2020 PREQIN GLOBAL **NATURAL RESOURCES** REPORT

SAMPLE PAGES

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Contents

Methodology

In this report, unless otherwise stated, 'Natural Resources' includes Infrastructure and other Private Capital funds with a significant focus on natural resources.

Executive Summary

Strong fundraising and AUM numbers, boosted by mega infrastructure funds investing in energy, masked a challenging landscape for natural resources funds

At first glance, the headline numbers for 2019 are strong: natural resources assets under management (AUM) surpassed $760bn, a new record. And fundraising hit a high of $109bn, exceeding $100bn for the second year in a row. But these figures were bolstered by the closing of mega infrastructure funds that also invest in energy assets. For natural resources and timberland fund types only[1], 2019 proved to be a challenging year.

Indeed, the number of natural resources funds closed slid for the second straight year, dropping from 149 vehicles in 2018 to 128 in 2019, reflecting a tougher environment for fundraising in this asset class. Performance also disappointed investors: the rolling one-year median net IRR to H1 2019 plummeted to a 10-year low of 1.5%. Amid volatility in commodity prices and rising geopolitical tensions, the industry struggled to gain momentum.

Still, in a quiet year for fundraising, there were some bright spots. Africa-focused natural resources funds, for instance, had a successful year. They raised 10x more capital than in 2017, and made up close to a third (30%) of fund closures in the Rest of World region.

Looking beyond fundraising to the investor universe, we see several emerging trends. The investor pool is expanding, with increased participation from institutions such as endowment plans and private wealth investors. The investor base is also becoming more geographically diverse. While North America and Europe are still the largest investors in natural resources, comprising 52% and 22% of the total respectively, Asia is becoming a significant player on the global scene: it now makes up 16% of the investor universe.

The Rise of ESG, Transitioning toward a Low-Carbon Economy

Energy assets make up the lion's share of natural resources AUM. As the global economy increasingly moves away from fossil fuels toward renewable sources of energy, investments in natural resources are shifting in this direction (see page 46).

At the same time, the rise of ESG is driving growing investor interest in sustainable farming, as well as in the agricultural technologies that make greener methods of food production possible (see page 52). This increasing focus on environmental sustainability is generating new opportunities for investment in the agriculture/farming sector, boosting aggregate capital raised by agriculture funds by 100%, from $1.8bn in 2018 to $3.6bn in 2019.

A Challenging Outlook for Fundraising

As 2020 kicks off, there are 318 vehicles in market seeking a total of $205bn. Just over half (56%) of funds in market have held at least one interim close with only about a quarter (28%, $58bn) secured so far, which is indicative of a crowded fundraising environment.

That's not all. Fund managers are having to grapple with a tough exit environment, rising asset valuations, commodity market volatility, and geopolitical uncertainty. Amid these challenges, investors are likely to put ever-greater emphasis on strong track records when selecting managers. Those that make the cut will have to show that they can deliver results even as market conditions become less favorable.

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[1] Excludes Private Equity and Infrastructure fund types with a focus on natural resources.

Natural Resources Megatrends

Key themes shaping the natural resources industry

Sustainability

Investors are increasingly taking environmental, social, and governance (ESG) factors into account, pushing fund managers to do the same.

Geopolitical Tensions

In 2019, geopolitical friction from unrest in the Middle East to the US-China trade war impacted energy prices and weighed on global demand for commodities.

Climate Change

Higher temperatures, rising sea levels, and extreme weather events resulting from climate change have the potential to disrupt the production and distribution of vital natural resources, from food to energy.

Technology

Technological innovations such as artificial intelligence (AI), big data, and the Internet of Things (IoT) are helping to improve efficiency and enhance productivity in sectors across the industry, from renewable energy to sustainable farming.

Performance Pressure

Geopolitical uncertainty and trade tensions have dampened global demand for commodities and hurt returns of natural resources investments.

Data Pack

The data behind all of the charts and tables featured in this report is available in Excel format at no extra cost. This data may be used in marketing materials, presentations, or company reports with appropriate accreditation to Preqin.

