

Energy Infrastructure: infrastructure investing has surged in popularity in recent years, even while many investors have avoided energy infrastructure or “midstream” assets. This has led to a sizeable valuation gap between midstream and other types of infrastructure, despite similar investment characteristics. What explains the divergence? Poorly-defined ESG criteria have certainly contributed, even as other types of infrastructure - airports, power plants, highways and railroads – face many of the same ESG risks as midstream. In conversations with allocators, we notice how some investors cite midstream’s greater energy transition risks, even as this claim has been undermined by continued growth in midstream cash flows. Other investors suggest that non-energy infrastructure assets have more exposure to AI-related growth, despite the fact that midstream will service these AI-levered assets (while bearing less of the costs), a point we discussed 2 months ago. Below, we examine how the “global infrastructure” category has captured the imagination of many allocators, despite midstream offering very similar economic characteristics at cheaper valuations.

Natural Resources: In our many years of energy investing, one of the most commonly-cited relationships is the BTU content of a barrel of oil vs a million cubic feet of natural gas. The two fuels are not readily interchangeable in many areas of life. However, in some areas such as heavy industry, users can easily switch fuel sources as determined by price. Many investors underestimate the impact of fuel on industry, but in some cases fuel accounts for as much as 75% of operating costs. Price dislocations elicit either fuel switching or a regional reallocation of resources. Nowhere has this been more evident than in Europe during and after the Russia/Ukraine conflict, as many energy-intensive businesses have fled Europe’s high cost-per-BTU in favor of lower-cost areas like North America.

MLP & Infrastructure

Performance review

During the month of June 2024, the Recurrent MLP & Infrastructure Strategy generated net returns of +1.87%, lagging the Alerian MLP Index’s (AMZ) +4.45% return by -2.58%. Since the strategy’s July 2017 inception, Recurrent’s MLP & Infrastructure Strategy has outperformed the AMZ by +31.91% (+2.68% annualized), net of fees. On a gross basis, the Strategy has outperformed by +51.21% and +4.13% respectively. See performance section at bottom for more detail, plus performance detail on the Recurrent Energy Infrastructure Strategy, which seeks to track the MLP & Infrastructure Strategy while excluding MLPs.

Since COVID, “infrastructure” investing has soared in popularity, but midstream has been quietly excluded

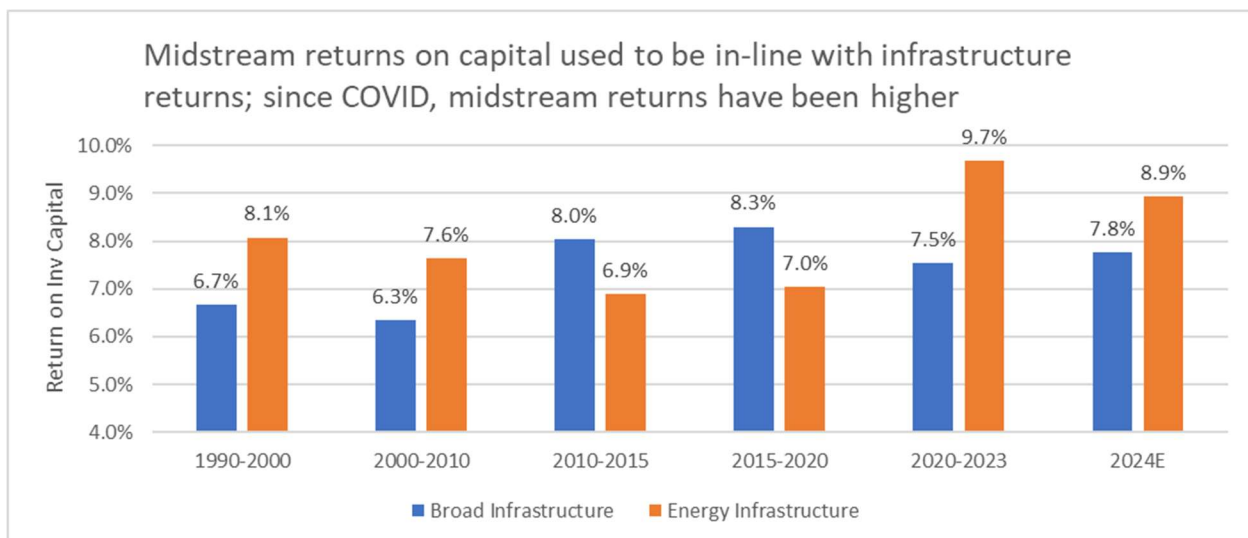
In recent years, the popularity of infrastructure investing has soared, as investors in a world of increasing uncertainty and volatility have been drawn to “toll road” assets with low cash flow

