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Cost Curves: The Hidden Floor Beneath Commodity Prices | September 2024

Over the past 18 months, commodity prices, as measured by the Bloomberg Commodity Index (BCOM) (the "Index"), have stagnated, temporarily pausing the bull market that roared to life in early 2020. While the Index has still delivered annualized performance of 13.9% since the beginning of the cycle, recent months have seen a noticeable lull.¹ As prices have moderated this year, many natural resources are approaching their "intrinsic value," a level that has historically provided reliable support in down markets (Figure A).²

At CoreCommodity, we define "intrinsic value" through the lens of production costs. Unlike stocks or bonds, commodities are tangible assets—goods that can be held, stored and shipped. This physicality allows for a more precise valuation, one that doesn't rely on discounted cash flow models or subjective analysis. There's a measurable cost to producing an ounce of gold and a barrel of oil. Much of this data comes from government sources such as the United States Department of Agriculture (USDA) and the International Energy Agency (IEA), while a substantial portion is drawn directly from the public filings of commodity-producing companies.

Although market prices may rise above the cost curve—due to various risk premia and the need for suppliers to earn a reasonable profit margin production costs can provide a solid benchmark, particularly during market pullbacks. Historically, these costs have helped establish a "soft floor" for prices, defending against deeper declines. What's notable in the current environment is that, while commodity prices have dipped, production costs have remained stable or, in some cases, risen. Over the past 20 years, the cost increases in the BCOM have tracked the Bloomberg Commodity Spot Index's overall price change (Figure B), both rising nearly 6% annually.³ The takeaway is clear: if producers are unable to sell their goods for a reasonable return above these rising costs, they will eventually halt production, forcing the market to discover a more attractive price.





¹ Source: Bloomberg, Apr 2020 – Aug 2024

² Source (Figure A): Bloomberg, CoreCommodity, Dec 2023 (cost) and Sep 2024 (price)

³ Source (Figure B): Bloomberg, CoreCommodity, 2002 – 2023 (cost) and 2002 – 2024 (price). One may not invest directly in an index.





Case Study: Energy

There is now mounting evidence that profit margins have become too restrictive, compelling large commodity producers to take decisive action. A prime example of this pressure is evident within the energy sector, particularly in natural gas markets.

In January, Henry Hub prices averaged \$3.20/one million British thermal units (MMBtu), but by March, they had plummeted to \$1.49.⁴ At this price point, not only was the market well below marginal production costs (Figure C), but it also hit the lowest average price since 1997.⁵ As profitability sharply declined, producers were forced to respond quickly. Following production cuts in the first half of the year, several major suppliers—especially those in the Marcellus and Haynesville regions—announced additional reductions in their second-quarter earnings reports. EQT Corporation, the largest United States natural gas operator, plans to curtail roughly 90 billion cubic feet of production in the second half, while Antero Resources and EOG Resources have adopted similar strategies.⁶ Others, like Chesapeake Energy, have also chosen to delay well completions until prices recover.⁷

In aggregate, the Energy Information Administration (EIA) projects that US natural gas production will decline in 2024, following substantial growth in both 2022 and 2023 (Figure D).⁸ This trend is concerning, especially given the rapid growth in demand that is anticipated in the near future. By the end of 2025, the volume of US natural gas consumed by liquefied natural gas (LNG) exporters—known as feedgas—is expected to rise from 13 to 17 billion cubic feet per day (Bcf/d).⁹ Additionally, by the end of 2030, demand from the power sector, driven by data centers, electric vehicles (EVs) and cryptocurrency mining, is expected to grow by another 5 Bcf/d.⁹ With drilling activity constrained and demand on the rise, the EIA forecasts a swift price rebound above \$3.00 by next year.¹⁰



⁹ Source: J.P. Morgan Global Commodities Research, Jul 2024

⁴ Source: EIA, Jan 2024 – Mar 2024. Represents monthly average Henry Hub natural gas spot price in million British thermal units.

⁵ Source (Figure C): EIA, Enverus, Rystad Energy, Jun 2023

⁶ Source: Natural Gas Intelligence, "EQT moving to knock down Appalachian storage volumes by shuttering more natural gas", Jul 2024

⁷ Source: Reuters, "US natural gas producers eye more output cuts as prices sink", Aug 2024

⁸ Source (Figure D): EIA, Short-Term Energy Outlook, Sep 2024. Represents marketed natural gas production.