The Global Push for Sustainability

How the world's largest farmland manager is finding solutions to the global sustainability challenge and improving its carbon footprint

Justin "Biff" Ourso
Head of Real Assets, Nuveen

How are investors in natural resources using big data and AI to more efficiently manage their investments?
Big data shines a light on what has previously been viewed as ambiguous information. When it comes to investing in natural resources – farmland, timberland, energy – sustainability is essential for assessing risk and preserving long-term value. Where does big data come in? In our due diligence for land purchases, for example, we combine data from satellite imagery to understand historical land use patterns, while matching it to government global positioning system data used to substantiate land claims. This is particularly important in regions where we must adhere to regulatory frameworks that promote zero deforestation and sustainable agriculture.

Technology plays a major role in informing our farmland investment and management approach. Our models consider the rising world population, changing dietary patterns of expanding middle-income classes in developing markets, as well as the reduction in arable land in the coming decades and how such factors will drive the supply-demand balance for food and fiber. We also analyze data that relates to climate change, because its manifestations – from droughts and floods, to wildfires and deforestation – represent a threat to sustainable agricultural production and enduring investor value. Data and technology are strengthening our sustainability practices across our global farmland assets, potentially increasing alpha and managing risk for investors.

Are managers making more of a conscious effort to reduce their carbon footprint and move toward more responsible and sustainable investments?
The realities of climate change and carbon-related impacts have further strengthened our resolve to keep sustainability at the forefront of our policies, strategies, and practices every day. Our parent company, TIAA, endorsed the Task Force on Climate-Related Financial Disclosure (TCFD) in December 2017 as it supports and appreciates the importance of climate-change-related risks and opportunities, as well as disclosure and transparency. Nuveen has a multi-disciplinary working group to explore ways to measure climate risk across asset classes, leveraging scenario analysis as supported by TCFD.

As the largest farmland manager in the world and a long-time responsible investor, we are very much focused on mitigating the impact of climate change on agriculture systems and our agriculture investments, while also mitigating the impact of agriculture on climate change. It needs to go both ways in order to have an impact. We are building and adopting standards for sustainable agriculture, which both improve resilience to a changing climate but also lessen our overall impact on GHG emissions. In August 2018 for example, we deepened our commitment to discourage deforestation – a significant contributor to global carbon emissions – by adopting a Zero Deforestation Policy for our Brazilian farmland investments. This prevents the depletion of forested areas and native vegetation on land we are managing, or intend to acquire, for our investors. We also invest in climate data that tells us about our risk exposure across different regions and crops, compared against varying climate scenarios. This helps us to create an educated and proportionate strategy to diversify risk and mitigate climate impact.

This mindset informs how we invest in other areas as well. Through our private equity impact strategy, we seek out companies with innovative technologies that improve resource efficiency and reduce carbon intensity in production processes and supply chains. In 2018 alone, these investments saved 1.8 million tons of CO^2e.

Are you seeing more demand for ancillary services/ infrastructure to overcome water scarcity and remedy infrastructure shortcomings? If so, what challenges will this bring?

Global water crises and shortages demand new solutions and better metrics to track performance and ensure responsible management. These extreme conditions can fallow acreage, depress crop yields, reduce annual returns, and endanger the long-term productivity of natural resource assets. Severe droughts in California, Australia, and Brazil in recent years have also affected crop yields.

Across our permanent crop properties (tree fruits, nuts, citrus, grapes), we implement efficient drip-line and micro-sprinkler irrigation systems. On farmland using flood or furrow irrigation, we aim to use recyclable polyethylene piping. When combined with other water-management techniques, these pipes can improve water-use efficiency by 25%. On Nuveen properties in the Southern US and Australia, techniques like precision land leveling are being introduced to improve drainage, control erosion, and reduce overall water use. The techniques we employ are designed to improve sustainability and efficiency. When used, they can cut overall water usage dramatically.

Invariably, an investment in natural resources – farmland and timberland in particular – leaves an investor exposed to the vagaries of Mother Nature. In a warming, more variable climate, ensuring the quality and quantity of water resources is perhaps the most important challenge. Implementing mitigation strategies requires investors and managers to have the requisite knowledge, and also financial capital to invest in the improvements and programs. There are also potential opportunities for governments, policymakers, and private investors to come together to address large-scale infrastructure solutions at a more elevated, regional, state, or even federal level.

