

# Midstream, Free Cash Flow and Income

## *A Dive into the Energy Sector: Part 3*

– Danke Wang, Portfolio Manager

The energy sector, so far, has impressed the market with an improved balance sheet and strong free cash flow generation as we highlighted in the [part 1](#) and [part 2](#) of our dive into the energy story. Within the sector, midstream companies offer a way for income-seeking investors to tap into the tremendous cash generated by the oil & gas industry.

### Key Takeaways

1. Midstream, an industry with a history of growing and paying high dividends, has enjoyed impressive growth from the US Shale Revolution.
2. After the crash of oil prices and the change of investor appetite, midstream companies are more than ever, focusing on free cash flow generation to self-fund capital spending and dividend payment.
3. High and increasing dividends supported by strong free cash flow should underpin the industry's attractive valuation and safe yield-potential, although dividends are not guaranteed.

### Energy Value Chain

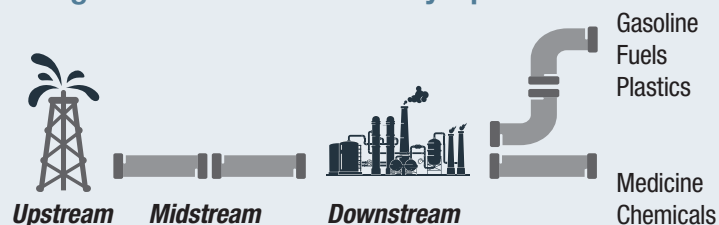
The Oil and Gas Industry is divided into three major components: upstream, midstream, and downstream.

Upstream companies are the first step of the oil and gas production process. They deal with exploration and production activities, including searching for potential crude oil and natural gas fields, drilling wells, and operating the wells that recover and bring the oil and gas to the surface.

The downstream sector is the last step in the production chain and faces end users and consumers. Refiners refine crude oil into gasoline, jet fuel, and heating oil. Petrochemical plants receive raw natural gas liquids (NGLs) such as ethane, propane, and butane and turn them into useful chemicals and materials. Utilities take the natural gas from other midstream companies and deliver it to consumers, as well as burn natural gas to generate electricity.

The midstream sector connects upstream supply and downstream demand, providing gathering, transportation, processing, and storage of crude oil, refined petroleum products, NGLs, and natural gas. Midstream is characterized by infrastructure ranging from large industrial processing and fractionation plants, small and big pipelines, enormous liquefaction facilities, and export docks.

### 3 Stages of Oil and Gas Industry Operations



Upstream companies are sensitive to oil price fluctuation since the price at which they sell oil is determined by the market, but their production costs are primarily fixed. Oil producers, particularly those with high production costs, were hit hardest after the oil price crash in 2014. On the other hand, downstream companies were not hit as hard, as refineries purchase crude oil and sell refined products at a premium, which enable relatively stable profit margins.

The impact of oil prices on midstream names is indirect. Due to a primarily contract-based business model, midstream companies can generate stable revenue and cash flow regardless of commodity prices. Thus, midstream companies have a history of growing and paying high dividends. However, this was temporarily derailed during the shale bust of 2016-18 as companies scrambled to self-fund committed projects.

