meeting, Iraq, Kazakhstan and Russia told the meeting that they had delivered on their promised cuts in September, the OPEC statement said<sup>15</sup>.

Figure 1<sup>21</sup>: US Oil Production Growth

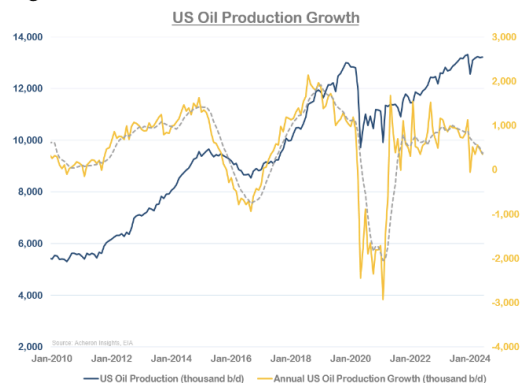


Figure 2<sup>21</sup>: US Tight Oil Production

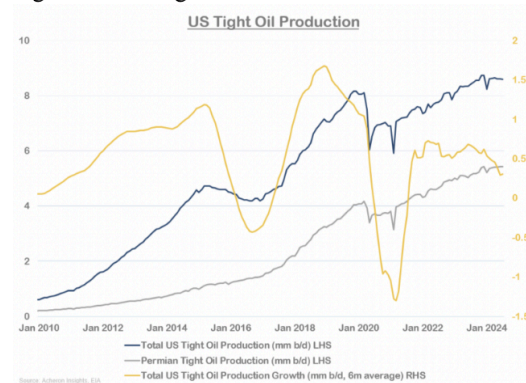
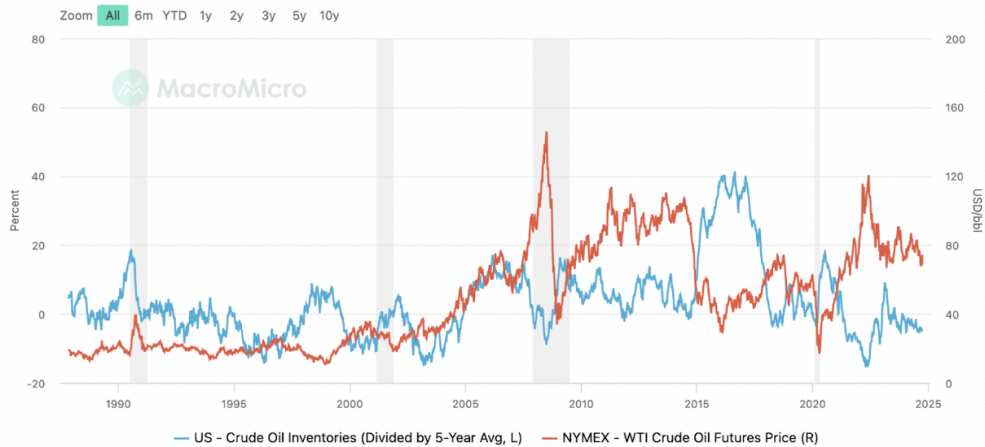




Figure 4<sup>14</sup>: US - Crude Oil Inventories (Divided by 5-Year Avg) vs. Oil Price

### *The Middle East*

When building any sort of crude thesis today, it's near impossible to write without taking into account the tensions in the Middle East. Since October 7th 2023, to say crude has been volatile is an understatement. In the past year Brent has reached highs of \$91 and lows of \$70, an over 20% swing from the highs to the lows. Between the Ukraine Russia war, Israel's war with Hamas, Houthis attacks in the red sea, and Israel's war with Hezbollah and Iran, the volatility's cause is clear. However, recent events have drastically changed the potential upside on crude. With Iran launching over 180 missiles at Israel this week, and Israel expected to respond by making Iran 'pay for it,' the million dollar question lies in, what are Israel going to target?

