NORTHERN TRUST
ASSET MANAGEMENT

INVESTMENT STRATEGY COMMENTARY

NATURAL RESOURCES

STILL A LOT OF GAS LEFT IN THE TANK

May 11, 2023

Northern Trust
Global Asset Allocation

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In April, we increased our overweight to Natural Resources in our Global Policy Model (funded by a commensurate underweight to Emerging Market Equities). Despite an uncertain – but definitely slowing – growth environment that many may think would hinder asset class returns, we find a number of reasons to like the asset class both over the tactical horizon as well as for longer-term investment.

Despite materially outperforming broader global equity markets since the beginning of 2022 (producing an annualized return of 4.0% vs. -9.5% for global equities), Natural Resources (NR) continues to represent a compelling opportunity relative to other risk assets. In fact, recent underperformance – as investors contemplate the magnitude of a slowdown in global growth – represents a chance to shift further into NR from other risk assets. Increased capital discipline from producers limiting excess supply means commodities should find reasonable support even in the event of a shallow and short-lived recession, which we continue to see as possible but certainly not inevitable over the next year as U.S. labor markets remain strong and China stimulus kicks in. Specifically, we see NR outperforming emerging market (EM) equities (the funding source for our overweight), as demand from the region will likely benefit fundamentals of natural resource companies without the valuation drag from geopolitical tensions. We remain attracted to the inflation hedge aspect of the asset class in the event inflation proves stickier than expected. Longer-term support comes from still-attractive valuations (both relative to its history and other risk assets) and – perhaps ironically – support from the green transition, with benefits offered to parts of the commodity landscape and risks overstated when implemented under a diversified approach.

EXHIBIT 1: MATERIAL SUPPORTS

We see several constructive elements for Natural Resources across shorter and longer investment horizons.

A China reopening hedge	China's pivot away from zero-Covid policies and renewed infrastructure investment plans are constructive for commodity demand. We prefer to participate in any near-term China upside via Natural Resources (NR).
Improving fundamentals	Companies have been putting less money back into the ground and more money back into their balance sheets; the net results are higher quality companies and reduced commodity supply, a win-win for equity-based investing.
Effective risk management	NR serves as an invaluable hedge against one of our top risks: sticky inflation. This includes protection against geopolitical disruptions to commodity supply, which is becoming more commonplace in an era of deglobalization.
Attractive valuations	NR valuations are attractive on a relative and absolute basis. NR company market cap as a percentage of broader equity markets has notably shrunk over the past decade despite an increased share of total equity earnings.
A green transition beneficiary	The shift to renewables should actually benefit commodity demand over longer investment horizons, as the buildout of clean energy sources will require a meaningful amount of raw commodities (industrial metals).

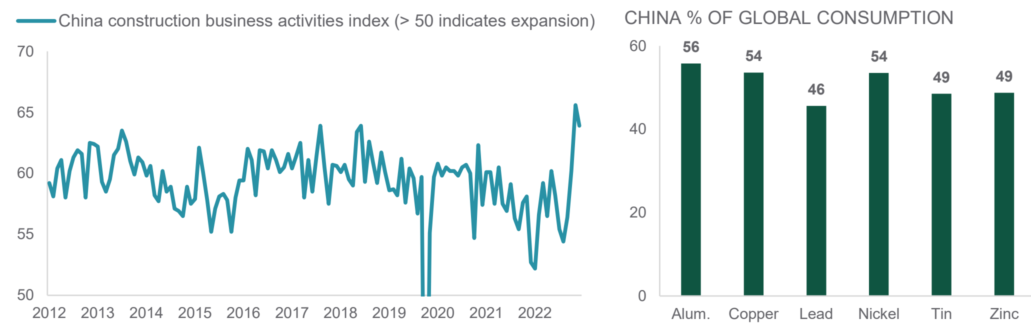
Source: Northern Trust Asset Management.