A weaker-than-expected global growth outlook has created lower commodity prices. Where are you seeing the most attractive opportunities as a result?

As global growth has slowed, commodity prices have reflected lower current and forecast demand. The US-China trade war has been and is projected to be a drag on global GDP. However, it does present upside potential in the event of early-relaxation trade barriers for many commodities. With weaker global growth already incorporated into suppliers' plans (lower rigs, reduced fracking production growth, etc.), the slowdown in supply will create dislocations in time and geography throughout supply chains, producing opportunities. If the slowdown in growth is harsher than expected, price action may support trend-following strategies.

Nuveen

Nuveen, the investment management arm of TIAA, is one of the largest investment managers in the world with $1tn in assets under management.[1] Managing a broad array of assets across diverse asset classes, geographies, and investment styles, we provide investors access to a wide range of liquid and illiquid alternative strategies.

We offer real asset strategies through our investment specialists. AGR Partners provides growth capital to leading mid-market agribusinesses and food companies. Westchester has more than 30 years of experience in acquiring, managing, and marketing agricultural real estate assets around the world, and is the largest manager of farmland assets globally.[2] GreenWood Resources specializes in the acquisition and stewardship of forestry assets. Gresham Investment Management is recognized as one of the world's leading investment managers focused exclusively on portfolios providing investors access to a diversified array of commodities.

www.nuveen.com

[1] As of 30 September 2019
[2] Source: Pensions & Investments, 30 Sept 2019. Rankings based on institutional tax-exempt assets under management as of 30 Jun 2019 reported by each responding asset manager

In Focus: Appetite for Renewables Grows

In 2019, renewables made up 68% of energy-focused funds closed and 44% of aggregate capital raised

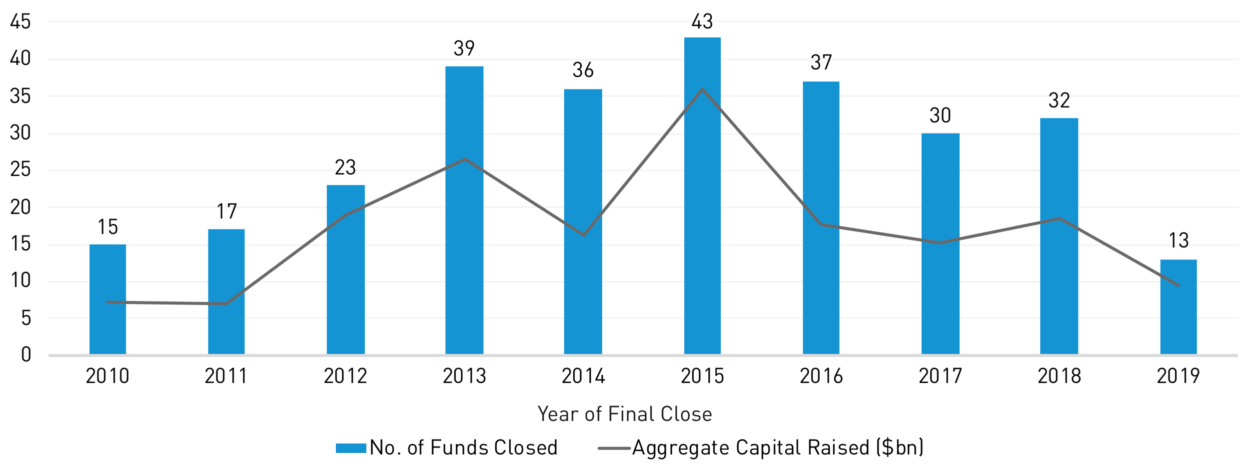
Private capital investors and fund managers have a key role to play in the global shift toward a low-carbon economy. For the shift to occur, reducing greenhouse gas emissions from fossil fuels while boosting the share of renewables and low-carbon energy sources is vital. Part of the challenge is that world energy consumption is expected to increase by nearly 50% between 2018 and 2050, according to the US Energy Information Administration (EIA)'s International Energy Outlook 2019.[1] And right now, fossil fuels dominate the global energy mix.

