PRIVATE EQUITY WIRE

INSIGHT REPORT



Pricing Power:

How Infrastructure Funds Are Taking On Inflation

MAY 2022

KEY FINDINGS

INFRASTRUCTURE ASSETS PITCHED TO OUTPERFORM INFLATION
LP investors were already shifting allocations away from fixed income and into higher returning alternatives pre-pandemic. Now they want inflation protection too. Index-linked infrastructure assets offer resilient returns, but the devil is in the detail, say sources. Buyout funds are also looking at how they can exercise the pricing power of their portfolio companies in the current environment

FUNDRAISING HAS ROARED BACK FOLLOWING THE PANDEMIC
Infrastructure funds closed in recent weeks by I Squared Capital, KKR and Stonepeak have been almost double the size of their predecessor vehicles, at around USD15 billion or above. Other GPs are targeting more than USD20 billion as placement agents expect a "boom year". Recently launched core infrastructure strategies from EQT, Macquarie and others offer yield for new LPs concerned about inflation

GOVERNMENTS AROUND THE WORLD GO BIG ON INFRASTRUCTURE
Trillions of dollars of fiscal stimulus were announced in the early months of the pandemic, in the US, UK, Europe and parts of Asia. Private investment for infrastructure will be leveraged and greenfield schemes (with construction risk) may be large but GPs say they are not waiting on government promises to deploy capital

ENERGY INVESTMENT IN THE SPOTLIGHT AFTER UKRAINE INVASION
Renewable energy has been one of the most popular investment strategies for infrastructure funds over the past 10 years, but it is now an overcrowded space in many mature markets. The recent squeeze on gas supply in Europe has highlighted the role of private equity in the transportation of LNG, and generated calls for a greater policy push on renewable energy

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WHY INFLATION FEARS ARE LIFTING INFRA FUNDS

Infrastructure as an asset class proved its resilience during the pandemic and continues to grow in terms of AUM. Now LP investors want to see if it has the inflation protection it has always been associated with too

Infrastructure investment looks set to continue its global ascent in 2022 as the fastest-growing alternative asset class by fundraising and AUM. Assets under management (AUM) will reach USD1.87 trillion by 2026, according to Preqin, overtaking real estate to become the largest real asset class.

Nearly half (47 per cent) of investors told Preqin that they planned to increase their long-term allocation to infrastructure, with just 7 per cent intending to reduce it. Inflation is the backdrop, as investors seek to improve real returns across many regions, and the asset class has proven to be resilient – average net IRR last year recovered to around 14 per cent following the shock of the pandemic.

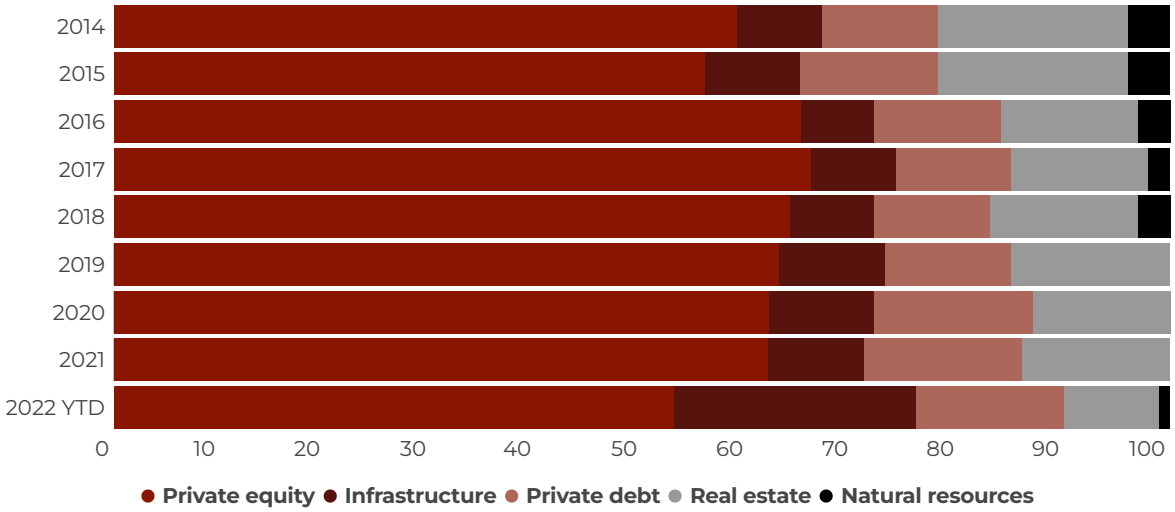
Inflation-proofing

In April, one of the world's largest infrastructure asset managers, IFM Investors, reported that infrastructure investments are largely "positively correlated to inflation," which could provide a cushion to any more macroeconomic uncertainties that could occur in 2022. Days later, Blackstone CEO Steve Schwarzman said in an earnings call that "owning hard assets has historically provided a strong hedge for inflation which favors our infrastructure business".