### Early growth of midstream

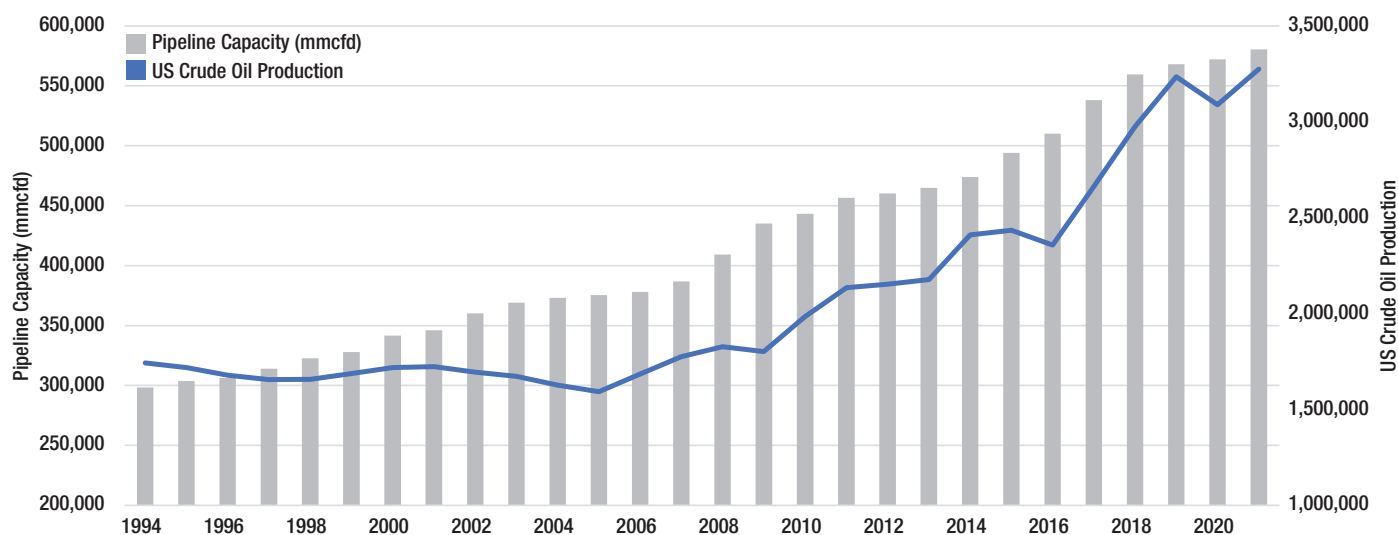
Supply of and demand for fuels determine infrastructure needs. A booming supply and strong demand for oil and natural gas create an ideal business environment for midstream companies.

US oil production started to rise in 2008. The shale<sup>1</sup> boom created the fastest growth in oil and gas production in history: From 2008 to 2014, US field production of crude oil grew more than 85% while natural gas production increased by 30%. Such growth increased the need for new infrastructure to move, process and store the production output.

Shale production has a short-cycle nature, which means producers can drill wells faster than pipelines can be built to support the volumes. This led to even more robust demand for new infrastructure to support production growth.

### Growth of US Pipeline Capacity (Annual)

1994 - 2021



Source: www.eia.org. Mmcf/d: million cubic feet per day

With production booming, the US began exporting finished products and even crude oil into the rest of the world, resulting in a surge in the volume of crude oil flowing through pipelines from the top shale fields to export hubs on the US Gulf Coast.

<sup>(1)</sup>Shale here refers to shale oil, which is an unconventional oil produced from oil shale rock fragments.

## US Crude Oil Export (Monthly)

1/1/1992 - 2/2022



Source: www.macrotrends.net

With robust volume expansion and stable fee-based businesses, midstream companies saw strong top and bottom-line growth.

