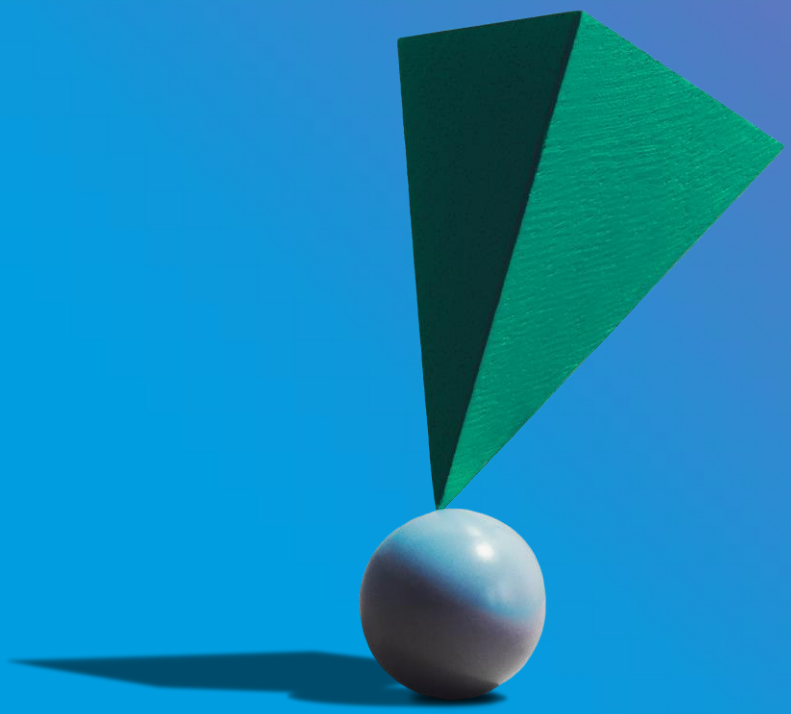
Mercer

Investing in Natural Resources – A Primer

Private market insights



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What are Natural Resources?

The term "natural resources" refers to materials, substances or commodities that exist naturally in the world around us. They are used to produce critical goods and services such as transportation, housing, and heating. Natural resources are typically physical or tangible assets (as opposed to financial assets) that possess intrinsic value.

Natural resources are one of the three main components—along with real estate and infrastructure—of the broader category referred to by investors as real assets, tangible assets or inflation hedges.

The first private-market natural resources fund was developed more than 30 years ago. Many of the earliest investors in the sector were university endowments, including those of Harvard, Yale and Vanderbilt. Since that time, investor interest in natural resources has grown substantially. In 2021, the number of investors in the asset class was up 80% from 2017, to more than 5,600.[1] Investor appetite remains strong, despite sustainability concerns and mediocre performance from 2015 through 2020. About 80% of investors surveyed by Preqin (a leading data provider) in November 2021 intended to commit as much, or more, capital to natural resources in 2022 as they did in 2021.[2]

Recent years have seen annual fundraising for natural resources in excess of $100 billion. However, in the COVID-19-impacted year of 2020, aggregate private natural resources capital raised fell for the first time since 2016, down 29% from 2019 to $90 billion. Since 2013, the number of funds closed annually had fluctuated around the 190 mark but just 106 reached final close in 2020.[3] Fundraising recovered in 2021, as 147 funds closed, raising a record $130 billion.[4] Note that these figures include funds raised by private equity and infrastructure funds with a focus on natural resources.

In this primer, we address private capital investment in the ownership and production of key natural resources. This assessment includes investments in closely related operations whose fortunes are linked to the prices of the relevant natural resources.

In this paper, we focus primarily on natural resources investing through private equity-style funds. However, investors should be aware that it is also possible to access the asset class through listed equity strategies, and through private market debt strategies. As with any asset class, investors should always first consider the strategic role to be played by an investment within an overall portfolio.

[1] Preqin. Global Natural Resources Report, 2022
[2] Ibid
[3] Preqin. Global Natural Resources Report, 2021
[4] Preqin. Global Natural Resources Report, 2022