Fortunately, innovations in digital technologies and reduced renewables costs are "opening huge opportunities for energy transitions," the International Energy Agency notes in its World Energy Outlook 2019.[2] Investors can help to accelerate these clean energy transitions by allocating more capital to funds targeting renewables and low-carbon electricity.

Judging by the increase in the share of clean energy funds closed, as well as the proportion of aggregate capital raised, investor appetite for opportunities in this space is growing (Figs. 7.2-7.3). Between 2018 and 2019, the number of renewable energy funds[3] closed rose by 3% to 34, which is more than double the number in 2010 (14). Renewables funds raised an aggregate $11bn in 2019 – while this is a slight dip of 6% compared with the previous year, it is triple the $3.5bn raised in 2010.

[1] *https://www.eia.gov/todayinenergy/detail.php?id=41433*
[2] *https://www.iea.org/reports/world-energy-outlook-2019#tackling-legacy-issues*
[3] *Funds with an energy investment remit focused on biomass, geothermal, hydroelectric, solar, wind power, or a combination of these.*

Fig. 7.1: Unlisted Energy Fundraising*, 2010 - 2019



Source: Preqin Pro

**Excludes Private Equity and Infrastructure fund types with a focus on natural resources.*

At the same time, investor appetite for funds investing in conventional energy sources seems to be diminishing. In 2019, the number of conventional energy funds[4] closed fell to 12, a 59% drop compared with 2018. This is the lowest figure recorded since 2010, when 15 funds closed. And aggregate capital raised declined by 32% to $9.2bn, the second-lowest figure since 2010, when conventional energy funds raised $8.0bn

Developing Economies: Fertile Ground for Renewables Funds

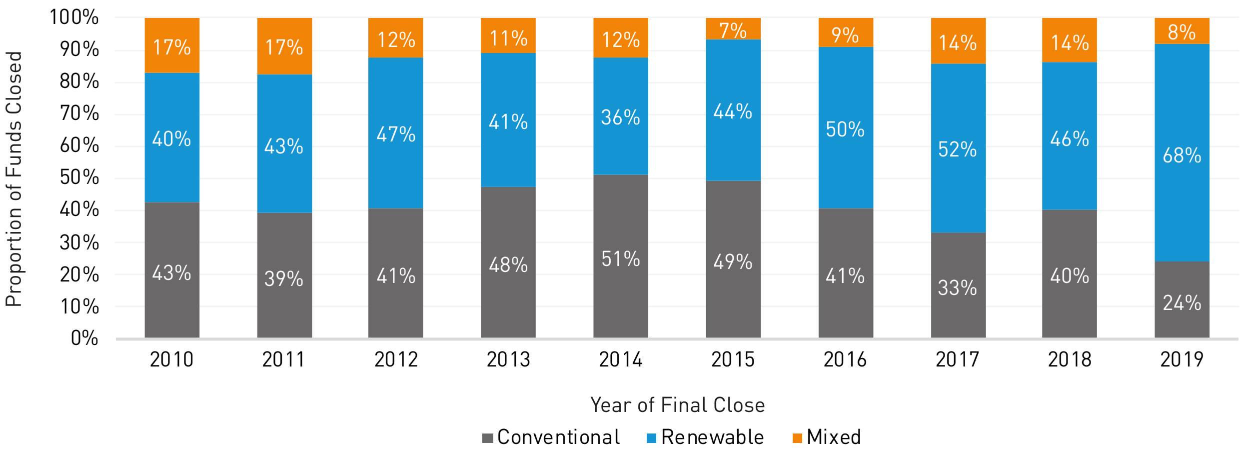
Given Asia's rapid pace of economic growth, the region is projected to account for a significant proportion of the increase in world energy usage to 2050, according to the EIA. Consider China, the world's largest consumer of energy. As part of its efforts to tackle climate change, China has been adapting its energy mix to incorporate more sources of renewable energy. Indeed, China's renewables consumption rose by 29% in 2018, making up 45% of the growth in global renewables consumption.[5]

Private capital funds being raised to invest in China's renewables sector include Clean Energy & Environment Fund (CEEF), which is looking to raise $300mn and has already held a first close. Managed by DWS Group, the global asset manager which is majority owned by Deutsche Bank, CEEF targets growth investments in companies operating in the clean technology and renewable energy sectors in China.