## To grow or not to grow

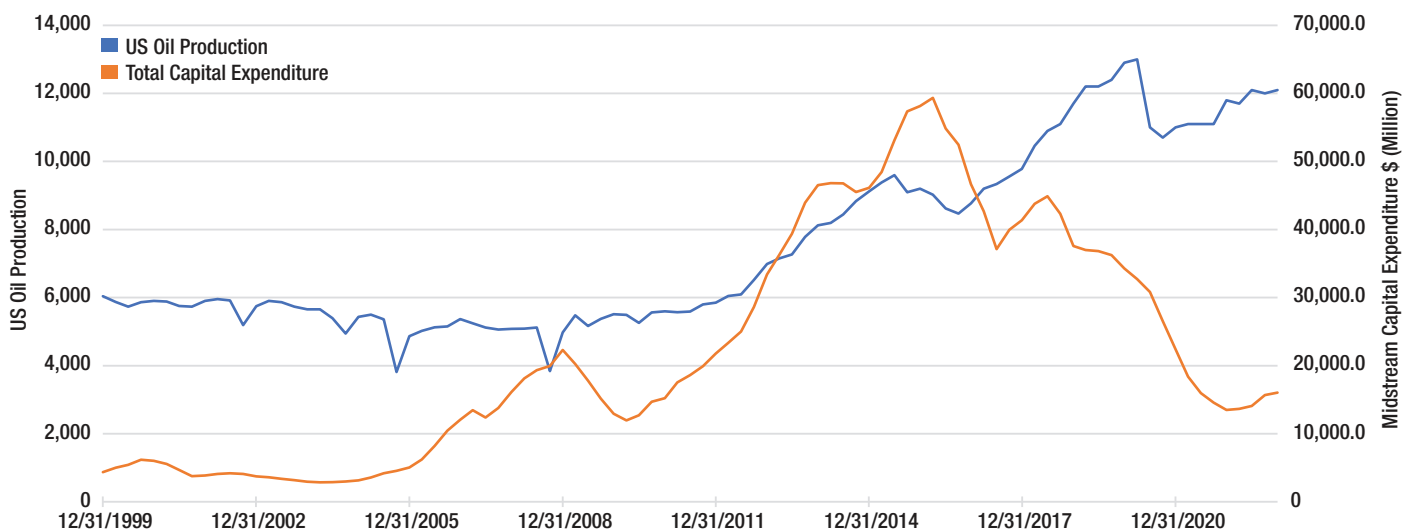
The short-cycle nature of shale production, the longer timeframe to build pipeline infrastructure, and commodity price volatility have caused periods of under- and over-capacity of midstream companies over the past several years.

In late 2014, OPEC flooded the market with crude oil to halt the rapid growth in US oil production, which triggered the most significant price crash in a generation. The drilling rig count declined, and production growth slowed while many infrastructure projects were already contracted. Though some uneconomic infrastructure projects were canceled, as projects near completion came online, the midstream market was overpiped by 2016 in certain areas.

Following the oil price collapse and production decline, midstream capital expenditure (CapEx) was slashed as the sector adopted a more cautious approach to growth given relatively high shale production costs. Though oil prices recovered after 2016, and US oil production growth caught up, midstream CapEx remained in a downtrend, except for the temporary increase from 2017 to 2018. From 2015 to 2019, top US midstream companies reduced their capital expenditure by more than 40%.

## Capital Expenditure (Top 20 US Midstream Companies) vs US Oil Production

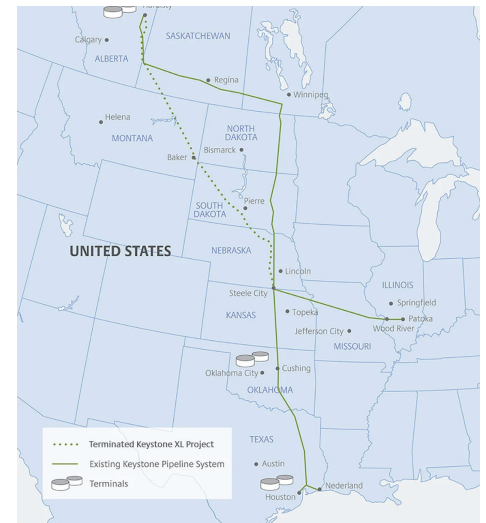
12/31/1999- 12/31/2022



Source: FactSet

PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS. YOU CANNOT INVEST IN AN INDEX.