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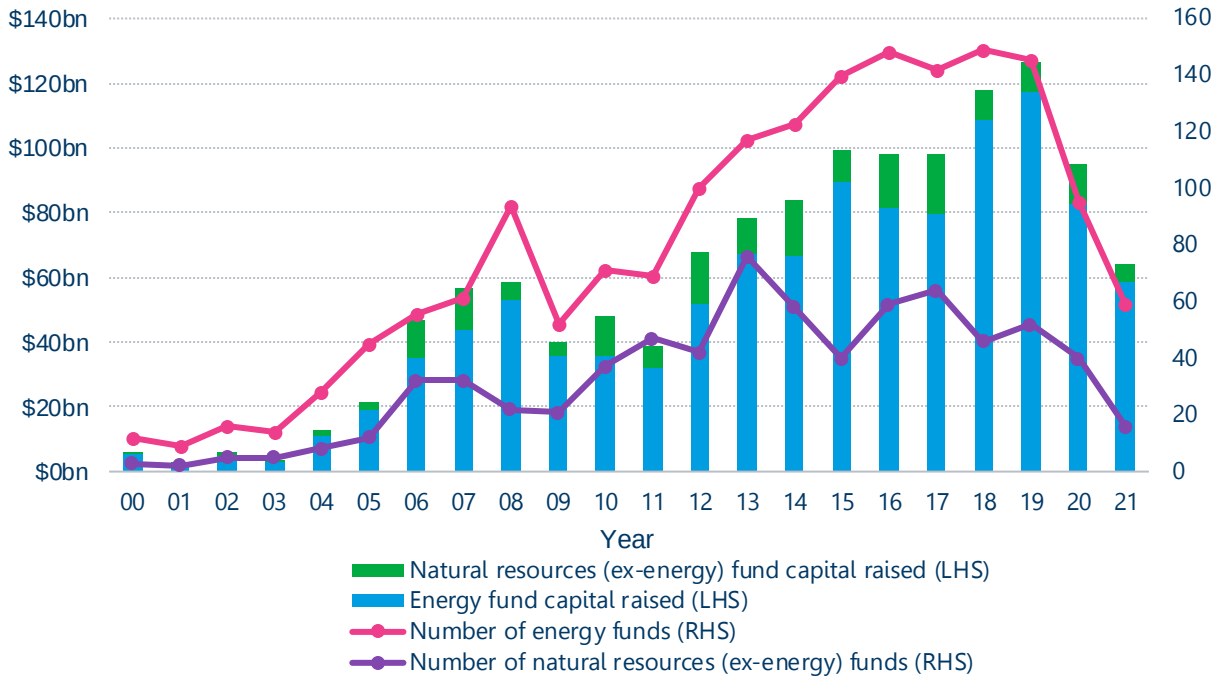
Natural Resources Sectors

In the world of institutional investing, there are five main industries or sectors that fall under the natural resources umbrella.

Energy is, by far, the largest investable natural resources sector. At the peak in 2019, 93% of the dollars raised by the natural resources asset class was secured by energy funds (as shown in Figure 1).

Figure 1: Fundraising and number of natural resources and energy funds



Source: Preqin, as of July 2021

This sector encompasses a wide range of businesses that produce, transport or store a source of power or fuel.

Energy is a crucial component of the global economy and correlates strongly with the overall level of human development. Global primary energy consumption has grown 19% in the past decade and is anticipated to grow a further 27% in the next decade.[5] Power generation is gradually shifting to renewables to meet global climate change targets.[6] In 2019, renewables comprised 68% of energy-focused funds closed and 44% of the aggregate capital raised.[7] Still, the US Energy Information Agency (EIA) projects that demand for both oil and natural gas will continue to rise through at least 2050.[8]

[5] Ibid.
[6] Ibid.
[7] Preqin. Global Natural Resources Report, 2021.
[8] International Energy Outlook 2021, October 6, 2021

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There are multiple subsectors that comprise the energy industry:

- **Upstream** activities include the development and production of oil and natural gas, which are typically found in underground rock or reservoirs. Upstream represents the most direct natural resource investment. Related strategies pursued by managers in the upstream subsector include non-operated ownership interests, mineral and royalty interests, and oilfield equipment and services.
- **Midstream** assets are the pipelines, processing plants, and storage facilities that gather, treat, store, and transport oil, natural gas, and their by-products. Assets in this sector are sometimes categorized as infrastructure. Investors may classify higher risk/return midstream investment as energy, while more stable assets are often placed into the infrastructure category.
- **Power** refers to the generation and distribution of electricity from both traditional and renewable sources. Even though power is not technically a natural resource, many investors include it under the energy umbrella. Mercer, however, categorizes power investments—both renewable and traditional—as infrastructure.
- **Downstream** refers to assets such as refineries and gasoline service stations. There is little private capital invested in these types of assets, so this subsector receives minimal attention.

Timber is a mainstay of the world economy and supplies the basic raw material used in the production of numerous wood, paper, and other products. Timber is managed economically as a renewable crop on hundreds of millions of acres worldwide. Timber investments are generally categorized as softwoods (e.g. pine, fir or spruce) or hardwoods (e.g. eucalyptus, oak or cherry). Softwoods are generally grown on plantations, also known as tree farms, where trees are planted and harvested as a crop (the harvest cycle is around 20 years or more, depending on the species). Hardwoods typically grow in natural mixed forests and regenerate naturally after harvest.

