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Global Natural Resources

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IN A NUTSHELL

- Global natural resources companies lie at the epicenter of modern supply chains and have strategic importance that is magnified amid more frequent supply chain disruptions, geopolitical events, and international trade tensions.
- As inflationary considerations have returned to the global landscape, asset return sensitivity to price pressures has become increasingly important for investors and consumers alike. While commodity prices broadly have performed well in inflationary environments, the various individual commodities and related equities exhibit different fundamental characteristics that may result in divergent return behaviors through the economic cycle.
- While global natural resources equities generally benefit from rising prices in their underlying commodities, a company's exposure to commodity prices will differ by commodity, regional exposure, cost structure, and position(s) in the commodity's value chain. Operating leverage is not equivalent across commodity sectors nor within sectors for companies with different cost structures, which creates unique diversification and stock selection opportunities.

Global Natural Resources: the big picture

Global natural resources companies in the broadest sense extract and refine raw commodities that serve as the building blocks for goods and services consumption. In the investment landscape, one can gain exposure either directly via the commodities themselves, or indirectly via global natural resources businesses. Recent years have shined a spotlight on both asset classes thanks to the confluence of rising inflation, changes in international trade flows, evolving geopolitical relationships, remapping of supply chains, and decarbonization efforts among other factors.

Natural resources companies lie at the epicenter of the modern global supply chain, with human consumption of raw materials estimated to grow to 140bn tons of minerals, ores, fossil fuels, and biomass per year by 2050[1]. Commodities are an indispensable part of our goods consumption both through raw material input and through the manufacturing and delivery processes of the supply chain. They are often characterized by high degrees of supply-demand cyclicality and occasional scarcity as populations grow and consumption increases. As a growing global population puts demand pressure on finite reserves of commodities, humanity constantly seeks solutions to material constraints, including discovering substitutes, exploring for new reserves, recycling materials, and developing more efficient technologies. The constantly evolving nature of raw materials supply and demand creates a dynamic environment for global natural resources companies.

One noteworthy characteristic of commodities and related equities is the diversity among and even within different commodities categories. While some commodities such as industrial metals demonstrate a high degree of sensitivity to global consumption demand based on economic cyclicality, others such as corn or wheat tend to exhibit more inelastic demand. Elsewhere, energy consumption, while cyclical to an extent, generally demonstrates relatively inelastic demand outside of significant changes in the price of oil. Gold and other precious metals, in complete contrast, may demonstrate more currency-like sensitivity to variables such as interest rates and inflation. Even within the commodities complex, interdependencies between different commodities create complex supply and demand relationships (e.g. grain consumption by livestock, energy consumption for industrial metals processing).

Geopolitics also serve as an important risk factor in price discovery, at times driving volatility for both commodities and related natural resources equities. Risk premia related to global conflicts and supply chain disruptions can spur idiosyncratic price dislocations, drive demand for hedging of commodity prices, and materially impact natural resources equity valuations. The recent COVID-19 crisis and ongoing conflicts in the Middle East and Eastern Europe create an overhang of potential supply chain disruption that forces commodity producers and consumers to account for these considerable risks in a thoughtful manner.

[1] Decoupling Natural Resource Use and Environmental Impacts from Economic Growth. United Nations Environment Programme (2023).

Commodities as an inflation hedge

During the recent post-COVID period of elevated inflationary pressures driven by supply chain issues and a stimulus-driven demand surge, investors were drawn toward "real assets" that can better participate in environments of high or accelerating price pressures. Among these real assets, commodities and related equities have demonstrated some of the strongest empirical returns in high-inflation regimes where traditional equity and fixed income asset classes tend to come under pressure.

While the relationship between commodity prices and consumer price inflation ("CPI") is an intuitive one, it is important to understand the composition of CPI and how and when it is impacted by various commodity input prices. Table 1 shows the weighting of the most recent CPI basket and a general mapping of some of the most relevant natural resources for each component.

Table 1: CPI components and relevant commodities

	Relative Importance (%)	Related Commodities
All Items	100.0%	
Food	13.6%	Grains, livestock, softs
Energy	6.6%	Crude oil, natural gas, petroleum products, grains, industrial metals
Apparel	2.5%	Cotton, petroleum products
New Vehicles	3.7%	Industrial metals, petroleum products, platinum group metals
Used Cars and Trucks	1.9%	Industrial metals, petroleum products, platinum group metals
Medical Care Commodities	1.5%	Petroleum products
Alcoholic Beverages	0.9%	Grains
Tobacco and Smoking Products	0.5%	Grains, softs
Shelter	36.2%	Lumber, industrial metals, petroleum products
Medical Care Services	6.5%	Natural gas, petroleum products
Transportation Services	6.3%	Petroleum products, industrial metals

Source: Bureau of Labor Statistics. Date as of 31 January 2024.