volatility, strong contract profiles, and lifespans measured in decades (note how similar this sales pitch is to the midstream sales pitch of a decade ago!).

Only 20 years ago, infrastructure assets were viewed as a niche backwater in the global investing landscape, but global infrastructure-dedicated AUM has grown to >\$1 trillion over that time, with BlackRock recently announcing its largest-ever M&A transaction in a \$12bn acquisition of Global Infrastructure Partners (GIP), one of the world’s largest infrastructure managers.

All of this infrastructure fundraising *should* bode well for the midstream energy infrastructure space, but the energy infrastructure sector has largely been excluded from this exuberant environment. Long time readers of this note will recall that energy infrastructure and midstream-dedicated public funds are coming up on 8 straight years of fund outflows – as fundraising in other infrastructure subsectors has soared!

Below, we examine the fundamental drivers driving the exclusion of midstream energy infrastructure from the infrastructure fundraising boom. We compare publicly-listed midstream infrastructure assets, such as the oil and gas pipeline and storage companies where we invest, with the financial performance of global listed infrastructure companies, including North American railroads, global airport and highway operators, as well as non-electric utilities, such as wastewater and sewage treatment operators.



Notes: Returns on invested capital reflect net operating profit after tax (NOPAT), a standardized non-GAAP measure of after-tax profitability excluding financing costs.

Midstream includes Kinder Morgan Inc, Enterprise Products Partners, Enlink Midstream Llc, Energy Transfer Lp, Williams Cos Inc, Plains All Amer Pipeline Lp, Magellan Midstream Partners, Targa Resources Corp, Oneok Inc, Mplx Lp, Phillips 66 Partners Lp, Western Midstream Partners L, Cheniere Energy Inc, Tc Energy Corp, Enbridge Inc, Pembina Pipeline Corp, Keyera Corp, Nustar Energy Lp,

Infra includes American Tower Corp, Crown Castle Inc, Union Pacific Corp, Canadian Pacific Kansas City, Canadian Natl Railway Co, Csx Corp, Norfolk Southern Corp, Vinci Sa, Ferrovial Se, Severn Trent Plc, Transurban Group, Terna-Rete Elettrica Nazionale, Snam Spa, Sba Communications Corp, Aena Sme Sa, Cellnex Telecom Sa, Power Grid Corp Of India Ltd, Essential Utilities Inc,

Source: Recurrent research, Bloomberg.

It may come as some surprise that the underlying financial performance of midstream has not meaningfully lagged the broad infrastructure space. During the buildout of the 2010s, midstream