The size or maturity of trees is another key differentiator, with the smallest referred to as pulpwood and the largest trees referred to as sawtimber.

Mining is a large, global, capital-intensive industry. Metals and minerals are needed to support economic growth and are used to produce many manufactured goods used in modern societies, including all electronic devices. There are several types of metals:

- **Base metals** are typically more abundant in nature than the other types and are therefore less expensive. They include lead, copper, nickel, and zinc.
- **Precious metals** are scarce, durable, and more valuable. They include gold, silver, and platinum.
- **Rare-earth elements** encompass a large group of soft heavy metals that are similar in chemistry and appearance, but have different, and often unique, electronic and magnetic properties.
- **Battery metals**, a more recent category, include those metals that are necessary for making batteries, an important component of the energy transition. These include lithium, nickel, cobalt, and cadmium.

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Agriculture is defined as the science or practice of farming, including the growing of crops and the rearing of animals to provide food and other products. Investors often refer to this subsector as simply "farmland." Technically, agriculture is the business that occurs on farmland, but managers and investors rarely make this distinction and use the terms interchangeably to encompass both.

Farm crops can be categorized into two main types:

- **Row crops**—These include corn, soybeans, peas, and wheat. They must be planted every season.
- **Permanent crops**—These grow for many years on trees or vines and include apples, citrus, almonds, and grapes.

Investable **water assets** exist mainly in two regions of the world: the western United States and Australia. Given water's importance to modern life and many industries (e.g. food production), these assets tend to be very political. Their management can be particularly complex, especially since the United Nations recognizes access to water as a human right.[9] Although the macro case for water is solid (clean water is increasingly in demand and availability may be limited), few managers have been able to convert the macro case into attractive returns for investors.

Water assets generally come in two forms:

- **Water entitlements**—Perpetual rights to an annual allocation of water from a specific resource.
- **Water allocations**—Annual allotments of water provided to entitlement holders in response to factors such as rainfall and storage levels.

Water-related investments can also be made in related infrastructure, such as treatment plants and water utilities, but these are generally classified as infrastructure and not natural resources.

We summarize the key characteristics of each natural resources sector in Figure 2 on the next page.

[9] www.unwater.org/water-facts/human-rights/

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Figure 2: Investment Characteristics of Natural Resources Sectors

Sector	Key Return Drivers	Expected Gross % Returns[10]	Volatility
Energy	• Proving up reserves (upstream) • Improvements to drilling and fracking techniques (upstream) • Securing long-term contracts with creditworthy counterparties (midstream) • Oil and natural gas prices	Mid-to-high teens	High
Mining	• Progressing through the many stages of mine development (e.g. securing permits) • Proving up the resource • Operational improvements • Metals and mineral prices	Mid-to-high teens	High
Agriculture	• Enhancing productivity through irrigation and soil improvements • Better marketing of crops • Government policies (e.g. trade restrictions and tariffs) • Crop prices	High single digits	Medium
Timber	• Size, species, and genetics of resident trees • Improving site productivity through silviculture practices • Number of sawmills in close proximity to acreage • Wood product prices	High single digits	Low
Water	• Scarcity of water availability • Growth in nearby population or industry • Securing better offtake agreements	Mid-to-high single digits	High

Source: Mercer
Notes: Expected returns are hypothetical average returns of economic asset classes derived using Mercer's Capital Markets Assumptions. There can be no assurance that these returns can be achieved. Actual returns are likely to vary. Please see Important Notices for further information on return expectations

[10] Assuming moderate inflation and economic growth. Today's high inflation rates may push these returns higher.