## Keystone Pipeline



Source: Keystone Pipeline

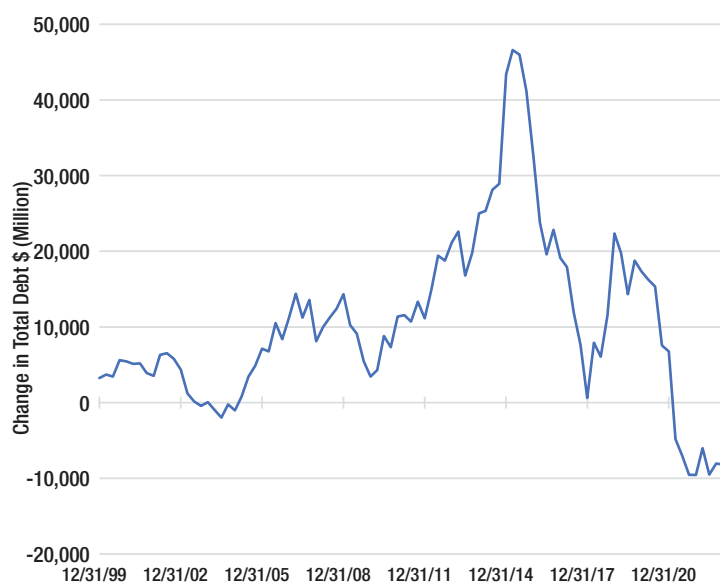
The 2020 pandemic further curbed midstream infrastructure spending as the energy sector became more cautious. Such prudence continued despite the V-like recovery in demand. As a result, companies end up having strong balance sheets but have been reluctant to take on new growth projects.

This has led to an environment where demand for pipeline capacity is strong while supply is lagging. Additionally, a shift in investor preferences away from growth in favor of high free cash flow (FCF) has created a scarcity value in existing midstream assets, putting upward pressure on tariff rates when contracts are renewed.

### Appetite From Investors

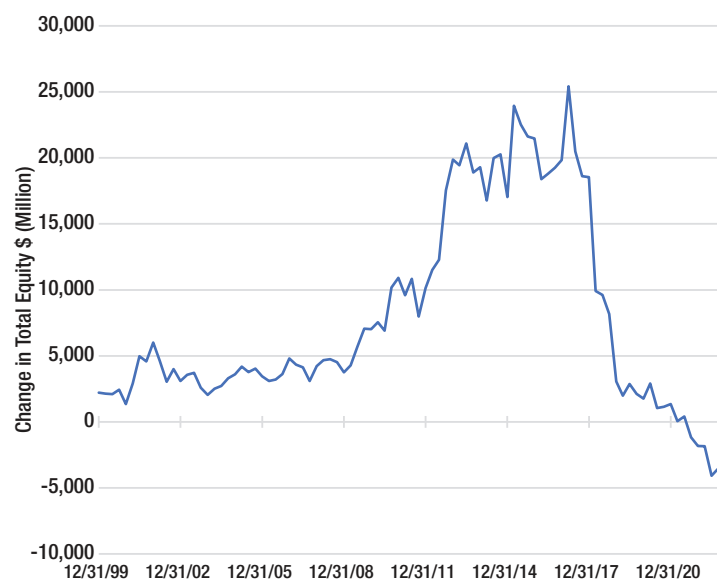
The shale boom drove the midstream sector to pursue faster growth by building infrastructure to capture US production growth. The sector historically has distributed almost all its cash flow to shareholders, which means that companies depend on external capital to fund future growth. This can be observed from the increasing debt and equity issuance from midstream companies before 2015.

**Changes in Total Debt over 12 months (Top 20 US Midstream Companies) 12/31/1999- 12/31/2022**



Source: FactSet

**Changes in Total Equity over 12 months (Top 20 US Midstream Companies) 12/31/1999- 12/31/2022**



Source: FactSet

Now, a maturing shale business with slowing US production growth means the opportunity for large infrastructure projects has narrowed. Like their upstream counterparts, midstream companies adapted the capital disciplined strategy by taking on less risky and higher return projects with lower CapEx requirements.

