
# Oil price shocks and energy sector credit spreads

## Absolute and relative performance under supply- and demand-driven oil shocks

Oil price increases are often seen as supportive for energy credit. Our analysis shows a more complex reality: The impact depends less on the price move itself and more on what drives it. Distinguishing between supply- and demand-driven shocks reveals fundamentally different credit outcomes across energy sub-sectors.

Oil price shocks are a key driver of macro-financial conditions, with important implications for credit markets. While higher oil prices are typically associated with improved fundamentals in the energy sector, this relationship is not straightforward. This study analyses how different types of oil price shocks – supply-driven versus demand-driven – affect credit spreads across energy sub-sectors, including oil and gas, pipelines, and oil and gas services.

Using bond-level data from the global investment grade market over the period 1997–2026, we find that energy-sector credit spreads generally widen when oil prices rise. This counterintuitive result highlights the dominance of macro-financial transmission channels such as tighter financial conditions, higher risk premia, and changing monetary policy expectations.

A key finding is that the nature of the oil shock matters more than the price increase itself. Demand-driven shocks tend to be more benign or even supportive for certain segments, particularly oilfield services, while supply-driven shocks – often associated with geopolitical disruptions – lead to broad-based spread widening across all sub-sectors.

The results underline the importance of distinguishing between macro drivers and sector fundamentals. For investors, this implies that energy credit cannot be treated as a simple hedge against rising oil prices, and that intra-sector differentiation is critical.

**Author**
**Dr Harald Henke**
*Principal Investment Strategist – Fixed Income*
*Quoniam Asset Management*

**About Quoniam**
Quoniam is a leading systematic, data-driven asset manager that provides customised investment solutions for professional clients by leveraging science and cutting-edge technology. Our product range includes equities, fixed income, liquid alternative and multi-asset strategies. We serve our clients from offices in Frankfurt and London.

Quoniam has been operating since 1999 and we currently manage approximately EUR 24 billion for investors worldwide. We provide professional investors with smarter alpha and a more thoughtful way of investing, bringing clarity and precision to a complex world. Our approach involves harnessing the power of science-based research enhanced by AI to generate consistent, high-quality, risk-adjusted returns.

**Your contact**
Quoniam Asset Management GmbH
Westhafen Tower, Westhafenplatz 1
60327 Frankfurt am Main
T +49 69 74384 0

info@quoniam.com
www.quoniam.com

## Key takeaways

- **Oil price increases can widen spreads:**
  Macro-financial effects often outweigh improved fundamentals in energy credit.
- **Shock type matters:**
  Demand-driven shocks are more benign; supply-driven shocks lead to spread widening.
- **Sub-sectors behave differently:**
  Pipelines are most vulnerable, while services show relative resilience.

## 1. Introduction

Oil price shocks are among the most important drivers of macro-financial conditions and have wide-ranging implications for credit markets. While prior analysis has focused on aggregate investment grade (IG) spreads, sector-level dynamics – particularly within the energy sector – offer a more nuanced view of how oil shocks are transmitted.

At first glance, energy-sector credit should benefit from higher oil prices. In particular, upstream producers experience direct revenue gains when oil prices rise. However, oil shocks are rarely isolated price movements. They are often accompanied by broader macroeconomic and financial disturbances, including tighter financial conditions, higher volatility and changing monetary policy expectations.

This analysis focuses exclusively on the energy sector, examining how different sub-segments – oil and gas, pipelines (midstream), and oil and gas services – react to oil price shocks. The analysis distinguishes between:

1. Absolute spread changes
2. Supply-driven vs demand-driven oil shocks
3. Relative spread performance vs the broader IG market

This layered approach allows us to disentangle firm-level cash flow effects from broader macro-financial transmission mechanisms.

## 2. Research hypotheses

The analysis is guided by four central hypotheses.

HYPOTHESIS 1: **Absolute spread reaction**
Energy-sector spreads should react less negatively to oil price increases than the broader market, and may even tighten, due to improved revenues.

HYPOTHESIS 2: **Shock-type dependence**
The effect of oil price increases depends critically on the underlying driver:

- Demand-driven shocks should be more benign or positive for energy credit
- Supply-driven shocks should be more negative due to broader macro stress

HYPOTHESIS 3: **Sub-sector heterogeneity**
Energy sub-sectors should exhibit distinct sensitivities to oil price shocks, reflecting differences in their business models and revenue exposure:

- **Upstream (oil and gas):**
  Expected to show the strongest positive exposure, as revenues and cash flows are directly linked to realised oil prices, leading to immediate improvements in credit fundamentals when oil prices rise.
- **Midstream (pipelines):**
  Expected to exhibit weaker or indirect exposure, as revenues are largely driven by contracted volumes and infrastructure usage rather than spot oil prices, making the sector more sensitive to financing conditions than to commodity price levels.
- **Services (oil and gas services):**
  Expected to show a lagged but potentially strong response, as revenues depend on upstream capital expenditure and drilling activity, which typically increase only with a delay following sustained higher oil prices.