A CHINA REOPENING HEDGE

Years of Covid restrictions hampered China economic activity until its government began to roll back most of its zero-Covid policies late last year. With China coming back online, so should its demand for commodities – especially since the Chinese government has started to turn to its old playbook of stimulating economic growth via infrastructure investment. Two-thirds of China's provinces have announced spending plans for major infrastructure-related projects equating to $1.8 trillion – a 17% increase from 2022. Per Exhibit 2, a proxy for Chinese construction growth recently touched its highest level in the history of the series, suggesting that infrastructure plans are already underway. We expect these projects and China's broader economic revival will drive up Chinese demand for oil, metals and other commodities. The potential size of this demand should not be overlooked. China accounts for roughly 50% of global consumption of aluminum, copper, lead, nickel, tin and zinc (Exhibit 2, right panel). In 2019, it was the world's second and third largest consumer of crude oil and natural gas, respectively, and used more coal than any other country (~51% of global consumption).

EXHIBIT 2: CONSTRUCTION LIFT

Rising construction activity for the world's largest consumer of metals bodes well for commodity prices.



Source: Northern Trust Asset Management, Bloomberg, World Bank, World Bureau of Metal Statistics. Refined consumption data as of 2020. Construction business activity from 5/31/2012 through 4/30/2023.

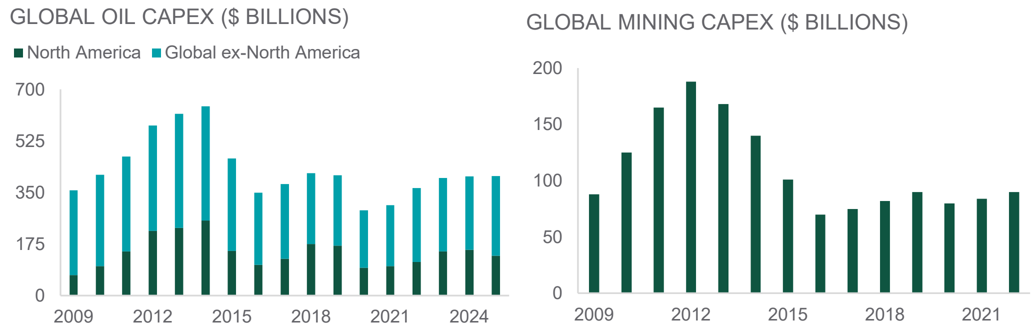
We believe China's reopening and increased fiscal stimulus may be better for NR than for Chinese equities (and, by extension, emerging market equities). To start, it is not clear to us that more infrastructure spending will necessarily be good for Chinese investments. After decades of the Chinese government supporting growth through infrastructure projects, one can be forgiven for thinking there isn't much left to build (at least not projects with significant productivity gains attached). Indeed, China's building spree of recent years has only led to a debt-laden property sector that is constraining the availability of credit, depressing consumer sentiment and weighing on medium-to-longer term growth prospects. Also, geopolitical issues and other internal political dynamics may be an ongoing weight on valuations for companies domiciled in China or in other increasingly capital market-unfriendly regimes. In total, we find NR a good way to gain exposure to the China reopening story without having to undo our EM equities underweight – in place because of broader China concerns.

IMPROVING FUNDAMENTALS

Investors may still harbor aversion to Natural Resources considering the asset class's track record during the post-global financial (GFC) crisis, pre-pandemic period. From 2009 through 2019, global equities provided a 12% return annually whereas an equity-based approach to Natural Resources (as proxied by the S&P Global Natural Resources Index) only provided an annual return of 4% and a futures-based approach to Natural Resources (as proxied by the Bloomberg Commodity Index) actually lost value over the period to the annualized tune of nearly -3%. But that was during a period of low inflation, thanks in part to subdued post-GFC global economic demand and innovation-fueled commodity supply (i.e. fracking). Exhibit 3 shows this capital expenditures (capex) boom (and bust) across oil and mining industries.

EXHIBIT 3: OIL CAPITAL DISCIPLINE

Declining investment in oil production continues to provide an attractive backdrop for commodity prices.



Source: Northern Trust estimates, Bernstein, Jefferies. Data from 2009 through 2022. Estimates from 2023-2025.