Infrastructure assets are well-positioned to perform in higher inflation environments and manage increases in interest rates.

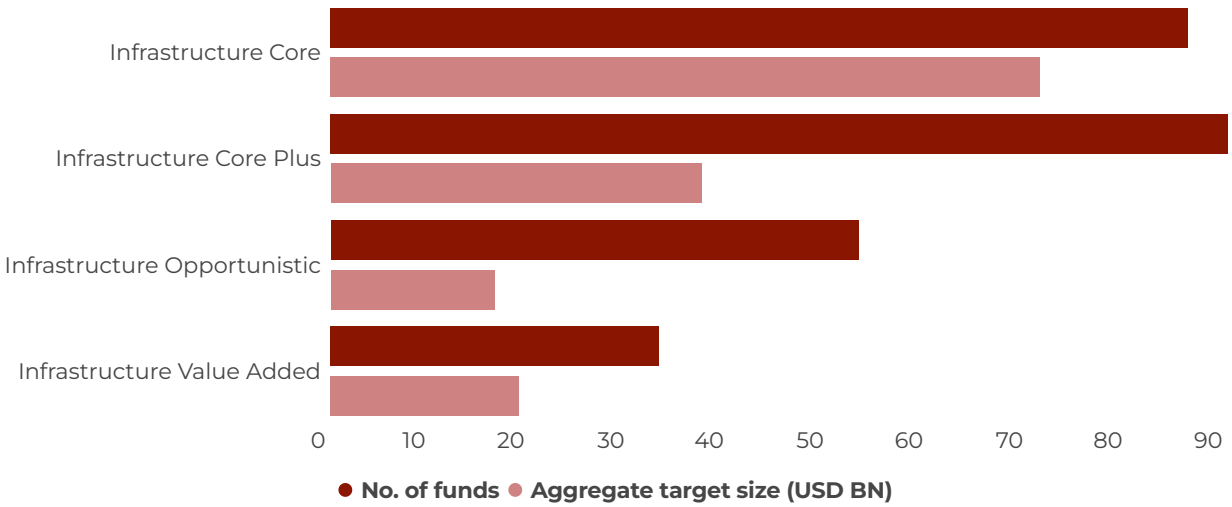
Of all the market factors, inflation is leading the discussion among LPs and naturally is influencing fundraising strategies and fund caps, says Recep Kendircioglu, co-portfolio manager and head of infrastructure investments at Manulife Investment Management,

Infrastructure fundraising, as % of private markets



Source: Preqin

Infrastructure funds in the market, by strategy



Source: Preqin

which in November 2021 made the final closing on its USD4.65 billion Manulife Infrastructure Fund II.

"The discussion among LPs last year was more about finding an alternative to fixed income. Today, that discussion is much more about inflation," says Kendircioglu.

"The prolonged uncertainty of the pandemic made more investors realise that infrastructure was becoming more attractive with its inflation protection even months before the current situation in Ukraine," says Vincent Levita, founder and CEO of InfraVia Capital Partners, which closed a 5th infrastructure fund at EUR5 billion in March and is now developing what Levita calls a "private equity style platform" for core-plus infrastructure opportunities.

Devilish details

Not all infrastructure investments will be inflation-proof, though.

"While infrastructure does offer a level of inflation protection, the devil is in the detail in what you invest in and if it is truly core," Kendircioglu notes. "GPs entering from the private equity space must consider that there are limits to which customers are willing to pay even for essential services and what is politically acceptable."