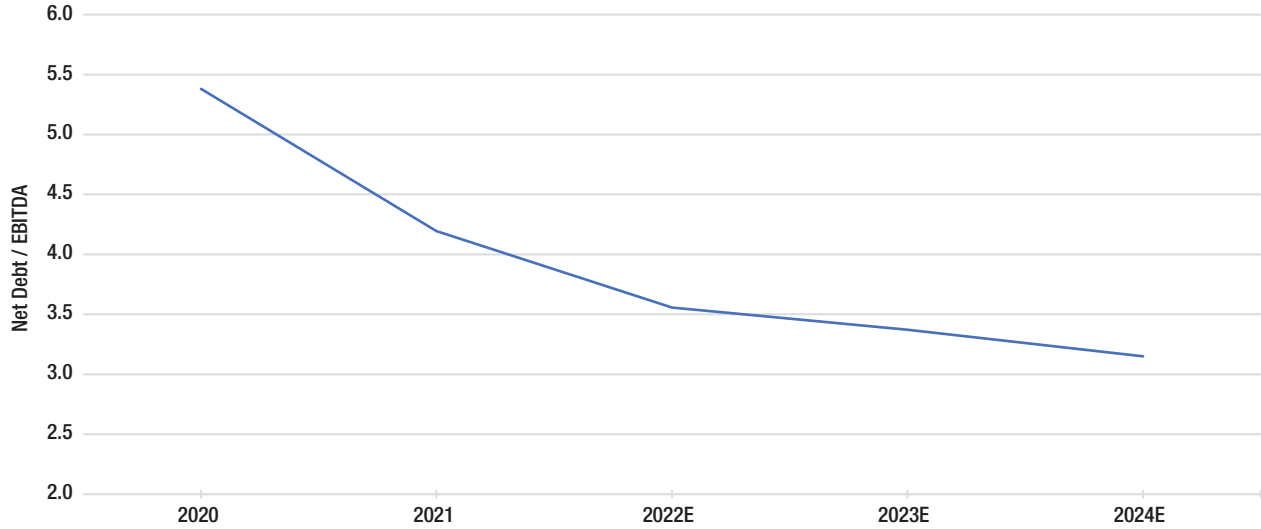
Meanwhile, investors' appetite has shifted away from growth. Instead, they prefer companies capable of funding CapEx and distributions with internally generated cash flow. In the current environment, the sector is focusing more on deleveraging, generating sustainable free cash flow, and returning more value to investors.

1) Midstreams' dependence on external funding has decreased over time, as seen in reduced debt and equity issuance. In recent years, the net changes in total debt and equity turned negative, reflecting the start of deleveraging and share buybacks.

The wave of deleveraging can also be seen in the leverage ratios among top 20 US midstream companies.