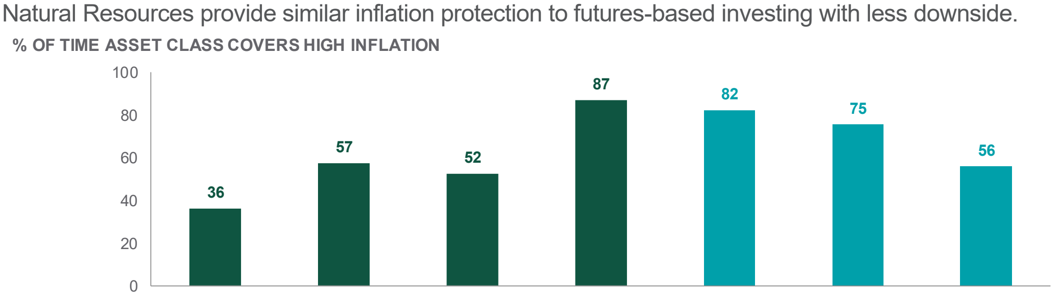
The result was more commodity supply (particularly oil) than the global economy had use for – only exacerbated by investors (somewhat quizzically) incenting further production growth. It was a lose-lose situation. The irrational focus on production both kept a lid on commodity prices and stretched the financial health of the producers. Today, the fundamental backdrop is much different. Recent years of underinvestment and new investor-driven incentives to put revenues toward bolstering dividends and improving balance sheets (versus new projects) have helped keep commodity supplies in check and balance sheets in good shape. When adding OPEC+ price support via quota cuts (including a 1.2 million barrel/day OPEC+ quota cut on April 2), we expect commodity prices to maintain a price floor close to recent levels – even should a shallow recession take hold later this year or early in 2024.

EFFECTIVE RISK MANAGEMENT

A big reason NR fared so poorly in the period between the GFC and the pandemic was the absence of the two risks NR is in the portfolio to protect against – inflation and geopolitical tensions. Going forward, geopolitical tensions will likely be a constant consideration when designing portfolios – as they now are affecting fundamentals, notably inflationary trends. Given the lack of readily available commodity supply (for reasons described above), any geopolitical event that takes production offline will likely more acutely impact commodity prices and global economic functioning. Broad equity markets should absorb this increased risk through lower valuations, all else equal. Natural Resources, on the other hand, can benefit from increased geopolitical tensions (see Russia's Ukraine invasion) – and may see valuations move higher over time as investors place a higher value on the role the asset class plays in the portfolio should the geopolitical backdrop continue to worsen.

EXHIBIT 4: NATURAL RESOURCES THRIVE WITH HIGH INFLATION

Natural Resources provide similar inflation protection to futures-based investing with less downside.



Annualized return during:	Fixed Income	Global Equities	TIPS	Futures-based Commodities	Natural Resources	Global Listed Infrastructure	Global Real Estate
High Inflation	-0.1	7.1	3.8	19.9	23.5	12.9	5.3
Normal Inflation	4.6	8.3	4.5	-3.2	4.1	8.1	8.8

Source: Northern Trust Asset Management, Bloomberg. High inflation is above 3.2% (the 75th percentile of the data). Normal inflation is below 3.2%. Inflation proxied by headline Consumer Price Index. Data from 12/31/2001 through 3/31/2023. [1]See disclosure at the end of the report for indexes used. Past performance is not indicative or a guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

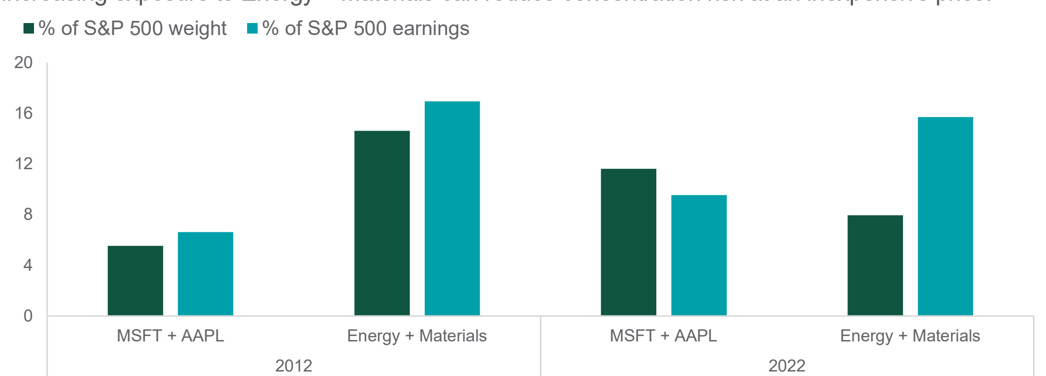
Exhibit 4 on the previous page provides an overview of the way in which various asset classes perform in inflationary environments. In the table at the bottom we simply separated “high inflation” (when inflation is over 3.2%, which corresponds to the 75th percentile) vs. “normal inflation.” The NR return in “high inflation” is the highest of any major asset class, averaging an annualized 23.5%. Of course, there are no free lunches – the “high inflation” outperformance NR enjoys is “paid for” by underperformance in “normal inflation.” However, it should be noted that the equity-based approach to the asset class still performs positively when inflation is benign (annualized 4.1%) – the same cannot be said for a futures-based approach (annualized -3.2%). We also took a look at the percent of time the asset class “covers inflation” (that is, provides a positive real return). By this measure (displayed in the bar chart in Exhibit 4), Natural Resources (equity-based) is second only to a futures-based approach (and not far off).