HYPOTHESIS 4: **Relative performance**
Energy sectors should outperform the broader credit market when oil rises, particularly in demand-driven shocks.

## 3. Data and methodology

### 3.1 Data

The analysis uses:

- Bond-level data from the ICE BofA Global IG Index
- Monthly observations from 1997 to March 2026
- Sector classification:
  - Oil and gas
  - Pipelines
  - Oil and gas services

Bond-level spreads and rating scores are used, and sector averages are constructed.

### 3.2 Measuring oil price shocks

Oil shocks are defined as:

$$\text{OilShock}_t = \Delta\log\,(\text{oil price}_t)$$

Sensitivities are expressed as basis points of spread change per +1% oil price increase. This means that the estimated coefficients measure how much credit spreads change, in basis points, in response to a one per cent increase in oil prices. For example, a sensitivity of 0.5 implies that a 10% increase in oil prices is associated with a 5 basis point change in spreads over the specified horizon.

Expressing sensitivities in this way ensures that results are scale-invariant and directly comparable across sectors and time periods, regardless of the absolute level of oil prices. It also facilitates interpretation in scenario analysis, as the effects of larger oil price moves can be obtained by simple linear scaling.

### 3.3 Absolute spread sensitivity

As a first step, we estimate how credit spreads in each energy sub-sector respond to changes in oil prices in absolute terms, controlling for broader macro-financial conditions. This allows us to quantify the overall sensitivity of sector spreads to oil price movements before distinguishing between different types of shocks.

$$\Delta\text{OAS}_{(s,t+h)} = \alpha + \beta_{(s,h)} \cdot \text{OilShock}_t + \Gamma' X_t + \varepsilon$$

where s denotes the sector (oil and gas, pipelines, or oil and gas services), and h represents the forecast horizon (typically 6 or 12 months).

The coefficient $\beta_{(s,h)}$ measures the change in sector spreads, in basis points, associated with a 1% increase in oil prices over horizon $h$.

The vector $X_t$ includes macroeconomic and financial control variables designed to isolate the incremental effect of oil price movements. Specifically, it contains measures of economic activity (industrial production and PMI), financial conditions (equity returns and volatility indices), and credit fundamentals (including sector-average rating levels and lagged spreads). These controls ensure that the estimated oil sensitivity reflects changes in oil prices rather than broader shifts in the macroeconomic or financial environment.

To capture the state-dependent nature of credit spread responses, sensitivities are evaluated under two volatility regimes. The “base” scenario corresponds to a normal market environment (proxied by a volatility level of approximately 20), while the “stress” scenario reflects elevated financial market uncertainty (proxied by a volatility level of approximately 30, using the VIX index).

To account for differences in credit quality across sectors, all regressions include controls for sector-average rating levels. This ensures that the estimated oil sensitivities are not primarily driven by differences in rating composition, although some residual effects may remain.

Quoniam

### 3.4 Supply vs demand decomposition

A key objective of this analysis is to distinguish between oil price increases that are driven by stronger global demand and those that are caused by supply disruptions. This distinction is crucial, as the economic implications for credit markets differ fundamentally between these two types of shocks.

To implement this decomposition, we construct separate indicators capturing demand conditions and supply conditions in the oil market.

First, we define a demand indicator based on variables that are expected to move positively when oil prices rise due to stronger global economic activity. These include:

- Growth in industrial production (US and euro area)
- Changes in business sentiment (PMI indicators)
- Equity market returns

Each of these variables is standardised to ensure comparability, and the demand indicator is constructed as the average of these standardised series. A higher value of this indicator reflects stronger underlying economic activity.

Second, we construct a supply indicator based on variables that capture tightening conditions in the physical oil market. Specifically, we use:

- Changes in OPEC production (with declining production indicating tighter supply)
- Changes in global oil inventories (with inventory drawdowns indicating supply constraints)

These variables are also standardised, and the supply indicator is defined such that higher values correspond to tighter supply conditions.