## Median Net Debt / EBITDA (Top 20 US Midstream Companies)

as of 12/31/2022

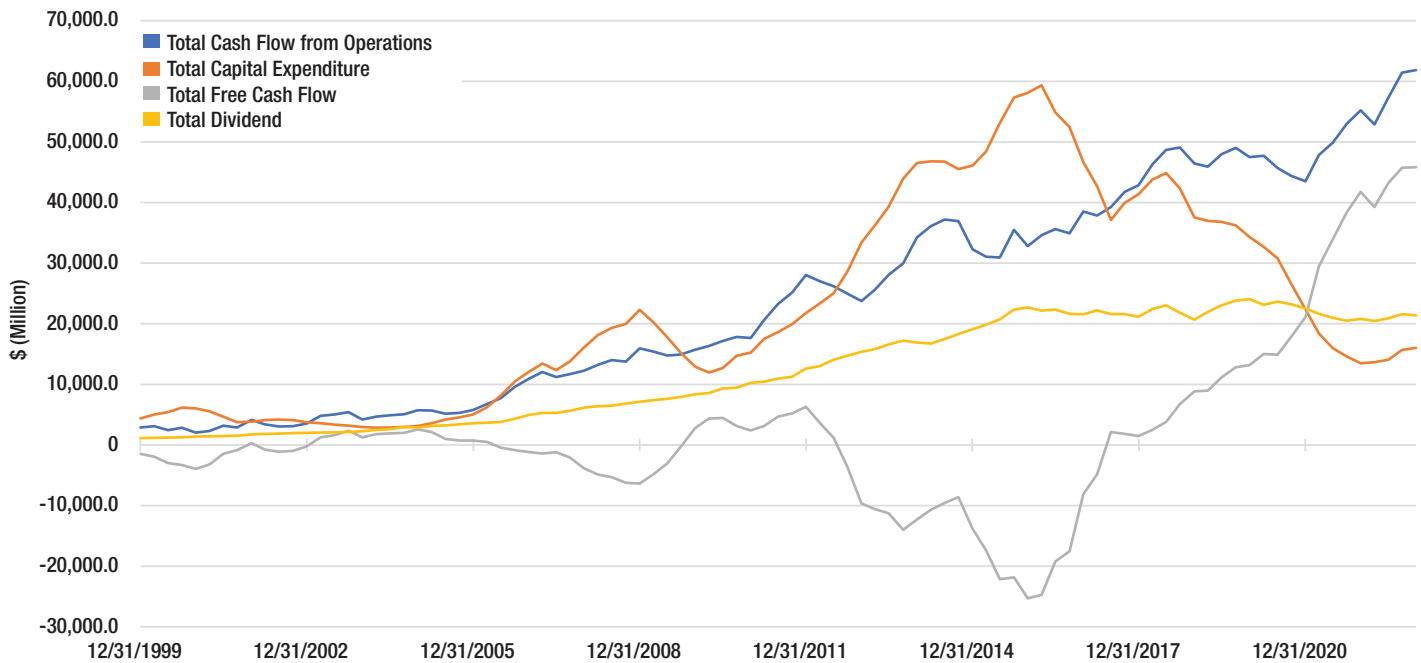


Source: FactSet. EBITDA: Earnings Before Interest, Taxes, Depreciation, and Amortization

2) At the same, midstream companies began exhibiting excess free cash flow (FCF) even after paying dividends. In the past two years, midstream companies grew FCF, easily exceeding total dividend payments.