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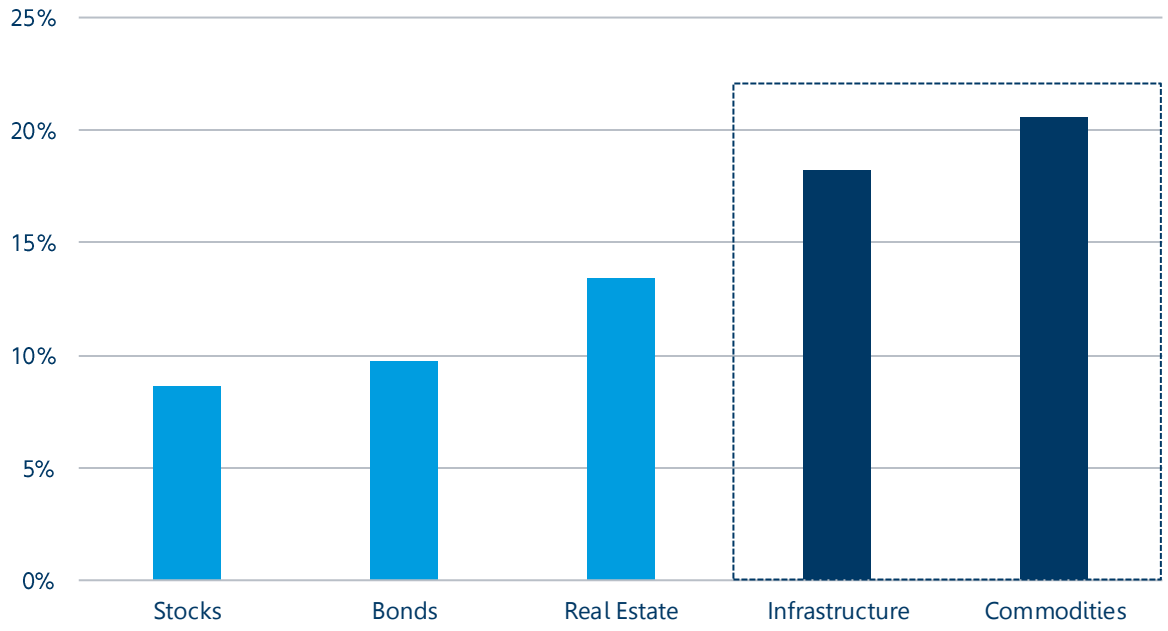
Reasons for Allocating to Natural Resources

There are a number of reasons why sophisticated institutional investors have been investing in natural resources for decades. Some of the most important include:

Inflation hedging — Natural resources are considered to be a strong inflation hedge because of their inherent characteristics. That said, it is difficult to prove a link between inflation and the investment performance of natural resources with correlation analysis, since most of the developed world, until just recently, had not experienced significant inflation in decades. It is also impossible to know with certainty which natural resource will be the best inflation hedge in any future period of high inflation. Historically, most natural resources have outperformed most financial assets during times of serious inflation.

Figure 3: Average asset class return in high inflation environments between 1981 and 2021



Source: Aether Investment Partners, Mercer
Notes: Data as of January 31, 1981 to December 31, 2021. Infrastructure data as of November 30, 2002 to December 31, 2021

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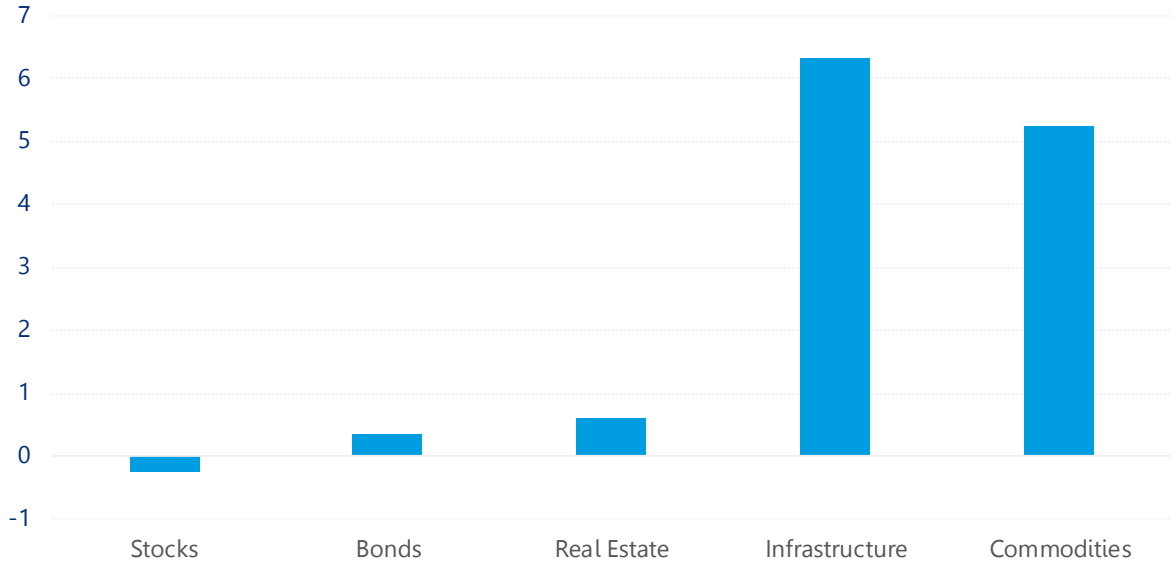
Figure 4: Beta to CPI — 1981 to 2021



Source: Aether Investment Partners, Mercer
Notes: Data as of January 31, 1981 to December 31 2021. Infrastructure data as of November 30, 2002 to December 31, 2021. Note listed market indices are used in this analysis as proxies

Intrinsic value—Like most real assets, natural resources have intrinsic or tangible value. Although not immune to economic factors, they act as a store of value throughout the economic cycle.