Using these two indicators, we classify each positive oil price movement as follows:

- An oil price increase is classified as demand-driven if the demand indicator is positive and exceeds the supply indicator, indicating that stronger economic activity is the primary driver of higher oil prices.
- An oil price increase is classified as supply-driven if the supply indicator is positive and exceeds the demand indicator, indicating that the price increase is primarily due to supply constraints.
- If neither condition is clearly satisfied, the observation is classified as a mixed shock, reflecting the presence of both demand and supply forces.

This classification allows us to estimate separate oil price sensitivities for supply-driven and demand-driven shocks. By doing so, we can distinguish between oil price increases that are associated with favourable economic conditions and those that reflect adverse macro-financial developments.

### 3.5 Relative spread analysis

In addition to absolute spread movements, we analyse sector performance relative to the broader credit market. For each sector, we define the relative spread as:

$$\mathrm{RelSpread}_{(s,t)} = \mathrm{OAS}_{(s,t)} - \mathrm{OAS}_{(mkt,t)}$$

where $\mathrm{OAS}_{(s,t)}$ is the average spread of sector $s$ and $\mathrm{OAS}_{(mkt,t)}$ is the spread of the overall IG market.

Changes in relative spreads capture sector over- or under-performance. A decline in relative spreads indicates that the sector outperforms the market (i.e. spreads widen less or tighten more), while an increase indicates underperformance. This framework allows us to isolate sector-specific effects from broad market movements and assess whether energy sub-sectors benefit or suffer disproportionately from oil price shocks.

## 4. Empirical results

### 4.1 Absolute spread sensitivity

Table 1 reports the estimated sensitivity of credit spreads to oil price increases across energy sub-sectors, where the 6-month (6m) and 12-month (12m) horizons indicate the cumulative change in spreads over the respective period following a 1% increase in oil prices, evaluated under both normal ("base") and elevated ("stress") financial conditions.

**Table 1: Absolute spread response (bp per 1% oil price increase)**

| Sector | 6m base | 6m stress | 12m base | 12m stress |
|---|---|---|---|---|
| Oil and gas | 0.41 | 0.95 | 0.78 | 1.59 |
| Pipelines | 0.46 | 1.05 | 0.86 | 1.95 |
| Services | 0.30 | 0.55 | 0.43 | 0.76 |
| Aggregate IG | 0.38 | 0.80 | 0.68 | 1.54 |

All results are robust to controlling for differences in credit quality across sectors, as all specifications include sector-average rating levels, indicating that the observed heterogeneity in oil sensitivities is not primarily driven by rating composition.

The first and most striking result is that all energy sub-sectors exhibit positive spread sensitivity to oil price increases, meaning that spreads widen when oil prices rise. This directly contradicts a naive expectation based purely on firm-level revenues.

For oil and gas (upstream and integrated producers), one might expect higher oil prices to improve credit quality through stronger cash flows. However, the observed spread widening – particularly 0.95 bp per 1% oil increase in stress regimes at 6 months – indicates that macro-financial forces dominate firm-level improvements. The market appears to treat oil price increases not as isolated positive shocks, but as part of broader tightening conditions that increase required risk premia.

For pipelines (midstream), the sensitivity is even higher. This is counterintuitive if one views pipelines as beneficiaries of higher oil activity. However, pipelines behave more like leveraged infrastructure assets with long-duration cash flows. As such, they are highly sensitive to:

- Rising discount rates
- Tighter financing conditions
- Changes in risk premia

This explains why pipelines show the largest spread widening, especially at longer horizons.

For oil and gas services, the sensitivity is clearly lower. This reflects the fact that services firms benefit only indirectly from oil prices, through future increases in exploration and production spending. The effect is lagged and uncertain, and therefore not immediately reflected in spreads.

Overall, the results suggest:

Absolute spread movements in energy sectors are driven more by macro-financial conditions than by direct revenue effects.

### 4.2 Supply vs demand decomposition

Table 2 reports the estimated sensitivity of energy-sector credit spreads to oil price increases separately for supply-driven and demand-driven shocks, allowing for a direct comparison of how the underlying source of the oil price movement affects credit spread dynamics across sub-sectors.

**Table 2: Absolute spread response by shock type**

| Sector | 6m supply | 6m demand | 12m supply | 12m demand |
|---|---|---|---|---|
| Oil and gas | 1.73 | -0.11 | 0.91 | 0.80 |
| Pipelines | 1.16 | 0.43 | 1.34 | 1.43 |
| Services | 0.57 | -0.72 | 1.02 | -0.10 |
| Aggregate IG | 1.24 | -0.04 | 0.84 | 0.36 |

**Oil and gas**
At the 6-month horizon, oil and gas behaves very differently depending on the shock type:

- Supply-driven oil shocks: spreads widen strongly (+1.73 bp)
- Demand-driven oil shocks: spreads are flat to slightly tightening (-0.11 bp)

When oil rises because demand is strong, producers benefit directly and spreads do not widen. This is consistent with economic intuition. However, when oil rises due to supply disruptions, the broader macro shock dominates, leading to spread widening.