Asia is not the only region in the developing world where renewables consumption is growing. Africa, for example, increased its use of renewables in

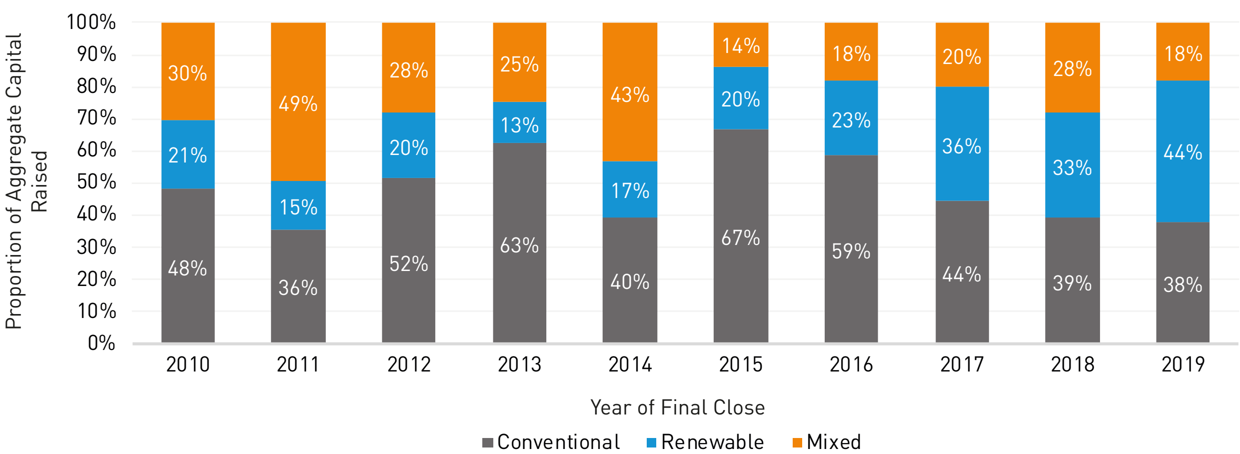
[4] *Funds with an energy investment remit focused on oil, natural gas, coal, oil field services, or a combination of these.*
[5] *https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/country-and-regional-insights/china.html*

Fig. 7.2: Unlisted Energy Funds Closed by Type, 2010 - 2019



Source: Preqin Pro

Fig. 7.3: Aggregate Capital Raised by Unlisted Energy Funds Closed by Type, 2010 - 2019



Source: Preqin Pro

electricity generation by 18.5% in 2018, though it is starting from a low base – renewables' contribution to the region's energy mix is a modest 1.6%.[6] To help finance renewables growth in the region, a variety of investment vehicles have been created. These include Orionis, a renewable energy fund that aims to build commercial and industrial solar photovoltaic (PV) facilities in Southern Africa. The fund, which secured ZAR 400mn at final close in 2019, is a partnership between South African renewable energy company the SOLA Group; Nedbank Energy Finance, a unit of Johannesburg-based financial services group Nedbank; and AIIM, an infrastructure investment manager with operations spanning 17 countries across East, West, and Southern Africa.

[6] *https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/country-and-regional-insights/africa.html*

Fig. 7.4: Largest Unlisted Energy Funds Closed in 2019

Rank	Fund	Firm	Headquarters	Geographic Focus	Fund Size ($bn)	Final Close Date
1	Global Infrastructure Partners IV	Global Infrastructure Partners	US	Global	22.0	Dec-19
2	EQT Infrastructure IV	EQT	Sweden	North America, Europe	10.1	Mar-19
3	Ardian Infrastructure Fund V	Ardian	France	Europe	6.9	Mar-19
4	Macquarie European Infrastructure Fund VI	Macquarie Infrastructure and Real Assets (MIRA)	UK	Europe	6.7	Jun-19
5	North Haven Infrastructure Partners III	Morgan Stanley	US	Global	5.5	Dec-19

Source: Preqin Pro

Fig. 7.5: Top Performing Unlisted Conventional Energy Funds (Vintages 2008-2017)*