ATTRACTIVE VALUATIONS

Perhaps what makes Natural Resources most attractive – certainly for the longer-term investor – is the currently attractive valuations. The current price-to-earnings ratio on the NR index sits at a very low 7x – far below the 14x median of the past decade-plus and much less expensive than the 17x currently found in broader global equities. Some of that can be explained by what was a banner year for natural resource company earnings in 2022 – alongside investor skepticism over the ability to repeat those earnings going forward. We believe that, while the earnings growth levels will likely fade, the improved earnings environment should remain durable. And, even when taking into account consensus earnings expectations for the year ahead, the Natural Resource index price-to-forward-earnings ratio (9x) is still very attractive relative to its own history (13x) and broader global equities (16x).

EXHIBIT 5: MSFT + AAPL VS. ENERGY + MATERIALS

Increasing exposure to Energy + Materials can reduce concentration risk at an inexpensive price.



Source: Northern Trust Asset Management, FactSet. Data as of 12/31/2012 through 12/31/2022. It is not possible to invest directly in any index. The information provided should not be considered a recommendation to purchase or sell any particular security.

Perhaps a more intuitive (or at least fun) way to think about current valuations within NR vs. the broader equity markets is found in Exhibit 5. Therein, we look at the market cap size of the U.S. energy and materials sectors as compared to that of the two largest companies in the U.S. equity market – Apple and Microsoft. While we are using a U.S.-centric exercise to make the case for a global asset class, we find the point of the exercise (showing that NR is undervalued) also applies to the broader asset class (but with the additional benefit of being a fun fact for cocktail parties).

Here’s the fun fact: Today, Apple and Microsoft represent a larger percentage of S&P 500 market cap (11.6%) than the entire materials and energy sectors combined (8.0%). This is despite the fact that energy/materials contribute far more to overall S&P 500 earnings than Apple/Microsoft (15.7% versus

9.5%, respectively). Now, clearly higher expected earnings growth out of Apple/Microsoft explains some of this – but does it explain all of it? We don't think so – especially when you compare today versus 10 years ago, when energy/materials had a far larger market cap than Apple/Microsoft (14.6% versus 5.5%). And this was when the outlook for Apple/Microsoft was far better and the NR outlook was far worse. Beyond what this indicates about valuations, the small aggregate market cap of natural resource companies means it doesn't take a lot of capital moving into the asset class to see appreciation – the asset class simply can't absorb big inflows without prices going higher.