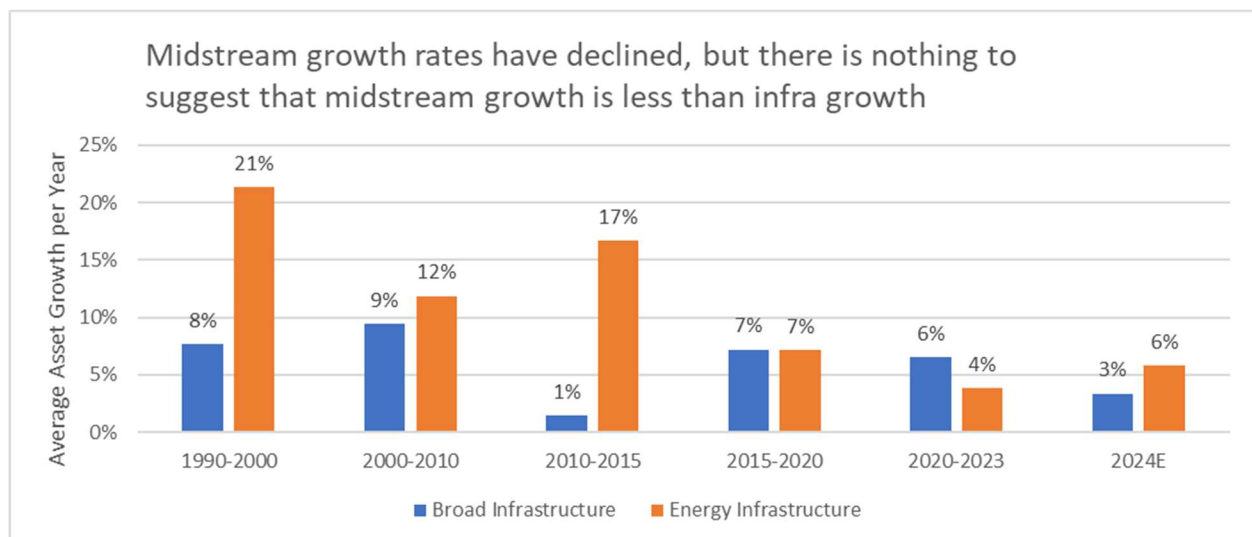
returns declined as much of the midstream sector’s invested capital was tied-up in construction activities, but other than the 2010s, midstream returns have actually been superior to the returns of the broad infrastructure category! This is despite a massive downturn in commodity prices and the impacts of COVID, which fell disproportionately on the energy and transport sectors.

Could the lack of interest in midstream assets be the reflection of a lack of growth opportunities in the oil and gas space?

Prior to COVID, the midstream sector fell victim to the trend of externally-financed rapid asset growth. Undertaking a huge number of simultaneous projects, midstream companies had significant amounts of their balance sheets tied-up in “fallow capital” - non-cashflow generative construction activities – and as returns waned and energy prices fell, midstream companies found their external financing sources increasingly scarce.

Since then, investor concerns have moved in the opposite direction – could the energy transition mean that the midstream sector is headed toward inexorable decline, with a permanent lack of future growth opportunities?

As we see below, today’s midstream fundamentals simply do not reflect a slow inexorable decline – in fact, midstream asset growth has been comparable to the growth rates of the broad infrastructure space in recent years, despite the near-complete cessation of new projects during and immediately after COVID. This asset growth has driven mid-to-high single digit earnings growth for the last 5+ years in the midstream space – moderate growth, and a far cry from the declines cited by midstream skeptics.



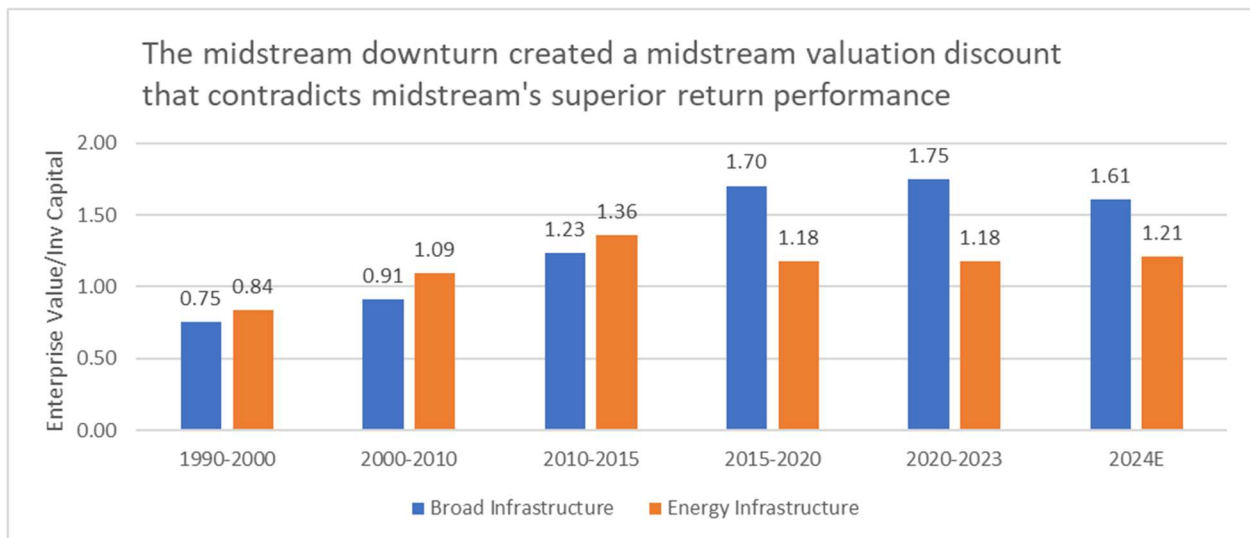
Notes: see notes above for details on the “Infra” and “Midstream” universes included above.
Source: Recurrent research, Bloomberg.