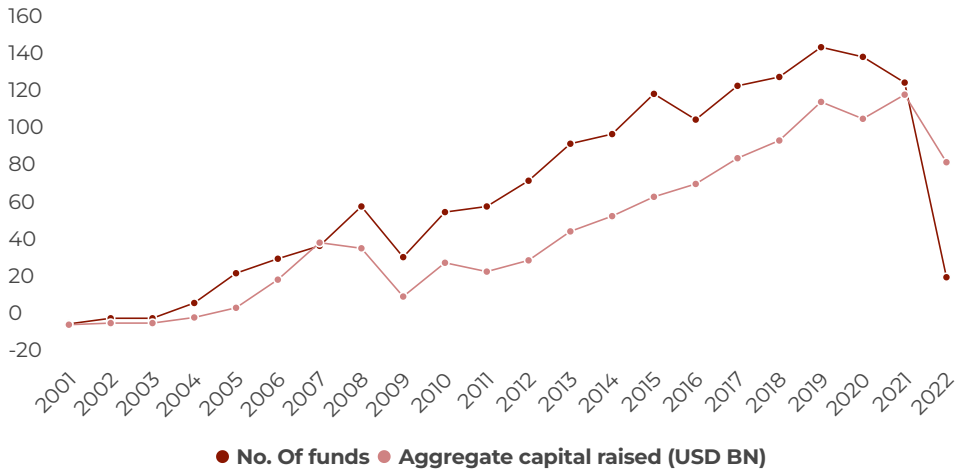
The quasi-monopolistic nature of most infrastructure assets means that demand often tends to be inelastic so inflation can often be passed on to customers through increased tariffs. Indeed, for regulated infrastructure sectors – such as water, power grids or toll roads – regulation generally features an explicit inflation-link, allowing tariffs to increase in line with inflation.

"If you're in an asset class that has no pricing power, or no inflation escalation in your contracts, then it will be harder to pass on inflation. The flip side is if you can manage input costs and or pass a portion of those on in tariffs, you'll do better in an inflationary environment," says Neil Brown, partner and head of the investor development group at Actis, which closed its global USD6 billion Actis Energy 5 Fund last October, exceeding its USD4billion target.

Infrastructure assets are also typically long-duration and require large upfront capital expenditures with comparatively less required in terms of annual maintenance or operating expenses, limiting cost pressures. Renewables, such as solar power plants, are a good example.

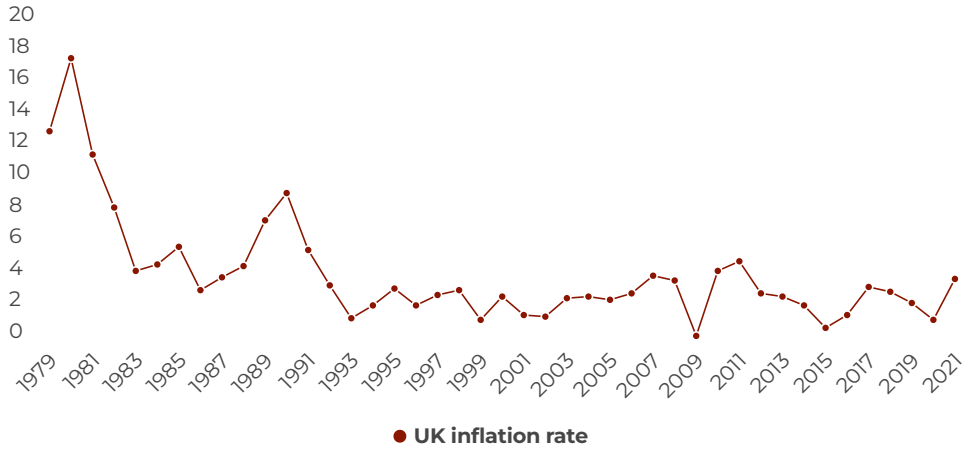
"Regulatory risk is on top of everyone's mind, which is why we love power, since governments rarely make radical changes over it," says Brown. "There have been some exceptions over the COVID pandemic, and in places such as in Spain

Infrastructure fundraising is booming...



Source: Preqin

...as inflation begins its ascent



Source: Office for National Statistics

and Italy, but for the most part, power is a less risky sector since no one wants the lights to go out."

Over the past two years, private equity houses and infrastructure funds have been answering the call from their investors with ever larger funds.

In April, I Squared Capital closed the ISQ Global Infrastructure Fund III at USD15 billion to invest in renewables and the energy transition, supply chains and logistics, digital infrastructure and transportation.

Weeks earlier private equity firm KKR raised USD17 billion – almost USD10 billion larger than its previous infrastructure fund. Stonepeak's USD14 billion Infrastructure Fund IV was almost double its 2018 USD7.2 billion predecessor fund. Brookfield and Global Infrastructure Partners are both targeting USD25 billion for new infrastructure funds, according to reports in February.

Smaller debut infrastructure funds from private equity GPs are also growing in number.

Brown at Actis sees GPs, predominately multi-asset managers, carving out a future for themselves including in the core-plus space.