Unusual return drivers—Natural resources have unusual return drivers. The biological growth of trees is a prime example of this. Trees continue to grow, no matter what is happening in the economy or the stock market. As trees grow, they not only produce more volume, but they also become more valuable per unit of volume as they mature from pulpwood to sawtimber. Another example of this dynamic is the growing value of a mine as it secures the necessary permits and progresses through the multiple stages of mine development.

Diversification—Natural resources are not highly correlated to traditional asset classes, due partly to the unusual return drivers noted above. Therefore, they help provide real diversification benefits. According to Preqin, "the majority of surveyed investors see value in the long-term portfolio benefits of natural resources as a diversifier."[11]

Solid return potential —Some natural resources may provide attractive returns, although it is easy to forget this if looking in the rear-view mirror. Prior to 2021, returns for both energy and mining had been poor for several years. This was driven by several factors that resulted in steep drops in oil, natural gas, and many metal prices. These factors included:

[11] Preqin Global Natural Resources Report, 2021

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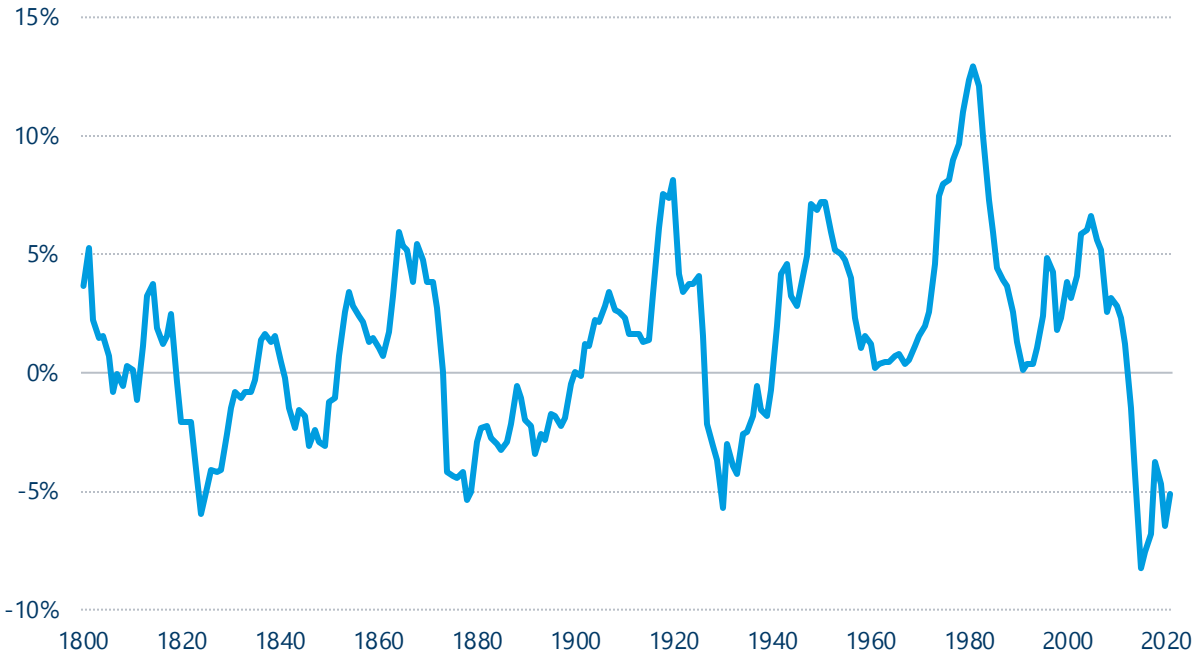
- Moderate economic growth
- The US shale revolution, which produced a record supply of oil and natural gas
- An influx of capital into the upstream energy sector, with land acquisition and growth (but not profitability) as the main objectives
- An oil production dispute between Russia and Saudi Arabia, which led to a price war in early 2020
- Governments' responses to COVID-19, which led to a huge drop in demand for many commodities

Timber and agriculture did not experience the downturn that energy and mining underwent. These sectors have muddled along with unimpressive single-digit returns for many years. The return of significant inflation in many countries, however, might provide a catalyst for higher returns in these two sectors.

Nonetheless, prior to this recent down cycle, long-term returns for some natural resources have been strong. For example, as of December 31, 2014, Burgiss Private i data shows a trailing 15-year annualized return of 16.8% for oil and gas funds.