## Cash Flow, Capital Expenditure and Dividend (Top 20 US Midstream Companies)

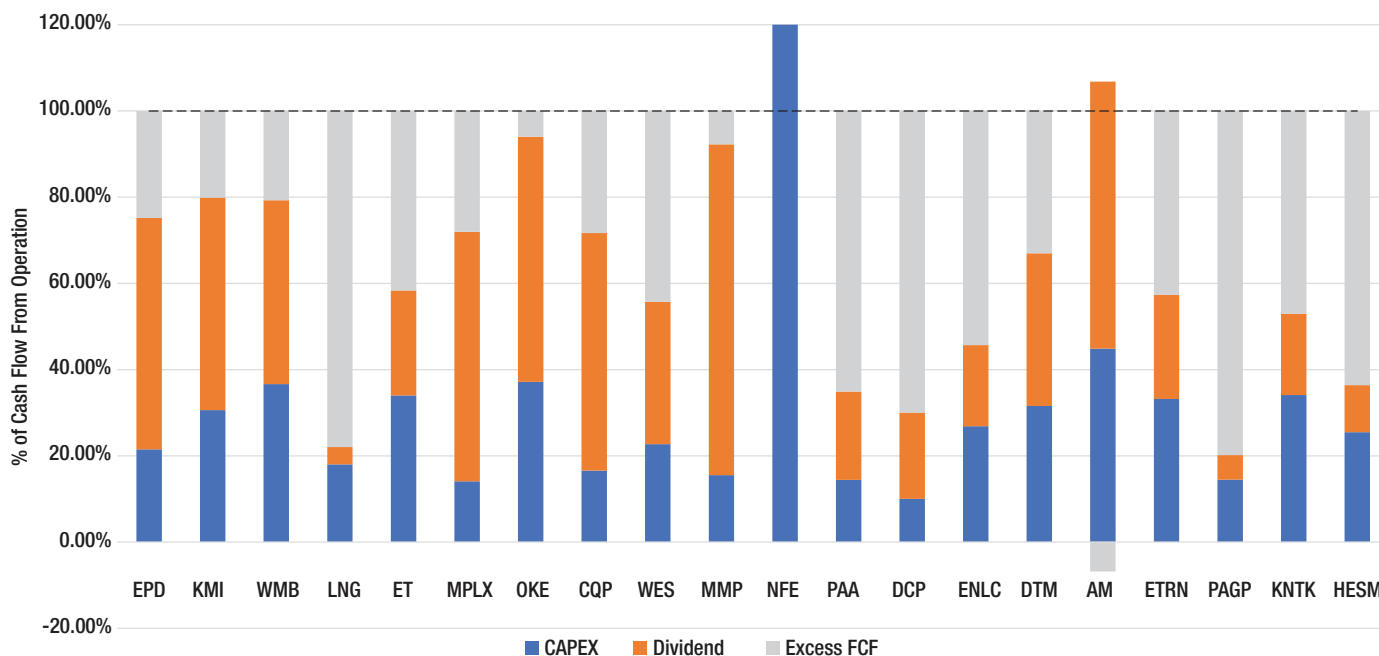
12/31/1999- 12/31/2022



Source: FactSet. Dividends are not guaranteed.

The chart below shows the CapEx and dividend as a percentage of operating cash flow among the top 20 midstream names to demonstrate their self-funding capacity for capital spending and distributions.

### CapEx, Dividend and Excess FCF as % of Cash Flow from Operation (Top US Midstream Companies) as of 12/31/22



Source: FactSet

The excess FCF can support future distribution growth and debt reduction. Importantly for investors, today's midstream cash flow is building a decent cushion to protect payouts, which explains why dividend growth and buybacks are becoming more common.

3) With strong FCF, the midstream sector offers an attractive income stream. The average dividend yield of top US midstream companies is 5.9%, while the S&P 500 only yields 1.76%. Dividends are not guaranteed.

### Common Misunderstandings on Midstream

The energy sector is sensitive to oil & gas supply and demand.

As mentioned earlier, one of the midstream industry's challenges is managing capital cycles corresponding to different lead times of oil production. Put simply, oil production can be brought on faster than supporting infrastructure. Volatility in oil and gas production can create uncertainty over infrastructure demand.

Today, the midstream industry essentially reacts to demand in the market from utility companies (natural gas), refiners (crude oil), and petrochemical plants (NGLs) rather than supply. To advance projects, companies require pipelines to be highly contracted before they break ground. This may be 90% for natural gas infrastructures and usually 60% for oil pipelines. Thus, new projects are met with the demand from customers in place already.