GI Partners was among the first group of private equity managers to move into the infra fund market with a strategy targeting assets in data centres and tech-enabled infrastructure. Others include EQT, Carlyle and Intermediate Capital Group (ICG).

Gordon Bajnai, head of global infrastructure at placement agent Campbell Lutyens, is expecting a "boom year" for infrastructure fundraising in 2022 with more private equity players joining the "bonanza". He clarifies, though, that private equity players dabbling in the infrastructure market is "nothing new" and those that have entered the segment have set strategies on the 15 per cent and above returns model, rather than the typically lower 'core infrastructure' risk segment.

Private equity players with a successful track record in telcoms, technology and energy will be looking to diverge into the "mega" fundraising trends of digitisation and energy transition, says Bajnai. But not all of them will find success.

"It's not easy to come from private equity into infrastructure. It's not a no-

brainer. Some people have tried and failed. It's a different world and network. To be taken seriously you need to have a senior partner dedicated to the fund who knows the infra lingo and industry network to source deals. That senior talent may have to come from your existing TMT or energy team or be hired externally. The thing is, private equity guys may be dealing with the same LP, but it will be from the infra department that will be expecting an infra mindset and a compelling story to tell."

With recent core infrastructure funds raised by Macquarie and EQT, segmentation is clearly becoming a larger part of infrastructure fundraising to meet LP demand for opportunities in the energy transition and digitisation.

Private equity funds can expect average returns of between 15 per cent and 20 per cent for digital infrastructure investments when they are being built but post-construction, the contracted risk typically reduces returns to around 10 per cent or below, allowing them to be sold on to a lower risk buyside group such as a pension fund.

Open-ended

Such a strategy also lends itself well to open-ended infrastructure funds, says Alastair Yates, Managing Director, Macquarie Asset Management.

"I think there's been a greater realisation that putting core infrastructure investments that deliver yield, which act more like a replacement to fixed income, actually make more sense in an open-ended fund where you don't have that need for constant churn. It also means smaller clients can get access to those investments, that maybe for the past few years had gone only to larger investors," he says.

Open-ended infrastructure does not have to be strictly in the core space, though. French private equity firm Ardian was reported in April to have launched its first open-ended infrastructure fund – an SFDR Article 9 vehicle targeting the energy transition, with a target of EUR1 billion. Blackstone's open-ended infrastructure strategy has raised USD27 billion, it said in April.

For new entrants, finding the appropriate position on infrastructure risk-return spectrum will be key in the economy that awaits. "You can still be a meaningful player in infrastructure at reasonable fund sizes, where there are lots of respectable firms, with many funds closing on USD5 billion and rising," says Brown.

"It's an attractive proposition when you couple growth with the infrastructure sector's market structure. From a supply perspective, it's not dominated by 10 large buyout firms. There's an open canvas that leaves plenty of scope for the big pure-play infrastructure players and the mid-market funds."

PRICING POWER, AND HOW TO GET IT

When inflation last peaked at around 14%per cent in 1980, the private equity industry known today was yet to be established. 2022's cocktail of surging wages, rising rents and commodity shortages creates a challenge for their investments which they cannot ignore.

The search for a solution is pushing buyout firms towards greater vertical integration of their portfolio companies, to better manage supply chains and input costs.

"Private equity firms are looking at their ability to pass on price increases," says Ken Koenemann, vice president at TBM Consulting Group, which has advised private equity firms on the challenge. "If they cannot pass them on, they are looking at alternative technologies or materials that their portfolio companies could be using to ease some of that inflationary pressure and also investing in critical component companies, so going back to the good old days of vertical integration to own and control more of the supply chain including transportation."

Consultancy PwC expects more vertical-integration M&A in 2022 both upwards, to secure key raw materials or components, and downwards, to control how products are distributed. Opportunities to invest in supply chains that are being onshored or localised are coming into sharp focus.

Eight out of 10 corporate and advisory professionals expect the volume of corporate carve-outs to rise in 2022, according to Aurelius's seventh annual corporate carve-out survey in March, with 75 per cent of respondents expecting the most activity in the industrial sector.

"Many companies contending with raw material, input or labour shortages, port lockdowns, shortages of shipping containers – especially those in the manufacturing, pharmaceutical and medical devices sectors – are now focused on onshoring or nearshoring opportunities in order to reduce lead times and build greater resilience into their supply chains," highlights PWC in its 2022 M&A Outlook.