Another important element of commodities investing is the degree to which individual commodities correlate through cycles. Broadly speaking, the major commodity sectors demonstrate low degrees of observed correlation, driven by idiosyncratic risk exposures and unique macroeconomic sensitivities.

Individual commodities and commodity sectors also demonstrate varying degrees of cyclicality, which creates benefits to owning a diversified basket of commodities and natural resource equities exposure with sensitivity to multiple macroeconomic variables. Figure 1 shows the correlation between the Bloomberg Commodity Index sectors over the past three decades.

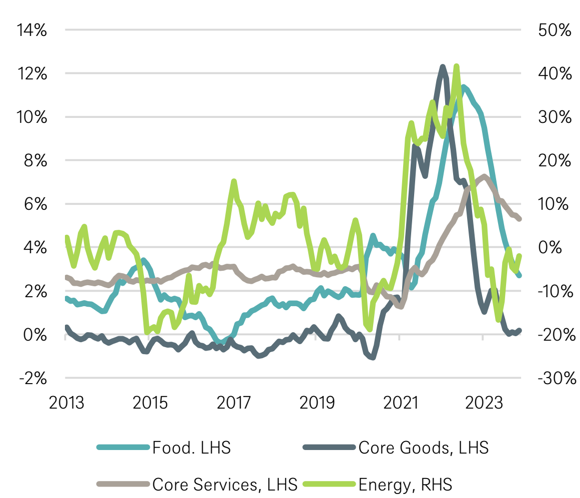
Figure 1: Commodity sector correlation matrix

	Energy	*Grains*	*Industrial Metals*	*Livestock*	*Precious Metals*	*Softs*
Energy	1.00	0.20	0.34	0.16	0.14	0.19
Grains	0.20	1.00	0.26	0.03	0.21	0.34
Industrial Metals	0.34	0.26	1.00	0.10	0.36	0.35
Livestock	0.16	0.03	0.10	1.00	(0.05)	(0.04)
Precious Metals	0.14	0.21	0.36	(0.05)	1.00	0.26
Softs	0.19	0.34	0.35	(0.04)	0.26	1.00

Source: Bloomberg L.P., DWS Calculations. Data as of 31 December 2023.

While long-term correlations among commodity sectors have been quite low, macroeconomic conditions at times drive broad based inflationary pressures that can impact the complex as a whole. Supply chain disruptions following the COVID-19 crisis, for example, resulted in elevated price pressures across almost all components of the consumer price index. In these environments, while dispersion across commodities is more limited, identifying particular natural resources companies with the highest leverage to these price cycles can help to improve investment returns. Figure 2 shows the monthly returns of the CPI components.

Figure 2: CPI component monthly returns



Source: Bureau of Labor Statistics, Bloomberg L.P. Data as of 31 December 2023.

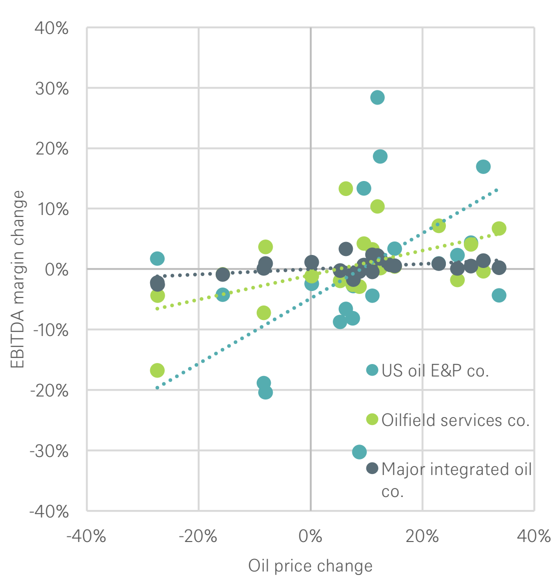
Sensitivity to commodity prices differs across sectors and companies

While natural resource companies' profitability is closely interlinked with the prices of their underlying commodity exposures, the translation of changes in commodity prices to profitability can differ quite significantly between companies.

In the scatterplots below, we analyze the changes in EBITDA margins versus changes in key commodity prices for three companies in each of four natural resources sectors. Although the relationship between changes in margins and changes in commodity prices can be quite noisy year-to-year, as many factors impact margins, we can observe broad relationships by smoothing out the changes over a three-year period. Across four commodities, we observe different degrees of margin sensitivity both within and between sectors. However, we also see several common factors that drive margin sensitivity across all sectors: a company's position in the value chain (e.g. upstream, diversified or downstream), regional exposure, portfolio concentration, and cost structure. Understanding these key drivers helps one analyze where to find unique investment opportunities in the natural resources space.