¹⁰ Source: EIA, Short-Term Energy Outlook, Sep 2024

Case Study: Agriculture

Nowhere are profit margins more strained than in the agricultural sector, particularly for grains and oilseeds. Prices for key cash crops like corn, wheat and soybeans have slumped, weighed down by ample supplies and record yields. While bumper harvests might seem like a net positive at first glance, the benefits of higher production volumes have been more than offset by falling prices. According to the USDA, total farm cash receipts are forecasted to decline by \$9.8 billion in 2024.¹¹ Although higher production volumes are expected to add \$7.9 billion, lower prices will likely have a far greater impact, reducing revenue by an anticipated \$19.1 billion.¹¹ Farmers' incomes are also set to decline due to a 15% reduction in direct federal payments, bringing public aid to its lowest level in four decades (Figure E).¹¹ These programs include the Farm Bill, Emergency Relief Program and COVID-19 pandemic-related assistance.

Meanwhile, production expenses are expected to remain near historic highs. Although feed and fertilizer costs have eased as supply disruptions from the Russia-Ukraine conflict stabilize, other expenses are steadily consuming a larger share of farm budgets. Interest costs are projected to rise by 6% year-over-year, and labor costs are expected to increase by 7%. Over the past five years, both categories have surged by more than 20% when adjusted for inflation (Figure F).¹¹

To cope with these financial challenges, many farmers are taking steps to reduce their costs. Some are scaling back on pesticide and fertilizer applications in a practice commonly known as "side dressing," while others are opting for lower-cost seeds or delaying equipment upgrades.¹² In cases where these measures fall short, farmers are either shifting to more profitable crops or withholding unsold inventories in the hope of a price recovery—a strategy commonly employed in markets for soft commodities such as cocoa and sugar. However, using lower-quality inputs is likely to reduce yields, and as yields drop, total output will likely decline as well.





¹¹ Source (Figures E and F): USDA, Farm Income and Wealth Statistics, Sep 2024

¹² Source: University of Missouri, Farm Journal, "Ag Economists' Monthly Monitor", Jun 2024

Case Study: Metals

The metals sector faces a unique set of challenges driven by rising costs, impacting not only miners but also the smelters and refiners that process raw ore. Just as crude oil must be refined into products like gasoline and petrochemicals, metal concentrates must be processed into the aluminum that forms our cars and the copper underlying our grids. Miners pay smelters a fee, known as treatment charges (TCs), to convert their unprocessed material into refined metal.

Typically, a surplus of raw material drives TCs higher, while a shortage lowers them as smelters compete for limited supply. Since the beginning of 2023, treatment charges for copper, aluminum, zinc and other industrial metals have steadily declined, signaling a severe shortage of raw material.¹³ The mining sector has struggled to maintain the growth rates of past decades due to several factors, including stricter regulations, water shortages, labor activism and rising interest rates. However, one of the most significant challenges has been the gradual depletion of high-quality ore (Figure G).¹⁴ Without sufficient exploration of new mining sites, companies are quickly exhausting their best assets. As ore quality declines, production costs rise, leaving smelters with less tonnage to process (Figure H).¹⁴

In the zinc market—where the metal is primarily used for galvanized steel, brass, bronze and other alloys—treatment charges once stood as high as \$250-\$280 per metric ton at the beginning of 2023.¹⁵ Today, those fees have dropped to nearly zero, effectively erasing the profitability of smelting operations.¹⁵ In response, some companies have opted to reduce production, while others have been forced to place their facilities under care and maintenance. One of the most notable examples is the Tara Mine in Ireland, Europe's largest zinc mine and one of the largest globally. After ceasing operations in June 2023, Tara has only recently begun the lengthy process of restarting production.



Final Comments

Across the energy, agriculture and metals sectors, commodity prices are now approaching intrinsic value, anchored by rising production costs. As supply chains tighten and profit margins shrink, producers will inevitably adjust output to preserve profitability. While short-term factors—such as a potential mild recession or hedging via the derivative markets—may allow operations to continue at reduced margins, long-term market forces remain clear: commodity prices tend to revert to their "soft floor," determined by production costs.

As demand continues to rise, especially in energy and metals, and cost pressures persist, prices will need to increase to sustain supply. This cost-driven support may provide a natural limit to further downside risks, making commodities an attractive proposition in the current environment.

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¹³ Source: Bloomberg, Jan 2023 – Sep 2024

¹⁴ Source (Figures G and H): Wood Mackenzie, BofA Global Research, 2001 – 2023

¹⁵ Source: Bloomberg. Represents China's zinc concentrate treatment charge of 50% cost, insurance and freight (CIF).

Important Disclosures & Definitions

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Bloomberg Commodity Index (BCOM): an unmanaged index used as a measurement of change in commodity market conditions based on the performance of a basket of different commodities.

Bloomberg Commodity Spot Index: measures the price movements of commodities included in the Bloomberg Commodity Index (BCOM) and select subindexes.

Bull Market: a financial market in which prices are trending upward or are expected to trend upward.

One may not invest directly in an index.

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