A valuation gap has emerged as investors have bought into the idea that midstream is inferior to other types of infrastructure

As seen above, midstream growth rates reached unsustainable levels during the early days (1990-2010) of intense M&A and consolidation as integrated oils disposed of pipeline assets, followed by comparably intense organic growth in the Shale-driven years of 2010-2020. Since then, we have seen asset growth across midstream settling into a very typical infrastructure growth rate ranging

between 4% and 6%. The growth rates shown above suggest that midstream today is arguably more “infrastructure” than it’s ever been in the past, with returns that actually exceed all infrastructure subsectors except for certain North American railroads (a subcategory which trades well above midstream valuations).

As we can see below, the midstream sector now trades at a significant (~30%) enterprise value discount to broad listed infrastructure companies, despite superior returns and comparable growth. Since we measure valuation on an enterprise value (debt+equity) basis, the discount is even more dramatic when measured on a levered basis: midstream equity values would need to increase by 50% simply to match broad infrastructure valuations.



Notes: see notes above for details on the “Infra” and “Midstream” universes included above.
Source: Recurrent research, Bloomberg.

What are investors to make of the significant midstream valuation discount shown above, in light of fundamentals that appear comparable or superior to the fundamentals of the broader infrastructure category? Is there a real risk to midstream that is not apparent in any adjacent industry? Is midstream’s leverage to AI less real than other infrastructure asset classes, despite midstream assets being physically connected to sources of AI demand? Are natural gas power plants likely to support AI-driven growth, but somehow exclude the pipelines delivering fuel to those plants? Are airport revenues likely to remain stable and growing, as the delivery and storage of aviation fuels potentially falls?

If these downside cases for midstream seem unlikely, then perhaps the discount for midstream assets is simply the result of savvy marketing by broad infrastructure fundraisers, and the source of future alpha for midstream energy infrastructure investors.