Rank	Fund	Firm	Vintage	Geographic Focus	Fund Size ($mn)	Net IRR (%)	Date Reported
1	Kimmeridge Energy Fund III	Kimmeridge Energy	2016	North America	200	587.0	31-Dec-19
2	Carnelian Energy Capital I	Carnelian Energy Capital	2015	North America	400	216.7	31-Dec-18
3	Five Point Capital Midstream Fund I and II	Five Point Energy	2014	North America	450	49.5	31-Dec-18
4	Kayne Anderson Energy Fund VII	Kayne Anderson Capital Advisors	2015	North America	2,000	42.3	31-Dec-18
5	EnCap Flatrock Midstream Fund I	EnCap Investments	2009	North America	792	41.3	30-Jun-19

Source: Preqin Pro

Fig. 7.6: Top Performing Unlisted Renewable Energy Funds (Vintages 2008-2017)*

Rank	Fund	Firm	Vintage	Geographic Focus	Fund Size ($mn)	Net IRR (%)	Date Reported
1	Kobus Renewable Energy I	Kobus Partners	2016	Europe	7	63.1	31-Dec-19
2	Japan Solar Fund	Equis	2012	Asia	425	51.2	31-Dec-19
3	Lereko Metier REIPPP Fund	Metier	2014	Africa	57	22.3	31-Mar-19
4	Taaleri Wind Power II	Taaleri Energia	2014	Europe	91	19.3	30-Sep-19
5	Taaleri Wind Power III	Taaleri Energia	2016	Europe	55	18.9	30-Sep-19

Source: Preqin Pro

**Top performing funds are ranked by net IRR.*

First-Time Fund Managers Face Strong Competition

The pool of active natural resources fund managers is growing across the globe

It is not easy being a first-time fund manager.[1] For one thing, the pool of active natural resources firms is large and growing. Between 2018 and 2019, the total number of managers rose by 7% to more than 1,200, with increases recorded across North America, Europe, Asia, and Rest of World (Fig. 4.1). Close to half (48%) of all active fund managers are based in North America, the most established market for the private natural resources industry; just over a quarter are Europe based, while 10% are in Asia and the remainder in Rest of World.

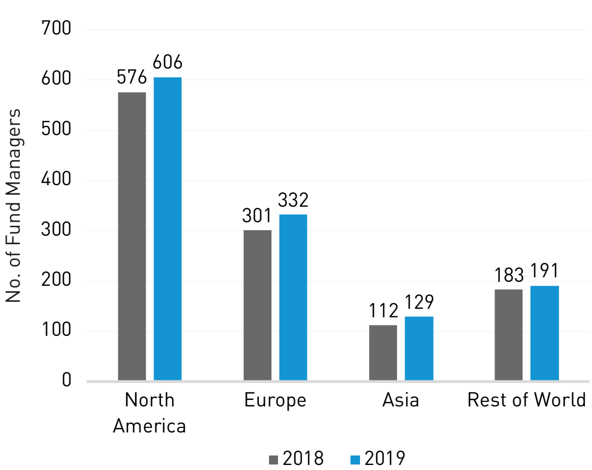
Another challenge for firms raising maiden funds is that experienced fund managers are capturing the lion's share of investable capital. The 10 largest funds closed in 2019 took 64% of the total committed that year, while the 20 largest funds amassed 78% of the total. And as 2020 kicks off, some big funds in market are already surpassing their fundraising targets. For example, US-based Blackstone Group's global natural resources fund, Blackstone Energy Partners III, exceeded its $4bn target when it held a third close on $4.2bn in January 2020.