Israel targeting Iran's oil is likely. We can see that from crude's recent surge in prices, up about 10% on the week. Kharg Island, the site of Iran's largest oil terminal, handling more than 90% of their crude exports, seems like a likely target. Interestingly, 'satellite imagery revealed a number of oil tankers vacating the waters around Iran's key Kharg Island oil loading terminal, amid fears of an Israeli counterattack on Tehran's energy infrastructure.'<sup>18</sup> If Israel were to target Kharg Island and other critical Iranian infrastructure, prices are bound to rise significantly. Bjarne Schieldrop, chief commodities analyst at Swedish bank SEB, when asked the extent to which oil prices could spike in such a scenario, replied, "If you take out installations in Iran, easily you go to \$200-plus."<sup>16</sup> Whether we reach those heights is questionable but the common consensus is that we're going to see crude in the high \$90's to \$100+ range, a minimum 20% move. The obvious rebuttal is that with the election coming up, the US's strong stance on Israel not going after Iran's nuclear or oil infrastructure will deter Netanyahu. With Israel's reliance on the US's, an argument could be made that their hand would be forced. Recent events contradict that completely. Netanyahu has ignored Biden's requests multiple times and I don't think Biden's 'advice' will deter Netanyahu. If anything, the Israeli PM has more incentive as a dramatic

increase in crude oil prices and geopolitical chaos, Trump's odds look increasingly likely. My last point to add to this is that it's important to mention that Israel's attacks on Iran's crude infrastructure doesn't stop there. The 2019 attack on oil processing facilities at Abqaiq and Khurais in Saudi Arabia saw 5.7mm b/d taken off the market, with Brent futures surging almost 20%. If Israel follows through with their attacks on Iranian oil infrastructure, could Iran attempt to sow mines in the Strait of Hormuz, interrupting the flow of up to 20% of the world's daily oil exports? Although speculative and nothing concrete here, I bring it up to emphasize my earlier point. Crude's current upside seems far larger than crude's downside.

### *Demand*

To finish the bullish thesis, demand has to be addressed. It's been at the epicenter of the bearish market sentiment and may be placed. As you can see, China crude imports dropped from 2023's peaks; a significant reason for oil's price weakening this year. If we've seen the peak in Chinese oil imports, the market will take time to adjust and prices will be heading downwards. Given the notorious difficulty of China's oil consumption's statistics, their projected demand becomes a guessing game. Their recent government stimulus gave a definite boost to the economy, fueling China's CSI 300 blue-chip index to rally over 25%. Although wary, sentiment has definitely improved. To further this, China has hinted at bigger rounds of stimulus measures, a clear indicator that they will do whatever they deem necessary to meet their roughly 5% target growth. China's projected oil demand growth has gradually dropped throughout this year, with the IEA cutting growth from 710,000 b/d in January to 180,000 b/d in September. This has obviously contributed massively to the bearish sentiment and price drop due to the global reliance on China's crude imports however, an argument could very well be made that this news and projected demand has already been priced in. That was before China's fiscal stimulus package and their growth intent being crystal clear. Following this logic, we shouldn't see Chinese crude demand come anywhere below the expected amount, but for the reasons mentioned above, it could very well come above expectations, offering a potential upside on prices (Figure 5).

Figure 5<sup>15</sup>: China's crude oil imports



Source: China's General Administration of Customs

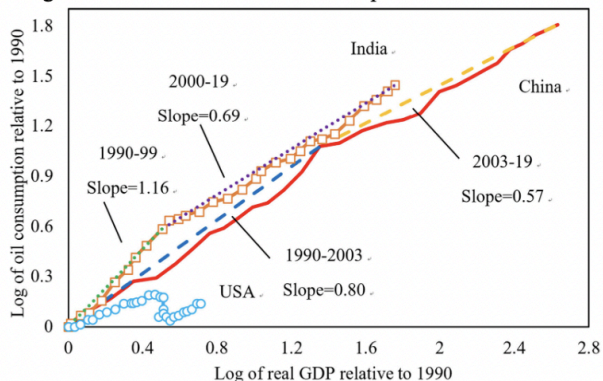
Interestingly, Europe’s recent decision to impose tariffs of up to 45% on Chinese Electric Vehicles could have an impact on oil demand. These tariffs are inevitably going to increase the prices of EV’s for consumers, reducing the demand for EV’s and delaying the process of consumers switching from fuel powered vehicles: one of the largest drivers of oil consumption and one of the biggest reasons for the market’s bearish sentiment. To put into perspective how big a driver it is, consumption in 2022 of finished motor gasoline averaged about 43% of total U.S. petroleum consumption.” The decision was made to “protect the European car industry from being undermined by what EU politicians believe are unfair Chinese-state subsidies on its own cars” but could lead to unintended consequences.