Starting with the energy sector, the upstream US oil-focused exploration and production company (teal) exhibits the highest empirical margin exposure to changes in the oil price, whereas the oil services company (green) shows a less positive slope to oil prices. Finally, the integrated oil company (gray) shows the lowest sensitivity to oil prices with a smoother earnings profile through cycles.

Figure 3: Energy: Annual change in 3yr average EBITDA margin versus change in 3yr average Brent crude oil price

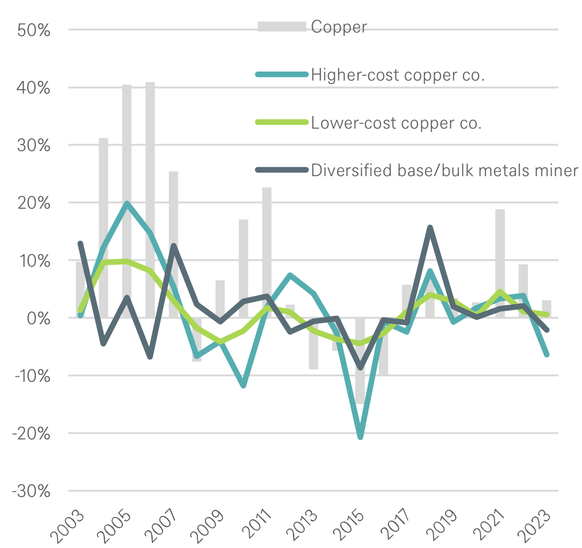


Source: Bloomberg L.P., DWS Calculations. Data as of 31 December 2023.

In the cases of the two higher-beta companies, the E&P company intuitively benefits directly from higher oil prices as it is producing and selling crude oil itself. However, the oil services company experiences a lagged, indirect impact since changing oil prices are only one of several factors that impact its customers' (E&Ps) willingness to pay for drilling services and equipment. Other factors include broad services equipment availability, productivity per rig depending on the technology or vintage, competing demand for natural gas drilling services, etc. Lastly, the integrated company sees higher profitability for its oil production assets, but this doesn't always correlate with margin expansion in other parts of the value chain such as refining or chemicals (where oil is a cost input), distribution, natural gas, or renewable energy.

Among metals and mining companies, we similarly observe varying degrees of relationship between changes in earnings and underlying commodity prices, with distinctions driven by cost structure and portfolio concentration in copper. Figure 4 shows the sensitivity of a higher-cost copper miner (teal), a lower-cost copper miner (green), and a diversified base and bulk metals miner (gray) to changes in the price of copper. Similar to the US E&P company relative to oil prices, the pure-play copper miners exhibit the highest operating leverage to the copper price, particularly the higher-fixed-cost (i.e. lower-margin) operator whose profitability swings the most with top-line changes. In contrast, the diversified base and bulk metals miner shows the lowest leverage to copper prices, which is diluted by its portfolio exposure to iron ore, aluminum, coal, etc.

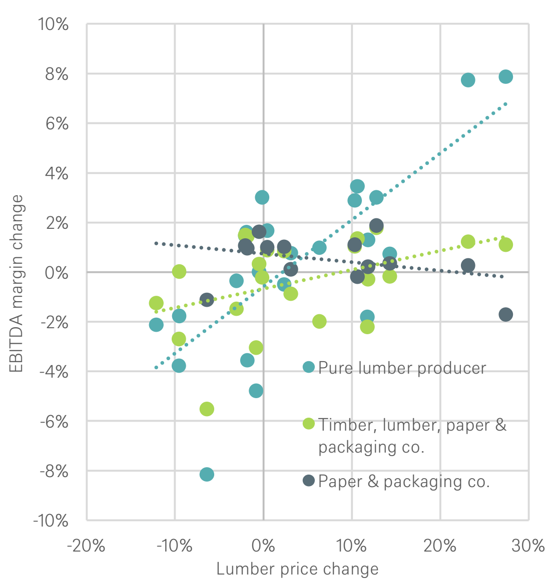
Figure 4: Metals & Mining: Annual change in 3yr average EBITDA margin versus change in 3yr average copper price



Source: Bloomberg L.P., DWS Calculations. Data as of 31 December 2023.

Moving to the paper and forestry space, in Figure 5 we see the highest margin sensitivity to changes in lumber prices for the upstream pure-play lumber producer (teal), akin to the E&P company with oil and the copper miners with copper. Next, we observe moderate sensitivity for a diversified forest products, paper & packaging company (green). The diversified asset base includes upstream timberland and sawmills, which produce logs and lumber, but also downstream containerboard and graphic paper mills, which consume wood and pulp in the manufacturing process. The net result of this portfolio mix is a slightly positive albeit noisy correlation between changes in margins and lumber prices. In the case of the downstream paper & packaging company (gray), we see a modestly inverse relationship between changes in lumber prices and margins as higher wood prices eat into the bottom line for its box plants, paper bags and graphic paper.