A Strong Track Record Matters Even More

In more developed markets for unlisted funds, such as North America and Europe, first-time fund managers are raising their next funds more quickly. This is reflected in Fig. 4.2. In North America, first-time managers as a proportion of the total number of fund managers was 40% in 2018, but this dropped to 31% in 2019 as some first-timers successfully moved up the ladder. In Europe, the share of first-time managers was 57% in 2018, falling to 42% in 2019, indicating that

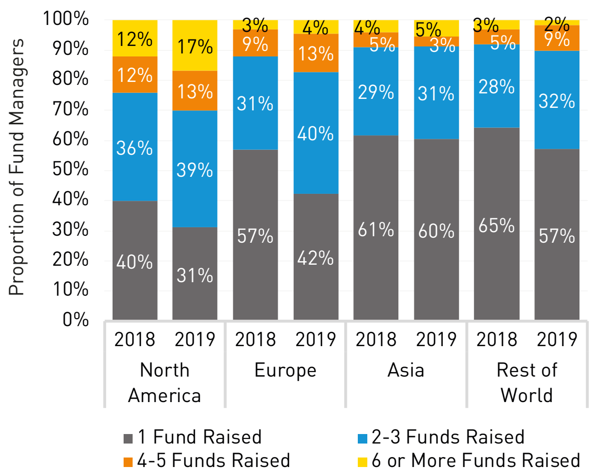
[1] *We define 'first-time fund managers' as fund managers that have either raised only one fund or are seeking capital for a maiden fund.*

Fig. 4.1: Active Natural Resources Fund Managers by Location, 2018 vs. 2019



Source: Preqin Pro

Fig. 4.2: Active Natural Resources Fund Managers by Experience and Location, 2018 vs. 2019

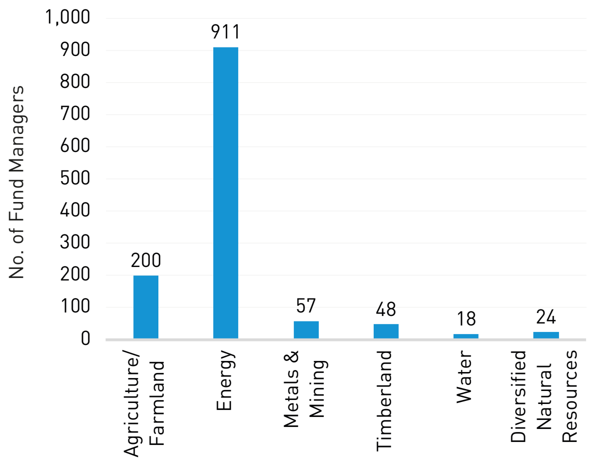


Source: Preqin Pro

some managers had indeed moved on to their second fund. But in younger markets for unlisted funds, such as Asia, that upward climb seems to be taking more time: the share of first-time managers declined only very slightly, from 61% in 2018 to 60% in 2019.

In the current fundraising climate, it is especially important that first-time managers have an established track record and a differentiated approach if they want to stand out from the crowd. Take US-based Clearstream Capital Partners – the firm's founder, Andrew Ward, was a senior deal-maker at New York-based energy & power-focused private investment firm Riverstone Holdings for 14 years. Clearstream Capital's maiden fund, Clearstream Capital Partners Fund I, is targeting $750mn, with a primary focus on the North American midstream sector.

Fig. 4.3: Active Natural Resources Fund Managers by Primary Strategy



Source: Preqin Pro

In Asia, a strong brand name is just as vital. Consider CITIC Modern Agricultural Industrial Investment Fund, the RMB 5bn maiden natural resources vehicle launched by Guangdong Haid Group, a China-based manufacturer and retailer of aquatic, poultry, and aquaculture feedstuffs. To manage this maiden fund, Guangdong Haid Group has tapped CITIC Agriculture, an agricultural biotechnology investment firm. As a unit of Chinese state-owned multinational conglomerate CITIC Group, CITIC Agriculture benefits from its parent company's long-established brand name and global scale – founded in 1979, with revenues of over $70bn, CITIC Group is ranked among Fortune's Global 500 list of the world's largest companies by total revenue. CITIC Modern Agricultural Industrial Investment Fund will target agriculture and related fields, and will seek capital not just from institutional investors, but also from firms with businesses operating in the agriculture sector.

Over the past five years, the oil & gas industry and its investors mistook a massive structural change as a simple cyclical event. Technology disrupted the operating model, industry structure, and investing strategy which had been in place for more than four decades.

To succeed, investors need to target top-quality oil assets that have the potential to generate cash equity payout. We see attractive opportunities in deep-value special situations involving established businesses that require restructuring, recapitalization, or repositioning

Adam Waterous
Managing Partner & CEO, Waterous Energy