The year 2020 marked the bottom of a commodity market cycle (as shown in figure 5 below). In early 2022, both debt and equity capital flows into the energy sector remain modest. At the same time, short-term energy demand is rebounding quickly post COVID-19. Long-term energy demand is widely projected to grow, as the US Energy Information Administration (EIA) expects world energy consumption to grow nearly 50% by 2050.

Figure 5: Cyclicality of commodity returns (rolling 10-year average annual commodity return)



Source: Aether Investment Partners, Mercer, as of December 31, 2021.

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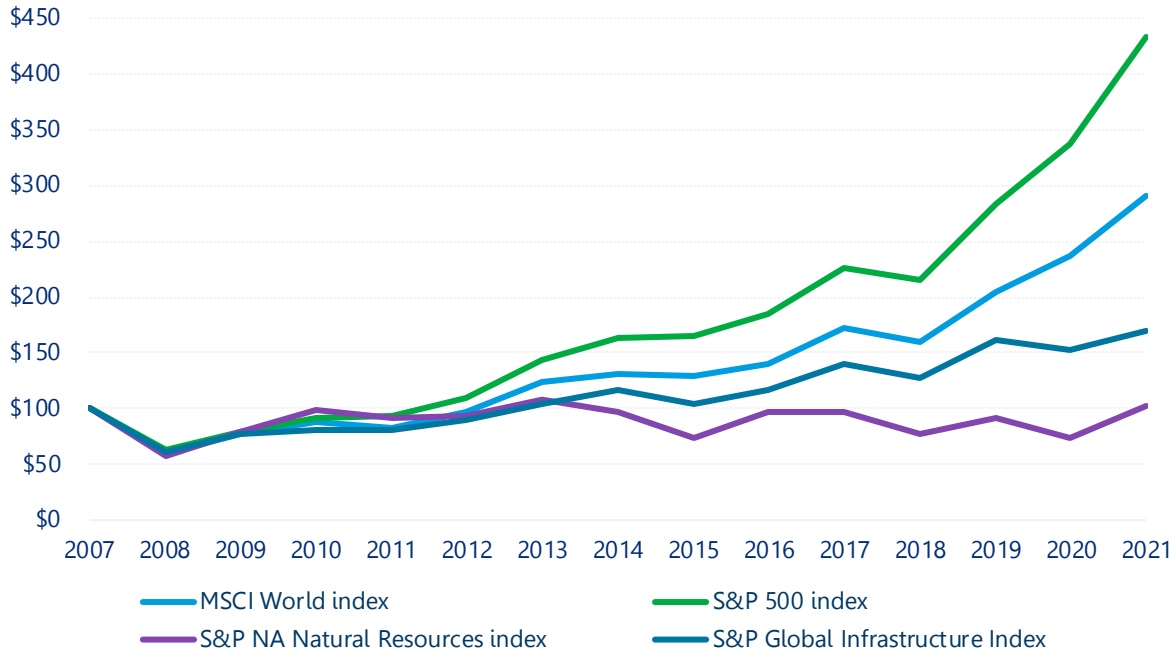
Figure 6: Cumulative historical return comparison of $100 invested over time in natural resources, infrastructure, listed infrastructure, S&P 500 TR and MSCI World TR Index



Source: Bloomberg, Mercer
Notes: Figures are as at 30 December 2021 in USD Past performance is no guarantee of future results.

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Implementation Options

There are various ways to implement an allocation to private markets natural resources. The best approach depends on the size of the investor. For example, the smallest investors may wish to consider fund-of-funds options. The largest investors—with substantial resources—may seek to utilize separate accounts or make direct investments. Most investors, however, should consider a program or portfolio composed of multiple closed-end funds (there are only a handful of open-end natural resources funds, mainly in the agricultural and timber sectors).

In all cases, we believe investors should construct well-diversified allocations to the asset class. Such diversification will ideally be across sectors, subsectors, places, strategies and vintage years.

We also believe investors should focus their efforts on creating a sound implementation plan. They should then source, access and employ the best investment managers.

Figure 8: Most common implementation options

Factors to consider	Fund-of-funds	Closed-end fund	Separate accounts (SMAs)
Cost	High	Medium	Low
Control	Low	Medium	High
Flexibility	Low	Medium	High
Required staff & resources	Minimal	Some	Extensive
Diversification	Immediate	Requires multiple funds	Requires multiple SMAs

Source: Mercer

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Environmental, Social, and Governance ("ESG") Considerations

ESG considerations are an important topic among investors, fund managers and advisors. Investors are not only asking fund managers to integrate ESG policies into their mandates, but are also increasingly demanding more standards and measurable ESG metrics. We believe all investors should be taking ESG considerations into account[12] in order to seek long-term returns and help mitigate risk.