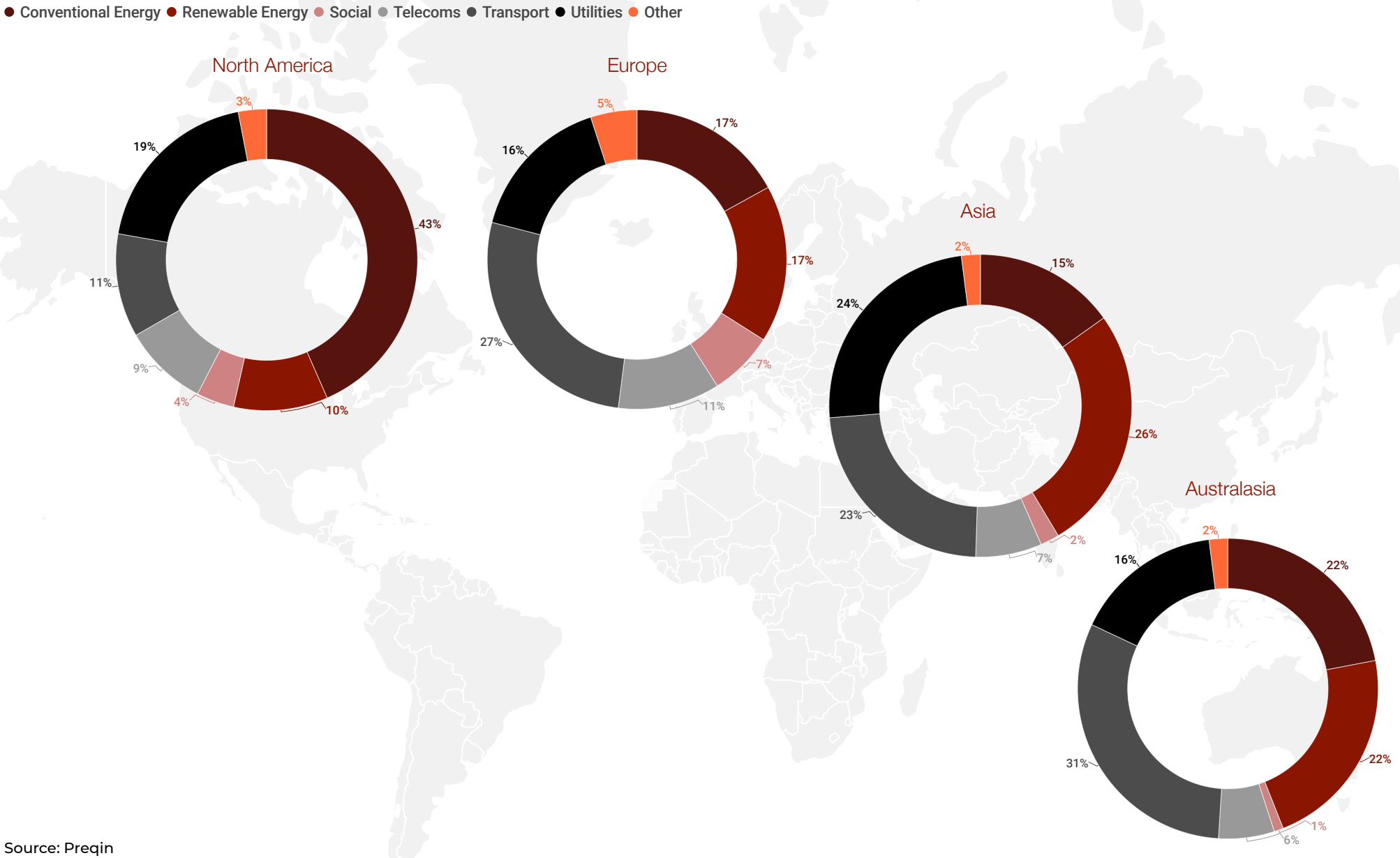
"We also expect strong investor interest in technology companies specialising in supply chain processes, particularly those able to capture and leverage data and analytics."

Buyout firms heavily invested in manufacturing and distribution companies have set up 'control towers' at corporate level to monitor supply chain disruption across their portfolio of investments. Others are using infrastructure funds to push into sectors such transportation and logistics where they can add value. In the retail sector, automation and digitalization are already being used to control costs.

In an inflationary environment, businesses well-placed to scale should outperform those more reliant on hiring labour. Highly levered assets based on fixed rate interest will also perform differently to floating rate debt. Companies focused on B2B markets, rather than B2C, should find more comfort as consumers feel the pinch on household spending.