Natural Resources

Performance Review

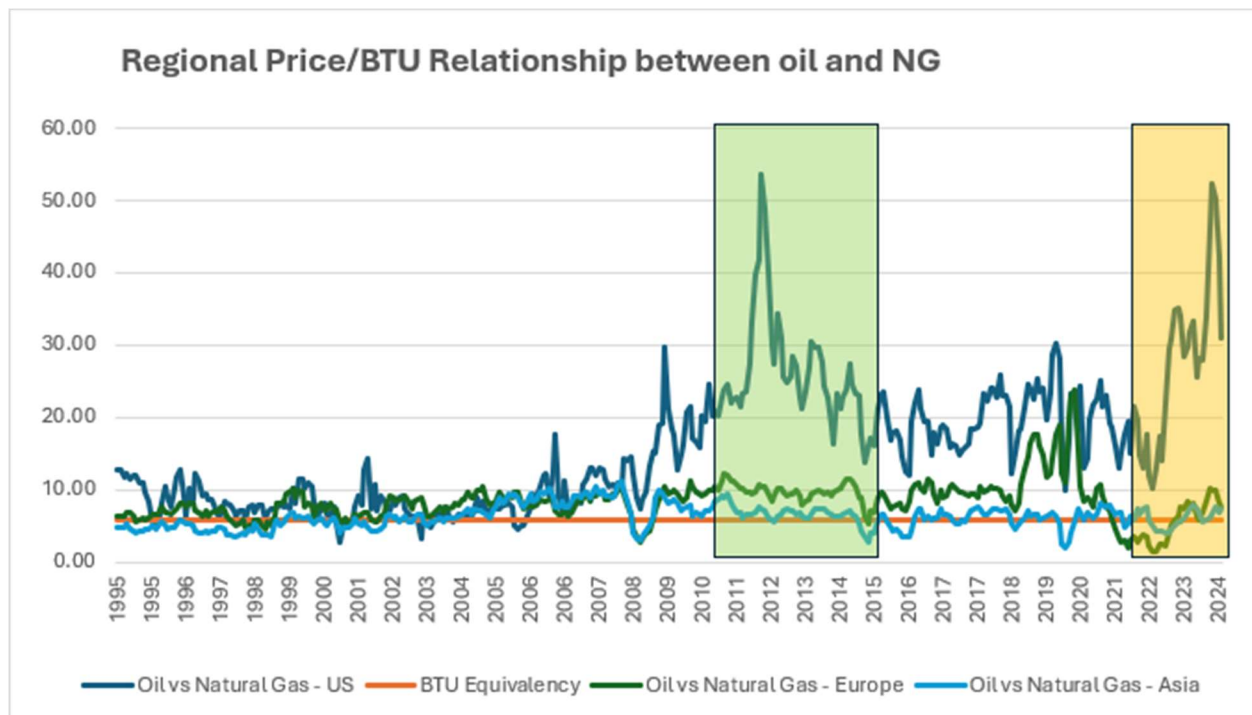
In the month of June 2024, the Recurrent Global Natural Resources Fund fell -5.33% net of fees, underperforming the S&P Global Natural Resources' -4.43% return. During the month, economically sensitive sectors such as aluminum, chemicals, copper, paper and steel fell more than the broader index, negatively impacting performance. More economically stable sectors such as energy infrastructure and gas utilities rose during the month, adding value relative to the benchmark. Since the Fund's June 2018 inception, the Recurrent Global Natural Resources Fund has risen +8.69% annually, net of fees, compared to the S&P Global Natural Resources Index's +5.50% return.

Investment Discussion: the diverging costs of energy between North America and Europe is driving huge divergence in industrial productivity

With the discussion of the energy transition evolving, particularly in the context of personal transportation and electric vehicles, the concept of fuel switching – based on price and emission levels - has moved to the forefront. However, fuel switching has been a key issue for heavy industry for many years. Steel, chemical, fertilizer, refining and aluminum industries, among others, require significant energy/power in the process of delivering economic value. As a percent of revenues, natural gas comprises approximately 40% of refiners' operating costs, 25% of aluminum smelter's costs, and 70-90% of fertilizer costs! Since natural gas comprises such a large percent of operating costs, these industries are intensely focused on utilizing the cheapest input costs. In many cases, capital is re-allocated on the basis of energy costs alone. As the CEO of The Fertilizer Institute noted, **“In the summer of 2022, when the cost of natural gas in Europe soared above \$100/MMBtu, we saw 70% of European ammonia production curtailed.”**

One way to think about the cost efficiency of different energy sources is on a Price/Unit basis, known as a British Thermal Unit (BTU). On this basis, the energy content of an oil barrel is 5.6 times that of a million cubic feet of natural gas. Therefore, if the relationship between oil and natural gas is higher than 5.6, then the energy content of natural gas is cheaper than oil, and if less than 5.6, oil's energy content is cheaper. Globally, oil prices are fairly aligned since oil is easy to transport and is easily stored. Divergences in regional natural gas prices are the primary reason for the oil/natural gas relationship to vary regionally.

While this relationship is well understood by heavy industry, geographic differences between oil/natural gas prices/BTU can be the difference between a successful and bankrupt business. In this commentary, we'll look at the regional price to BTU relationship between oil/natural gas in consideration of the impacts on heavy industry.