At the 12-month horizon, even demand-driven shocks lead to some widening (+0.80 bp). This suggests that over time, demand-driven oil increases may feed into:

- Tighter monetary policy
- Slower growth
- Eventually wider spreads

### Pipelines

Pipelines show positive spread sensitivity in all cases, regardless of shock type. Even demand-driven oil increases lead to widening. This confirms that pipelines are not pure oil beneficiaries. Instead, they are sensitive to:

- Financing conditions
- Interest rates
- Long-term discount factors

The particularly strong 12-month demand-driven widening (+1.43 bp) suggests that pipelines are highly exposed to the effects of monetary policy tightening and higher discount rates that typically follow demand-driven oil price increases, as stronger economic activity leads to inflation pressures and a more restrictive policy stance.

### Oil and gas services

Services show the clearest distinction:

- Demand-driven shocks: strong spread tightening (-0.72 bp at 6m)
- Supply-driven shocks: modest widening (+0.57 bp)

This reflects their business model. Services firms benefit most when oil rises because producers increase investment and drilling activity. This occurs primarily in demand-driven environments. By contrast, in supply-driven shocks, spreads still widen because heightened uncertainty, tighter financial conditions, and weaker growth expectations dominate, while any increase in upstream investment is delayed or subdued.

We therefore conclude that the type of oil shock is more important than the oil price itself.

- In supply shocks, macro factors dominate and spreads widen.
- In demand shocks, cash-flow benefits dominate.

## 4.3 Relative spread performance

Table 3 presents the relative performance of energy sub-sectors versus the broader IG market, showing sensitivities per 10% oil price increase.

**Table 3: Relative performance for +10% oil move**

| Sector | 6m supply | 6m demand | 12m supply | 12m demand |
|---|---|---|---|---|
| Oil and gas | +4.9 | -0.7 | +0.7 | +4.4 |
| Pipelines | -0.8 | +4.7 | +5.0 | +10.7 |
| Services | -6.7 | -6.8 | +1.8 | -4.6 |

Relative spreads provide the clearest economic insight.

### Oil and gas

Oil and gas is roughly neutral in relative terms:

- slight outperformance in demand-driven shocks
- underperformance in supply-driven shocks

This confirms that producers do benefit from higher oil prices, but not enough to become strong relative winners in credit markets.
Pipelines

Pipelines are consistent relative underperformers, especially in demand-driven shocks and at longer horizons.
This reinforces the interpretation that pipelines are driven by:

- Financial conditions
- Duration effects
- Leverage

They are not direct beneficiaries of oil price increases.

### Pipelines

Pipelines are consistent relative underperformers, especially in demand-driven shocks and at longer horizons.
This reinforces the interpretation that pipelines are driven by:

- Financial conditions
- Duration effects
- Leverage

They are not direct beneficiaries of oil price increases.

**Oil and gas services**
Services are the clear relative winners:

- Strong outperformance in demand-driven shocks
- Even outperformance in short-run supply shocks

This reflects their role as a second-order beneficiary of oil prices via increased investment and activity.

## 5. Implications for the 2026 Iran shock

The empirical findings of this study provide a structured framework for interpreting the current oil price shock associated with the escalation of conflict involving Iran in 2026. While the previous sections have focused on general relationships between oil prices and energy-sector credit spreads, the present environment represents a specific type of oil shock that must be analysed in its own context.

### 5.1 Nature of the current shock

The 2026 Iran-related oil price increase is predominantly a supply-driven shock with a substantial geopolitical risk premium. The conflict has disrupted a critical share of global oil flows, particularly through the Strait of Hormuz, which carries roughly one-fifth of global oil and gas trade. Estimates suggest that several million barrels per day of supply have been constrained, creating one of the largest supply disruptions in modern energy markets. This has led to:

- A sharp increase in oil prices
- Heightened uncertainty regarding shipping routes and supply reliability
- A persistent risk premium embedded in energy markets

At the same time, the shock is occurring in an environment characterised by:

- Somewhat elevated inflation
- Constrained monetary policy
- Increasing concerns about global growth

This combination places the current episode firmly in the category of a "bad oil shock", in which higher oil prices are driven by supply disruptions and geopolitical uncertainty rather than by strong global demand.

### 5.2 Implications for absolute spread dynamics

The results from section 4 imply that in such a supply-driven environment, absolute credit spreads are likely to widen across all energy sub-sectors, despite the improvement in oil-related revenues.