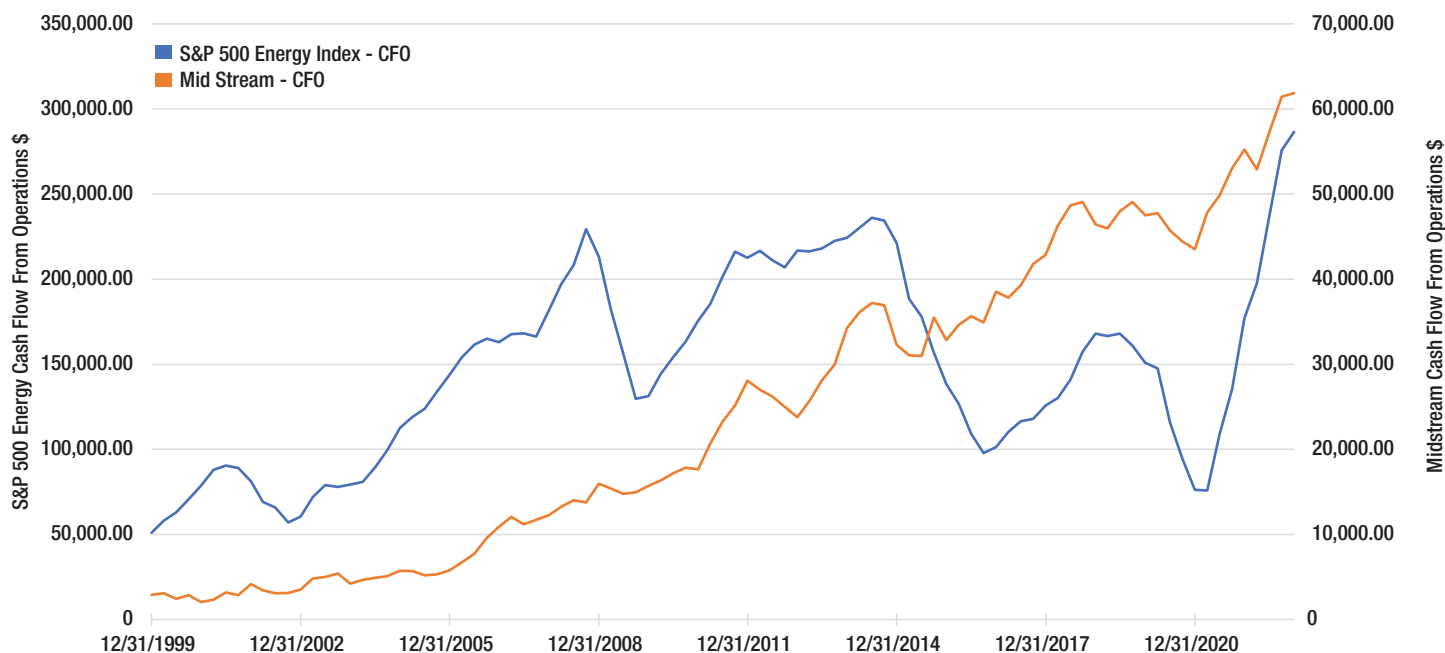
Therefore, more predictability will reduce the over- and under-build cycles for energy infrastructure in the future, which should be much less severe than during the 2010-2015 period.

Furthermore, the impact of oil prices on midstream names is indirect. Higher commodity prices might lead to more rigs, more production, and therefore larger volume for storage and transportation. However, most midstream companies' businesses are based on long-term, fixed-fee, take-or-pay contracts, in which counterparties agree to pay specific amounts, no matter how much of the contracted capacity they utilize. Thus, midstream companies can generate stable revenue and cash flow, and the cash flow is actually much more stable than the broad energy sector.

**PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS. YOU CANNOT INVEST IN AN INDEX.**

## Cash Flow from Operation (Top US Midstream Companies vs S&P 500 Energy Sector)

12/31/1999- 12/31/2022



Source: FactSet. CFO: Cash Flow from Operations

The roller coaster ride of upstream exploration and production companies in the oil cycle led investors to apply the same mindset when looking at the supply and demand sensitivity among midstream players. The midstream industry is often misunderstood and trades more on sentiment to the broader energy sector, as indicated by the high correlation with the S&P 500 Energy Index. Increased oil and gas prices drive sentiment in the energy sector, historically resulting in positive midstream stock price performance. But large sell-off also happens when commodity prices are trending downward.

However, over time, the capital return and the quality of cash flows are what matters to midstream investors. Eventually, high and increasing dividends supported by strong FCF should underpin midstream valuation because it demonstrates that the industry is healthy with attractive and safe yield-potential.



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