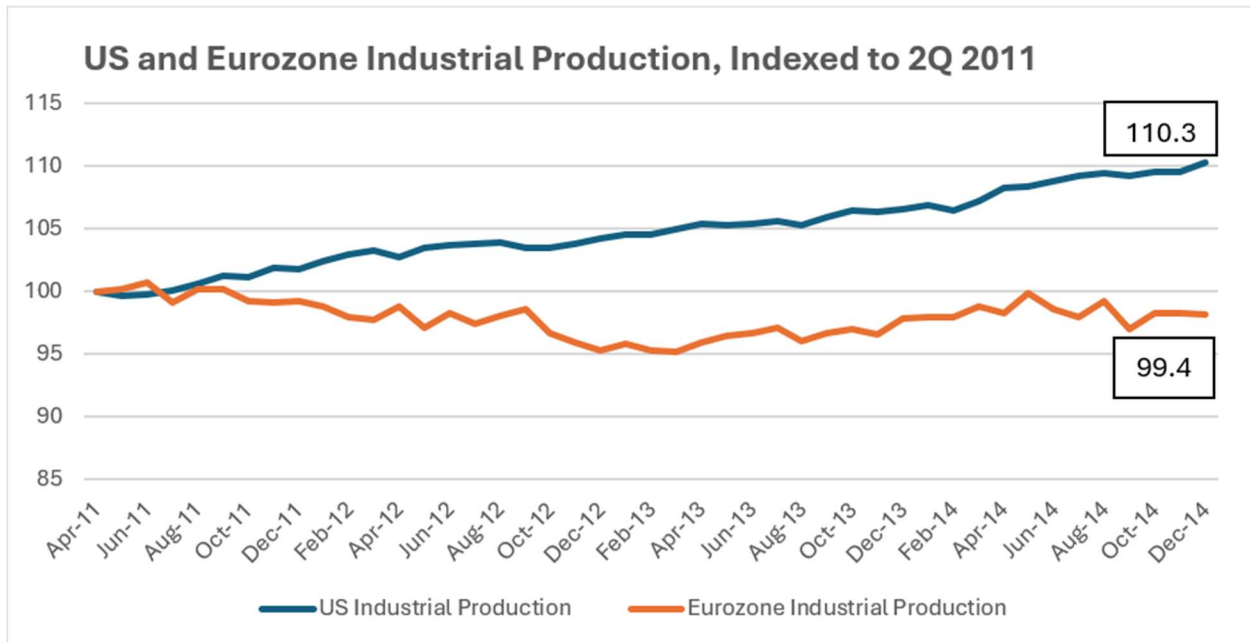
Source: Bloomberg, Recurrent Research

From 1995 until the onset of shale in the mid-2000s, the oil/natural gas price/BTU relationship in Asian and European markets is in line with the energy content of the respective energy sources, with short periods of dislocation. During the early stages of the Russia/Ukraine conflict, for example, European natural gas prices rose significantly as Russian natural gas supplies to Western Europe were curtailed. Without the short-term ability to replace supplies, European spot natural gas prices briefly rose to more than \$100/MMBTU at the end of August 2022, more than 11x higher than the coincident \$9/MMBTU US price! Conversely, in late 2019, European natural gas prices fell below \$4/MMBTU due to a mild winter, and the relationship ballooned above 10x.

From an operational perspective, the Asian industrial complex has a much higher level of fuel flexibility, building both oil and natural gas capabilities to adapt to shorter term price/BTU realities. The European industrial complex has not built those capabilities, and as a result is much more exposed to relative regional price differences.