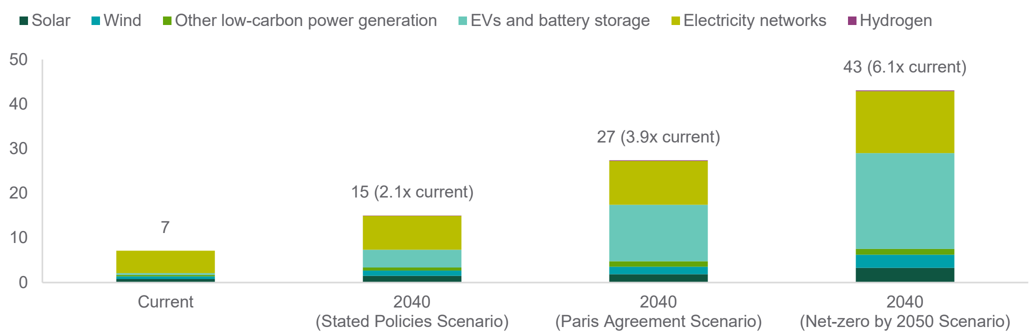
A GREEN TRANSITION BENEFICIARY

We do not conflate a near-term focus on energy security with a discontinuation of the shift to renewables. In fact, we believe that the green transition is still a go and that high fossil fuel prices could accelerate the shift to green energy. Perhaps ironically, we expect this to serve as a support for commodity prices. Indeed, oil and coal usage should slowly decline as society moves toward a net-zero carbon emissions world. However, as the demand for these resources dissipates (which, incidentally, won't be for years – peak oil demand is not expected until 2035), it will likely be replaced by increased demand for other commodities. The International Energy Agency (IEA) recently conducted a study that helps quantify this. Per Exhibit 6, the IEA found that demand for minerals (copper, nickel, rare earths, etc.) will more than double by 2040 if energy policies announced to date hold. Demand grows ~4x if goals outlined in the Paris Agreement are realized by 2040 and by an astounding 6x if a net-zero world is to be achieved by 2050.

EXHIBIT 6: PAVING THE WAY TO A GREEN FUTURE

Mineral demand could grow six-fold in the transition to clean energy.

MINERAL DEMAND UNDER CLEAN ENERGY SCENARIOS (METRIC TONS)



Source: Northern Trust Asset Management, IEA, Total mineral demand for clean energy technologies by scenario, 2020 compared to 2040, IEA, Paris https://www.iea.org/data-and-statistics/charts/total-mineral-demand-for-clean-energy-technologies-by-scenario-2020-compared-to-2040, IEA. License: CC BY 4.0.

Not only will natural resource companies likely play a key role in the shift to renewables through the provision of necessary raw materials, they may also contribute through innovation. As an example, Nutrien – a large holding within the NR asset class – has developed sensors and soil probes to best optimize farming operations against an increasingly uncertain weather and climate backdrop. Needed innovations like these offer untapped revenue streams for natural resources companies. While the absence of some "dirty" commodities will render some business models less attractive over time, we expect many companies will adjust and embrace profitable opportunities driven by the transition. In order to most directly capture these benefits, however, investors will need to hold the shares of these companies rather than a broad-based basket of underlying commodities themselves.

IMPLEMENTATION

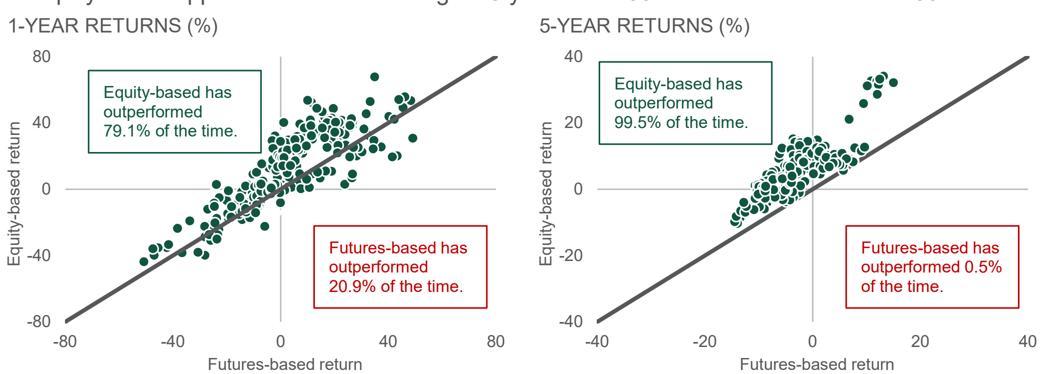
Throughout this piece we have noted ways in which the performance of an equity-based approach can differ from – and is often times superior to – a futures-based approach to the asset class. By investing in companies close to the commodity-production process rather than the underlying commodities themselves, investors can capitalize on equity-specific factors such as the sound capital discipline and attractive equity valuations we find today. Investing in companies over commodities also allows the investor to enjoy the fruits of innovation and access areas of the commodity complex that can't easily be gained through a futures-based approach – for example, water via utilities and desalinization plants.