To close out this bullish take, I think the dovish monetary policy (see Figure 8) across the globe has to be taken into account. The US recently cut rates by 50 basis points with an expected 50 further basis points cut by end of year. ECB and BoE recently cut rates by 25 basis points and China unveiled their most aggressive stimulus since the pandemic. With interest rates on the decline, economic growth typically follows. “Historically, when the Fed cuts rates at a time where the S&P 500 is within 2% of an all-time-high, the stock market has been positive 75% of the time over the next six months”<sup>21</sup>. To further prove this correlation, Figure 9 shows how, although USA, China, and India became more efficient in terms of their oil consumption relative to GDP (decreasing slope), there is a clear positive correlation between increase in GDP and an increase in demand. On the assumption that demand for oil increases as real GDP increases, an unexpected higher increase in economic growth could lead to demand exceeding IEA’s projected ~1mm b/d increase. A combination of a weaker dollar, lower yields, weakened commodity prices, and widespread monetary easing could very well lead to stronger than expected growth.

Figure 8<sup>8</sup>: Monetary Policy - Inflation vs Economic Surprises



Figure 9<sup>25</sup>: Real GDP and oil consumption



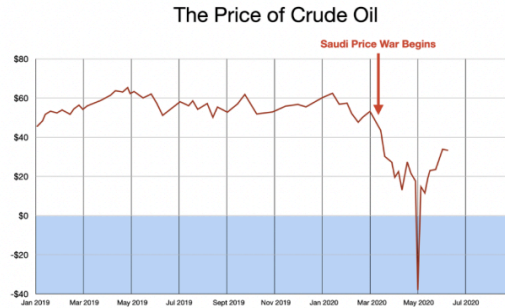
Bearish Thesis:

### *Supply Side*

Having devoted the first half of this paper to convincing you of the bullish case—unpacking numerous facets that influence oil prices—you might suspect that switching gears to argue the opposite side is rather contradictory. Rest assured, this shift isn't about contradicting myself but about illustrating the market's intricate dance—a complex dynamic system where bearish and bullish forces are in perpetual interplay, each influencing the other. Think of it as a sophisticated network of interconnected variables, where subtle shifts can lead to significant changes in price direction. But don't worry, we'll delve deeper into this intricate balance shortly.

Let's begin in a similar fashion to our bullish claims with supply. As mentioned earlier, OPEC+ have cut supplies by 5.86mm b/d since 2022 and the first projected output hike of 180,000 b/d is set to begin in December, having been delayed due to 'low prices' and 'China's weak demand.' Even on the basis that the overproducers - Russia, Iraq, Kazakhstan - comply and compensate for their 2.284mm b/d overproduction, OPEC+ has cut by 5.86mm b/d, a 3.576mm b/d difference that will be gradually brought back to the market. This is largely why market sentiment is so weak. OPEC+ has no easy decision here. If they remove their output cuts, there'll likely be an imbalance due to weak demand and prices will drop. However, if they hold back supply even further, the market sees that as demand is incredibly weak and remains incredibly bearish. Additionally, Libya has finally returned to producing over 1 mm b/d, after previously dropping below 450,000 b/d in August due to conflict between the East and West.

The other argument is that OPEC+ are losing market share and are willing to reduce prices to regain this market share. The Financial Times article on September 26 titled "Saudi Arabia ready to abandon \$100 crude target to take back market share" explains Saudi's position change since 2022 of needing "an oil price of close to \$100 a barrel to balance its budget, according to the IMF" to their stance of "not willing to continue ceding market share to other producers"<sup>12</sup>. The accuracy of this article is yet to be seen but it's definitely something to acknowledge. With the Saudi's shouldering a large amount of the output cuts, 2mm b/d, a change in their stance is likely to have a large impact on OPEC+'s supply. We've witnessed price wars in the past, such as in 2020 between Saudi Arabia and Russia, and in 2014 between OPEC and non-OPEC producers. Given the low production costs for most OPEC members, particularly Saudi Arabia, price wars tend to exert far more pressure on other market participants than on them. As shown in Figure 10, prices plummeted sharply following Saudi Arabia's increased output. While the 2020 price war is often viewed as a catastrophic misstep by the Saudis—contributing to oil prices briefly turning negative (though not solely due to production increases)—their readiness to influence the market was unmistakable and remains evident today.

Figure 10<sup>12</sup>: The Impact of 2020's Saudi/Russia Crude Oil Price War

The next obvious place to look when analyzing supply is the US. With the elections coming up and Trump slightly in the lead, the impact of having Trump back could be huge to America's supply. With one of his famous slogans being "Drill, baby, drill," his willingness and "pledge to the American people" to lower the cost of energy through an increase in production can't be ignored. We saw it in his first tenure through a variety of policies such as de-regulation, leasing more land for drilling, and a temporary increase in opening more U.S. coastal waters for oil and gas leasing. As can be seen in Figure 1, oil production from 2017 to 2019 in the US grew at a rapid rate. Trump's recent campaign seems to pick up where he left off on that front. This will likely lead to an increase in US supply at a time where demand is not there to meet it, leading to an oversupply and lower prices - arguably Trump's aim.