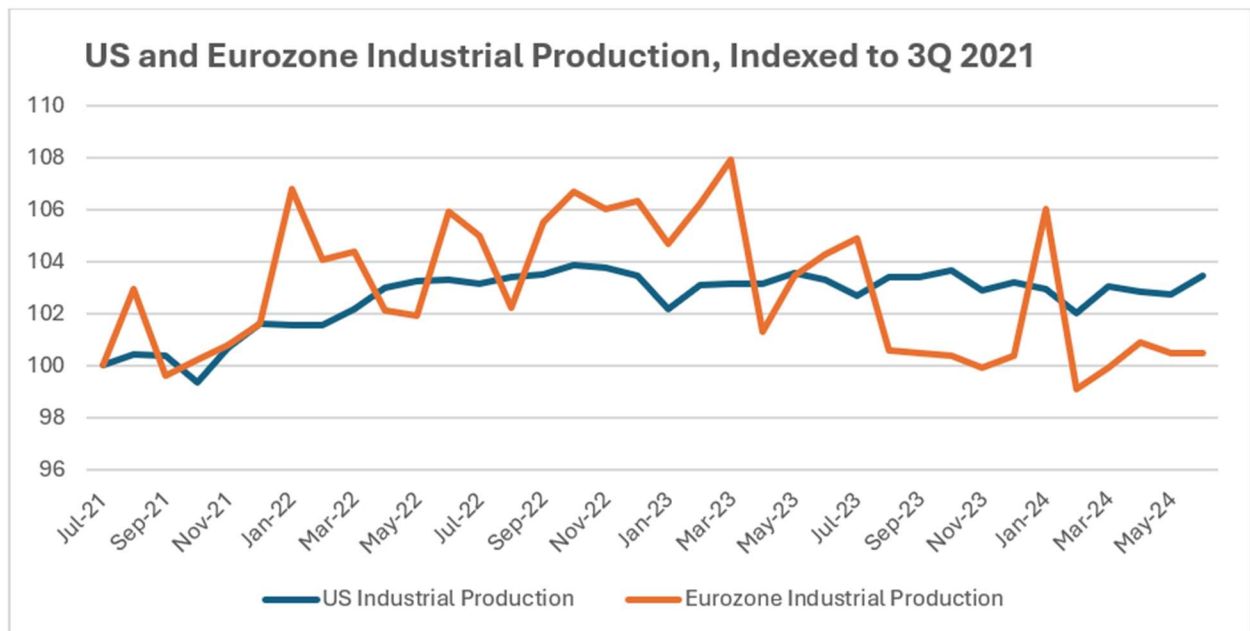
In looking at industrial production data between the US and Europe, the data is quite telling. In the two periods where the regional relationship between oil/natural gas price/BTU content diverged greatly – 2Q 2011-4Q 2014 and 3Q 2021-2Q 2024 – US industrial production grew at a much faster pace than European industrial production, as seen in the charts below.

In the green shaded area from 2Q 2011 to 4Q 2014, US natural gas prices were significantly lower than European natural gas prices, and industrial production diverged greatly. Over the 45-month period, US industrial production grew >10% more than Europe, in large part due to the ability for US industries to use significantly cheaper natural gas as a key input.



Source: Bloomberg, Recurrent Research

Since the beginning of the Russia/Ukraine conflict, the divergence between US and European natural gas prices has caused the Price/BTU relationship to break down. Again, US industrial production has grown at a markedly faster pace as a result. For the sake of this discussion, it is worth noting that European industrial production was growing faster through 2022, but as higher early 2022 natural gas prices flowed through to industrial production, European production fell at the expense of US industrial production.



Source: Bloomberg, Recurrent Research

As we have noted in previous monthly commentaries, several companies took noteworthy action to reallocate capital from Europe to the US to improve profitability. The headlines below offer a glimpse of the impact of energy as an input to the industries in Europe and the US.

\$82B in industrial projects planned for Gulf Coast Region

BASF is cutting back at its main site in Germany

The company says high energy prices are forcing it to shut plants at its Ludwigshafen complex

How LNG Energized the South's Industrial Base

Alcoa Threatens to Shut Spain Complex Amid Mounting Losses

After a brief increase to \$3/MMBTU early this summer, US natural gas prices have returned close to \$2/MMBTU, well below the European \$10/MMBTU equivalent. As a result, we would expect the advantage enjoyed by US industry to continue relative to European industry, with lasting benefits to US chemical, aluminum, fertilizer, refining, paper and steel industries, particularly along the Gulf Coast where natural gas remains abundant with nearby export markets.

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