More generally, equity-based approaches offer similar levels of inflation protection as futures-based, but also provide an equity risk premium investors can benefit from when inflation is not as much of an issue. Moreover, roll yield (the return from rolling a short-term contract into a longer one) can be a headwind for futures-based strategies when back-end contracts are priced higher than front-end contracts (as has been the case across a majority of the recent decades).

But more compelling than any other reasoning we can provide are the historical return numbers: Across 1-year, 3-year and 5-year returns (monthly rolling, back to 2002), an equity-based approach has outperformed futures-based 79%, 93% and just under 100% of the time, respectively (see chart below for the 1-year and 5-year returns).

EXHIBIT 7: EQUITY VERSUS FUTURES-BASED APPROACHES

An equity-based approach has offered a higher 5-year return 99%+ of the months since 2002.



Source: Northern Trust Asset Management, Bloomberg. Data from 11/30/2002 through 4/30/2023. Equity-based proxied by S&P Global Natural Resources Index; futures-based proxied by Bloomberg Commodity Index. Past performance is not indicative or a guarantee of future results. Index performance returns do not reflect any management fees, transaction costs or expenses. It is not possible to invest directly in any index.

CONCLUSION: RELATIVE OPPORTUNITIES

We see a diversified, equity-based approach to NR offering compelling near-term prospects relative to risk assets such as EM equities. While susceptible to global economic conditions that disappoint, we expect downside to be mitigated by supply side discipline and inexpensive valuations in the equities that should provide longer-term support for the asset class. Longer-term support can also be found in the asset class's tendency to provide an effective hedge against unexpected inflation and geopolitical tensions – both of which run the risk of continuing well into the future. The green transition actually represents another long-term support – both because of overblown fears surrounding near-term impacts and underappreciation of green transition demand for industrial metals. Concerns about energy security have altered the discussion about the pace of the green transition in areas like the United States (likely to be slower, keeping demand for fossil fuels higher), while a broad-based approach to NR offers participation in metals critical to sustainable forms of energy and their distribution, many of which are likely to be in short supply, putting upward pressure on prices.

[1]Asset class returns generally represented by leading indices may be substituted for security or strategy returns where historical data for the security or strategy is deemed insufficient to provide statistically accurate results or as a broad representation of security or strategy performance. These benchmark rates of returns should not be considered as exact replications of the security or strategy returns, but rather an approximation for illustrative purposes.

Indexes used and definitions:
Bloomberg (BBG) U.S. Aggregate (Investment Grade, “Fixed Income”): A broad-based flagship benchmark that measures the investment grade, US dollar-denominated, fixed-rate taxable bond market. The index includes Treasuries, government-related and corporate securities, MBS (agency fixed-rate pass-throughs), ABS and CMBS (agency and non-agency).
BBG U.S. Treasury Inflation Notes (TIPS): Measures the performance of the US Treasury Inflation Protected Securities (TIPS) market. Federal Reserve holdings of US TIPS are not index eligible and are excluded from the face amount outstanding of each bond in the index.
MSCI ACWI Index (Global Equities): A free-float weighted equity index that includes both emerging and developed world markets.
BBG Commodities (Commodities): Calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weight-caps are applied at the commodity, sector and group level for diversification. Roll period typically occurs from 6th-10th business day based on the roll schedule.
MSCI ACWI IMI Core RE (Global Real Estate): A free float-adjusted market capitalization index that consists of large, mid and small-cap stocks across 23 Developed Markets (DM) and 24 Emerging Markets (EM) countries* engaged in the ownership, development and management of specific core property type real estate.
S&P Global Infrastructure (Global Listed Infrastructure): Provides liquid and tradable exposure to 75 companies from around the world that represent the listed infrastructure universe. To create diversified exposure across the global listed infrastructure market, the index has balanced weights a cross three distinct infrastructure clusters: Utilities, Transportation, and Energy.
S&P Global Natural Resources (Natural Resources): Includes 90 of the largest publicly-traded companies in natural resources and commodities businesses that meet specific investability requirements, offering investors diversified, liquid and investable equity exposure across 3 primary commodity-related sectors: Agribusiness, Energy, and Metals & Mining.

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