Environmental considerations are particularly important for natural resources because, by their very nature, many natural resource assets have large associated environmental risks that need to be managed. In addition, the transition risks posed by climate change may be more keenly felt in the traditional energy sector than in other parts of the economy. Furthermore, it is very likely that emerging markets will face a regulatory evolution related to environmental protection and better resource management.

As global pressure mounts to tackle rising temperatures and extreme weather, asset managers will face closer scrutiny from stakeholders about what they are doing to address emerging environmental and operational risks. Accordingly, most professional natural resource managers have incorporated more rigorous ESG policies and procedures into their operations and decision-making. Some investors will simply not consider traditional energy or mining investments for environmental reasons. Others, however, recognize that not a single wind turbine, solar panel, electric vehicle, laptop or cell phone could be manufactured without substantial inputs from these two crucial industries. In particular, the "electrification of everything" will require copious amounts of copper, nickel, lithium and, of course, power.

Although the "E" in ESG often receives the most attention, social and governance issues are also important. Governance issues and best practices are nearly the same in natural resources as they are in any asset class, so we will not cover them here.

Social issues involve the general well-being of societies. Natural resources can help make a strong positive contribution in this respect. This is because economies cannot develop, grow or modernize, and people cannot improve their standard of living, without the substantial consumption of natural resources and the products derived from them: food, electricity, heat, transportation fuels and wood products.

As you can see in the chart below, energy consumption correlates strongly with the overall level of human development. This is because modern societies expect reliable and affordable energy to heat and cool homes and businesses, illuminate interior spaces, transport people, charge phones, power electronics, deliver packages, and stream data—all at the flip of a switch and without disruption.

[12] Mercer. "Responsible investment in commodities," available at www.mercer.com/our-thinking/wealth/responsible-investment-in-commodities.html

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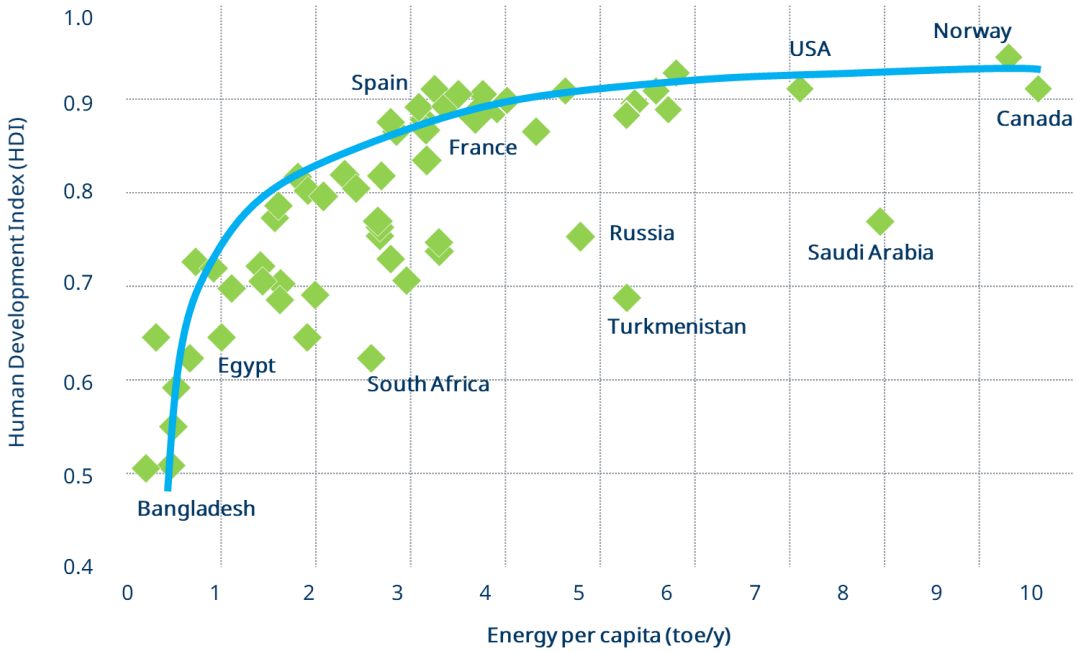
Figure 7: Human Development Index versus energy consumption in selected countries



Source: International Journal of Energy Economics and Policy, Vol 7, Issue 2, 2017

ESG reviews are an integral part of Mercer's manager research process, resulting in the assignment of an ESG rating[13] in the course of the regular research process. Mercer's ESG assessments cover the extent to which portfolio managers integrate these factors into their investment decision-making process. Mercer's ratings are available to all GIMD subscribers and are included as standard in full research reports, at no additional cost to clients[14].

There are many external organizations which track the performance of infrastructure managers against sustainability targets. The best-known include the United Nations Principles for Responsible Investment ("UNPRI") reporting which evaluates the performance of asset managers against a set of aspirational responsible investment principles.