This reflects the dominance of macro-financial transmission channels:

1. Risk premia increase sharply due to geopolitical uncertainty and volatility.
2. Financial conditions tighten, as higher oil prices contribute to inflation and upward pressure on interest rates.
3. Growth expectations weaken, particularly in energy-importing regions, increasing recession risk.

These forces outweigh the positive effect of higher realised oil prices on corporate cash flows, even for upstream producers. Therefore, in the current Iran-related shock, energy credit should not be expected to behave defensively in absolute terms.

### 5.3 Implications for relative performance

While absolute spread widening is expected across the board, the relative performance within the energy sector provides more meaningful differentiation.

**Oil and gas**
For upstream and integrated producers, the empirical results suggest that:

- In supply-driven shocks, relative performance is weak or negative in the short run
- Over longer horizons, performance converges toward the market average

This implies that oil and gas is unlikely to act as a strong relative hedge, even though it benefits from higher oil prices at the cash flow level.

The reasons are:

- The positive revenue effect is offset by higher risk premia and macro uncertainty.
- Investors demand higher compensation for holding cyclical and volatile assets.

**Pipelines (midstream)**
The implications for pipelines are particularly clear.
The empirical results show that pipelines:

- Do not outperform in supply-driven shocks
- Underperform significantly over longer horizons, even in demand-driven environments

In the current context, this suggests that pipelines are structurally disadvantaged in a supply-driven oil shock.

This reflects their exposure to:

- Higher discount rates
- Tighter credit conditions
- Refinancing risk

Even if volumes remain stable, the credit profile deteriorates through financial channels.

**Oil and gas services**
Oil and gas services emerge as the most resilient sub-sector in relative terms, even in supply-driven shocks.

The results indicate that services tend to outperform the broader market in the short run, even in supply shocks. In the context of the Iran shock, this implies that oil and gas services are the most likely relative beneficiaries within energy credit.

The economic intuition is that:

- While supply shocks do not immediately boost capex,
- the sector retains optionality on future investment cycles,
- and benefits from less direct exposure to immediate macro deterioration than other sectors.

### 5.4 Interaction with financial conditions and policy

An important feature of the current environment is the interaction between the oil shock and monetary policy.

Higher oil prices are contributing to:

- Renewed inflation pressures
- Uncertainty regarding central bank responses
- Tighter financial conditions

Central banks face a trade-off between responding to inflation and supporting economic growth. This constraint increases the likelihood that financial conditions remain tight, credit spreads remain elevated, and risk premia dominate credit pricing.

As a result, even sectors that benefit fundamentally from higher oil prices may not experience spread tightening, because discount-rate and risk-premium effects dominate.

### 5.5 Overall assessment

Combining the empirical results with the current macroeconomic context leads to a clear conclusion.

The 2026 Iran-related oil shock should be interpreted as a negative macro-financial shock with positive sector-specific revenue effects that are insufficient to offset broader credit tightening.

In practical terms:

- Absolute spreads are likely to widen across all energy sub-sectors
- Relative performance will vary from, on average, broadly neutral to slightly negative for oil and gas to underperformance for pipelines to relative outperformance for services

The cross-sectional dispersion in credit spreads will open opportunities for selection approaches.

### 5.6 Key takeaway

The central lesson from the analysis is:
Higher oil prices do not automatically translate into stronger energy credit performance. The impact depends critically on the nature of the shock.

Energy credit is not insulated from the macro-financial consequences of oil shocks; although higher oil prices improve sector fundamentals, the resulting tightening in financial conditions and increase in risk premia affect energy issuers alongside the broader credit market.

### 5.7 Implications for investors

For credit investors, the results suggest:

- Avoid treating energy credit as a simple hedge against higher oil prices
- Focus on intra-sector differentiation, rather than broad sector exposure
- Recognise that shock type matters more than oil price levels

## 6. Conclusion

The results reconcile the apparent contradiction between theory and empirical findings.

Energy firms do benefit from higher oil prices. However, credit spreads are driven by risk premia, macro conditions, and financial tightening.

**The decomposition shows that:**

- Demand-driven oil increases support energy credit
- Supply-driven oil shocks hurt credit broadly

**The central insight is:**

Oil price increases are not inherently positive for energy credit. Their impact depends on whether they reflect stronger demand or tighter supply, and on the financial characteristics of each sub-sector.

**Imprint**
Editor: Leigh Ann Kittell, CFA
Quoniam Asset Management GmbH
Westhafenplatz 1
60327 Frankfurt, Germany