Lastly, regarding supply, the EIA projects non-OPEC output to grow by 1.1 mm b/d, driven primarily by increases in production from Guyana, Brazil, and Canada<sup>5</sup>. The International Energy Agency estimates the offshore discoveries could mean Guyana's 2022 production of 250,000 b/d will grow fivefold by 2030; they're currently producing 645,000 b/d. With their supply costs as low as \$35 a barrel<sup>11</sup>, it's hard to see how a global price war could deter them. Brazil has a similar low cost of production and optimistic levels of output increases. I know I've just touched the surface on non-OPEC+ countries, bar the US, but the point was to show that the US and OPEC+ aren't the only factors to consider anymore when analyzing supply and potential market imbalances.

### *Demand*

Probably the largest reason for recent bearish sentiment has been due to weak projected demand. OPEC has cut their 2025 global demand growth estimate to 1.74 mm b/dd from 1.78 mm b/d. The IEA has estimated a far gloomier number at 980,000 b/d. The combination of a weaker Chinese economy, an increase in LNG's and renewables, and government regulation has led to weaker demand. IEA pegs Chinese growth at 330,000 b/d in 2025<sup>6</sup>, but with risks skewed to the downside. Oil use in the world's second largest economy was facing headwinds from economic



challenges and moves to cleaner fuels, OPEC said. The economic challenges are leading to a slowdown in manufacturing and construction and the move to cleaner fuels is having a massive impact on the demand for diesel and gasoline. After China’s recent fiscal stimulus, many people are still skeptical about their long term growth. Their high debt levels, weak property market, aging population, and dependence on exports just to name a few are some of the main reasons for the skepticism. But even if the economy manages to recover, their growing adoption of liquefied natural gas (LNG) trucks and electric vehicles will stifle any real surprise to the upside of Chinese demand for oil. According to China Passenger Car Association data for July, new energy vehicles have outsold traditional fuel-powered passenger cars on a monthly basis, topping 50% for the first time and this number is expected to only increase<sup>4</sup>.

As we can see in Figure 12, it represents Singapore Gasoil and Gasoline Crack Spreads which are a good indicator for Chinese demand. Crack spreads are the difference between the price of crude oil and the refined products (like gasoline, diesel, or jet fuel) made from it. They’re an indicator of refinery margins and, by extension, demand for refined products. Singapore being a key refining hub in Asia and its fuel being exported to China, this graph is a good representation of the weakened Chinese demand.

The global energy transition is proving to be highly disruptive. With global EV sales projected to reach 10 million by 2025, demand for fuel-powered vehicles is set to decline<sup>3</sup>. As illustrated in Figures 13&14, this forecast underscores the profound impact of EV adoption on oil demand. In 2022, transportation accounted for 66.6% of U.S. oil consumption<sup>10</sup>, highlighting the significant displacement that could occur as the shift toward more environmentally sustainable travel accelerates.

This graph highlights the increasing capital flows into clean energy and the relatively stagnant growth in fossil fuel investment. While the fossil fuel sector has seen some positive investment growth, it has been minimal compared to the surge in funding directed toward renewables, grid modernization, energy efficiency, and other low-emissions technologies. The implications for oil demand are clear: as investment in clean energy outpaces that in fossil fuels, the energy mix will continue to shift toward renewables and away from oil.

Figure 12<sup>14</sup>: Singapore gasoil and gasoline crack spreads

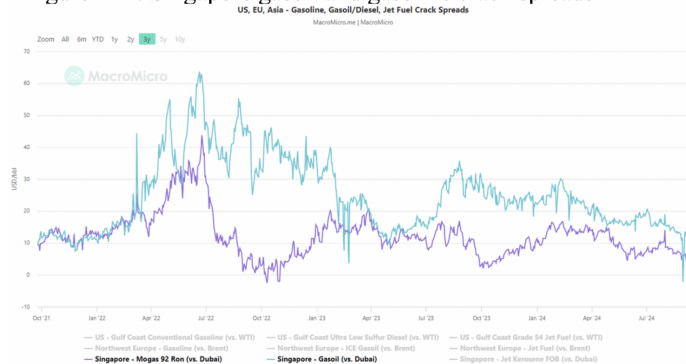
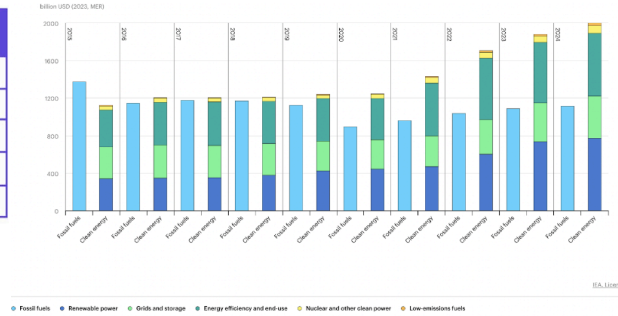