In short, we believe ESG is a critical component of natural resources investing and something that should be carefully considered when performing due diligence on investment managers.

[13] Please see Mercer's Guide to ESG Ratings https://www.mercer.com/our-thinking/mercer-esg-ratings.html

[14] For additional details on Mercer's latest research into ESG please see the following website: https://www.mercer.com/our-thinking/wealth/responsible-investment.html

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Potential risks to consider

While there are many potential benefits associated with adding natural resources to a traditional portfolio, there are also certain risks that should be considered by investors. The list below is not exhaustive; however, we believe it includes the most pertinent risks associated with investing in natural resources.

Commodity price volatility is a normal feature of many natural resources and can be quite substantial in the energy and mining sectors. It is important, therefore, to consider diversifying any natural resources allocation among multiple commodities. Hedging, especially in the upstream energy sector, is utilized by many managers to help mitigate this risk. The use of leverage should also be commensurate with the amount of hedging that occurs. High leverage combined with little hedging has led to the downfall of several energy managers and many energy companies.

Environmental risks are a significant concern because, by definition, natural resources must be taken from the natural environment.[15] There is no way to avoid disturbing the earth's surface. However, nearly all institutional-quality managers have made great strides in their ESG efforts. Most firms have adopted ESG policies and are taking direct action to minimize their environmental impact by improving operations and maintaining high safety standards. Some attempt to go further and improve the environment through water recycling, land reclamation, generating gas from waste, reduced use of herbicides, and similar efforts.

Political and regulatory risks arise from the numerous laws and regulations faced by natural resource industries. These exist—and often change—because of the sensitive and strategic nature of many natural resources. Export and import subsidies, tariffs, and restrictions should be considered here. In extreme cases, the nationalization of assets could occur, although this risk is generally limited to frontier countries. International issues—such as the Russia-Ukraine conflict, ongoing tensions between the US and China, and economic conflicts—will likely remain a feature of the geopolitical landscape in coming years, contributing to continued commodity price volatility.

The energy transition from fossil fuels to renewable sources of energy creates the risk, indeed the likelihood, that demand for fossil fuels will not climb at the same rate as it has in the past. According to the EIA, worldwide demand for oil and natural gas will continue to grow, but at a slower rate, for the next 30 years.[16] Under all realistic scenarios, significant investment in the sector will be necessary for decades to come.

[15] *www.mercer.com/our-thinking/wealth/zero-places-to-hide.html https://www.mercer.com/our-thinking/wealth/zero-places-to-hide.html*

[16] US Energy Information Administration's *International Energy Outlook 2020*, page 4.

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Illiquidity, vintage year and blind pool[17] **risks** are three concerns faced by all private capital investments, including those in natural resources. Private market funds generally have lifespans in excess of 10 years. In our view, having a long-term investment strategy and maintaining appropriate levels of liquidity in other asset classes are necessary to properly manage illiquidity risk. Investors should consider diversifying against vintage year risk by building out a portfolio over multiple years, allowing the portfolio to be constructed throughout various points in an economic cycle.

Conclusion

Modern economies cannot function without natural resources, the many goods that are produced from them and the multitude of services supported by them. Despite the subpar returns of several years prior to 2021, there have been clear benefits to investing in natural resources, especially portfolio diversification and helping hedge against inflation. Therefore, natural resources should be considered as a significant component of any real assets or inflation hedging allocation.

As mentioned above, there are also significant risks to investing in natural resources, although these can be mitigated to some extent through diversification and professional portfolio implementation.

As with most alternative investments, a major key to success is sourcing, analysing, and accessing quality managers.

[17] *"Blind pool" risk refers to the fact that investors generally don't know the composition of a portfolio at the time they commit to a private capital fund.*

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There are substantial risks associated with investments classified as alternative investments. Investors should have the ability, investing sophistication and experience to bear the risks associated with such investments.

Portfolio expectations are forward looking and reflective of Mercer's Capital Market Assumptions, as defined by asset class and incorporating return, standard deviation, and correlations. Our process for setting asset class expected returns begins with developing an estimate of the long term normal level of economic growth and inflation. From these two key assumptions, we develop an estimate for corporate earnings growth and the natural level of interest rates. From these values, we can then determine the expected long term return of the core asset classes, equity and government bonds. We combine current valuations with our expectations for long term normal valuations and incorporate a reversion to normal valuations over a period of up to five years. Volatility and correlation assumptions are based more directly on historical experience except in cases in which the market environment has clearly changed. Manager impact on performance is not incorporated into expectations. The views expressed are provided for discussion purposes and do not provide any assurance or guarantee of future returns

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