Figure 5: Paper & Forestry: Annual change in 3yr average EBITDA margin versus change in 3yr average corn price

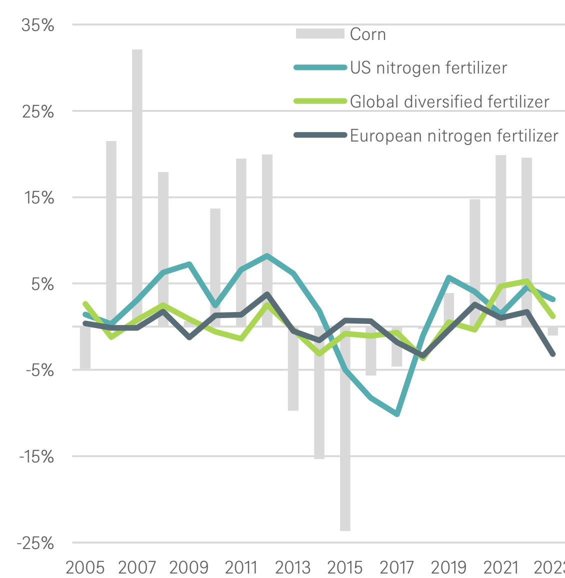


Source: Bloomberg L.P., ERA Forest Products Research, DWS Calculations. Data as of 31 December 2023.

Finally, in the agriculture chemicals sector we observe how regional exposures can impact cost structures and hence sensitivity of a company's margins to changes in underlying commodity prices. In Figure 6, the US nitrogen fertilizer producer (teal) exhibits the highest margin sensitivity to the change in corn prices, followed by the Global diversified fertilizer company (green), and finally the European nitrogen producer (gray).

One driver is that corn typically consumes the most nitrogen of any crop, such that higher corn prices drive higher farmer willingness and ability to pay up for nitrogen fertilizers relative to other types of fertilizer. Moreover, the North American players (both the US and Global companies) enjoy a structural low-cost advantage over the European nitrogen producer due to cheaper natural gas feedstock costs in North America vis-à-vis Europe. This lower position on the cost curve drives structurally higher margins, but also more volatility in those margins, which expand and contract alongside the spread between US and European natural gas prices. A case in point was the breakout of the Russia-Ukraine war, which drove bumper profits for the North American companies while forcing the European company to shut down local production of ammonia due to skyrocketing natural gas costs. Instead, the European company chose to import lower-cost ammonia from abroad and then create and distribute fertilizer end-products with its downstream assets.

Figure 6: Agriculture chemicals: Annual change in 3yr average EBITDA margin versus change in 3yr average corn price



Source: Bloomberg L.P., DWS Calculations. Data as of 31 December 2023.

Conclusion

Following several decades of disinflationary trends and globalization, inflationary pressures have reemerged over the past few years, driven by wars, supply chain pressures, strategic nearshoring, and looser fiscal and monetary policy. In an environment of higher inflation volatility, both commodities and global natural resources equities can strategically diversify portfolios and provide a hedge against currency debasement. Commodities directly harness the beta of the raw inputs, while natural resource equities capture elements of both commodity beta and equity beta.

While price inflation across different commodities can converge in highly inflationary environments, supply/demand pressures for individual commodities and companies can also exhibit idiosyncratic behavior throughout an economic cycle. For example, if a company experiences a large enough production disruption, the supply shock can drive the commodity price higher. This could cause the company's equity price to fall while the commodity price and its peers' equity prices rise. Over time, correlations between various major commodities tend to be moderate to low, allowing for diversification with a broad basket approach.

Sensitivities of global natural resources companies' profitability to changes in underlying commodity prices vary both across and within different commodity sectors. Key drivers of differentiation include a company's commodities basket, cost structure, regional exposure, and position in the value chain. As commodity prices evolve across economic regimes and price cycles, equity returns often exhibit wide dispersion between and even within different sectors. As a result, a fundamentally grounded equity selection process can create opportunities for differentiated risk and return profiles for natural resources equities investors.

In aggregate, the global natural resources universe is characterized by meaningful embedded diversification and wide dispersion of returns among and within subsectors. Strategically, investing in a well-diversified exposure to global natural resources equities through the cycle can help investors diversify return drivers, risks, and economic sensitivities, all within one asset class. Tactically, dynamic reallocation within the space can help to capture opportunities from frequent fundamental dislocations driven by cyclicality and volatility. These features of the asset class are likely to remain prevalent in the future as economic regimes, commodity cycles, geopolitical relationships, government policies, and capital market conditions continuously evolve.

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