Figure 13<sup>3</sup>: EV Adoption and Its Effect on Oil Consumption

Year	Global EV Adoption (%)	Oil Demand Displacement (Million Barrels per Day)
2020	3%	0.6
2025	10%	3.0
2030	22%	10.0
2040	40%	20.0
2050	60%	38.0

Figure 14<sup>9</sup>: Global investment in clean energy and fossil fuels



*Geopolitical Resolutions; lack of reliance on the Middle East*

To close out this bearish thesis, I thought to discuss the biggest driver for the current spikes in oil prices - the conflict in the Middle East. Oil has surged over 10% in anticipation of Israel’s response to Iran, with the fears of Israel targeting Iran’s oil infrastructure leading to an oil catastrophe. From Iran’s production loss to Iran’s potential response in attacking other country’s oil infrastructure in the Persian Gulf, the effect could be devastating and lead to a huge spike in oil. However, I believe the likelihood of Israel targeting Iran’s oil infrastructure is diminishing over time. There's been much speculation about Israel's focus—whether it will be Iran’s nuclear facilities, military assets, or oil infrastructure. But I see a potential fourth option often overlooked: with Iran's recent missile attack being largely ineffective and possibly just a warning, Israel might opt to ignore it and continue targeting Hezbollah. While Netanyahu has resisted U.S. pressure, the upcoming election could significantly influence his decision-making, leading to a potential de-escalation. The last thing the U.S. wants right now is an Israeli strike on Iran’s oil infrastructure, which could trigger a retaliatory response from Iran on other Gulf oil-producing nations, disrupting the global oil supply and sending prices soaring. If the Israeli government considers neutralizing Hezbollah a significant enough achievement to overlook Iran's attack, or if they focus on non-oil targets in Iran, it could very well lead to a stabilization in oil prices. This scenario might result in prices dropping back to pre-attack levels, potentially decreasing by around 10%.

Throughout this paper, we've navigated the intricate landscape of the oil market, offering both a bullish optimism and bearish pessimism. This journey isn't a contradiction but rather a reflection of the complex dynamic system that defines global oil economics. To a layman reader, it may appear as if I'm ultimately bearish due to the order in which I presented the arguments—the bearish case following and contradicting many of the bullish points. However, this structure underscores a crucial point: the oil market operates much like an ecosystem in balance.

By viewing the oil market through the lens of an ecosystem, we recognize that its behavior results from complex, dynamic interactions among multiple factors rather than a single dominant force. Each 'species' within this market ecosystem—geopolitical events, OPEC+ supply decisions, technological advancements, shifts in consumer behavior—interacts with and influences the others. This perspective underscores the importance of continuous monitoring and the unpredictability in navigating the market's ever-changing landscape.

Indeed, the very elements that fuel bullish sentiment often carry the seeds of bearish outcomes, highlighting how intertwined these forces are. On the supply side, OPEC+'s production cuts have tightened the market, supporting higher prices—a bullish indicator. Yet, the possibility of these producers increasing output to regain market share introduces a bearish risk of oversupply. Similarly, geopolitical tensions in the Middle East raise fears of supply disruptions, pushing prices upward, but any de-escalation could quickly alleviate those concerns, leading to price drops. On the demand front, while economic stimulus measures might boost consumption and support higher prices, the accelerating shift toward renewable energy and the increasing adoption of electric vehicles dampen long-term demand—a bearish factor. These dualities illustrate that bullish and bearish forces are two sides of the same coin, each capable of influencing the market depending on how circumstances evolve.

In times like these, where supply and demand predictions are shifting almost monthly and geopolitical events that reshape the landscape are occurring at an alarming rate, certainties are elusive. Predicting short-term movements feels akin to a coin toss. For instance, oil prices recently climbed 10% following escalations in the Middle East, only to drop 2% due to uncertainties surrounding Israel's response and China's lack of additional economic stimulus. This volatility underscores the market's sensitivity to a multitude of factors and the challenges inherent in forecasting price movements.

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