KKR calls this focusing on "pricing power stories" and in a note to investors earlier this year advised taking a more thematic approach to areas such as logistics, digitisation and the energy transition.

Global infrastructure investment, by region and sector



Source: Preqin



UKRAINE WAR SPARKS NEW ENERGY PIVOT

Renewable energy platforms and the transportation of liquified natural gas (LNG) are already key pillars of the global infrastructure market. Recent gas supply fears in Europe should harden their appeal to others

One of the key levers in the West's response to Russia's Ukraine invasion has involved the energy market. The US, UK and EU have all pledged to reduce their purchases of Russian oil and gas in the years ahead, improving energy security and making gas and oil prices less volatile in the long-term.

Although there are expectations of a new oil and gas licensing round in the North Sea and even increased discussion around fracking, it appears that the new drive for energy independence and security will revolve around the energy transition to renewables.

This is not surprising. According to the IEA, global renewable energy capacity is expected to rise over 60 per cent from 2020 levels to over 4800GW by 2026. Renewables will account for 95 per cent of the increase in global power capacity to that date with solar PV responsible for more than 50 per cent, given its lower cost of production than wind.

China will remain the global leader in terms of capacity additions with it expected to reach 1200GW of total wind and solar capacity in 2026. India, Europe and the US alongside China account for 80 per cent of renewable capacity expansion worldwide.

Yet another result of the Ukraine conflict is an "acceleration of investments in renewable and associated cleantech infrastructure [such as] faster hydrogen development and interconnection of EU electric networks", according to a recent note from Bank of America which anticipates more growth for wind and solar renewables, electricity and gas infrastructure, nuclear, biofuels and electric vehicles.

Movements are already being seen by governments. In March, the European Commission unveiled a REPowerEU plan to improve energy resilience by focusing on Liquefied Natural Gas (LNG) and pipeline imports from non-Russian suppliers, larger volumes of biomethane and renewable hydrogen production and imports and speeding up renewables permitting and grid infrastructure improvements.

Private equity surge

As an example, it is proposing creating a 'Hydrogen Accelerator' programme to drive an additional 15 million tonnes of renewable hydrogen on top of existing targets of 5.6 million tonnes by 2030.

Germany has also been busy setting out a USD220 billion to fund the expansion of hydrogen technology, EV charging networks and LNG infrastructure.

Private equity involvement is set to surge. According to Bloomberg NEF data, PE firms have invested USD2.6 trillion into renewables between 2010 and 2019. Examples include Carlyle Group buying BNRG Renewables solar projects in Southern Maine in the US delivering 100MW of capacity, Apollo Global Management and US Wind financing an offshore wind project off Maryland in the US. In Europe examples include Tikehau Capital investing in solar energy business GreenYellow and Ardian buying the 286MW Andberg wind farm in Sweden from developer OX2 in 2019.

In addition, following moves in recent years by Blackstone, Brookfield, IFM Investors and Stonepeak, infrastructure fund I Squared Capital was reported in April to be looking more closely at investment opportunities in the LNG sector following the European energy security crisis sparked by the Ukraine invasion. Gautam

Bhandari, managing partner, told the Financial Times that new LNG export projects should advance as the EU tries to decouple from Russian gas, adding that three or four multibillion-dollar projects are seeking to raise financing this year. I Squared recently closed its third flagship infrastructure fund at USD15 billion and has around 40 per cent of assets under management in the energy sector.

Two recent investments in the UK highlight how the current interest is pushing up valuations in the power sector.

Axa's investment arm AXA IM Alts and Credit Agricole took a 50 per cent stake in the Hornsea Two offshore wind developer for GBP3 billion – which according to a report in The Times is a third more than analysts believe is its true value.

National Grid also sold a 60 per cent stake in its UK gas transmission and metering business to Australian bank Macquarie and others including institutional investor BCI in a deal that will value the unit at GBP9.6 billion.

Peter Dickson, partner at fund manager Glennmont Partners believes the Russia/Ukraine conflict has focussed minds on energy transition and security.

"Sensitivity around Russian imports and rapid inflation has made even more people think about it and it will speed up energy transition," he outlines. "It doesn't surprise me that people are talking again about North Sea oil and fracking, but they won't decouple the sensitivity of pricing in the global market. You are still exposed to the volatile hydrocarbon in a way which renewables are not. With renewables you get stable pricing, and they are the cheapest local source of electricity in most countries."

Investor concerns around offshore wind's dependency on contracted feed-in-tariffs have also eased.

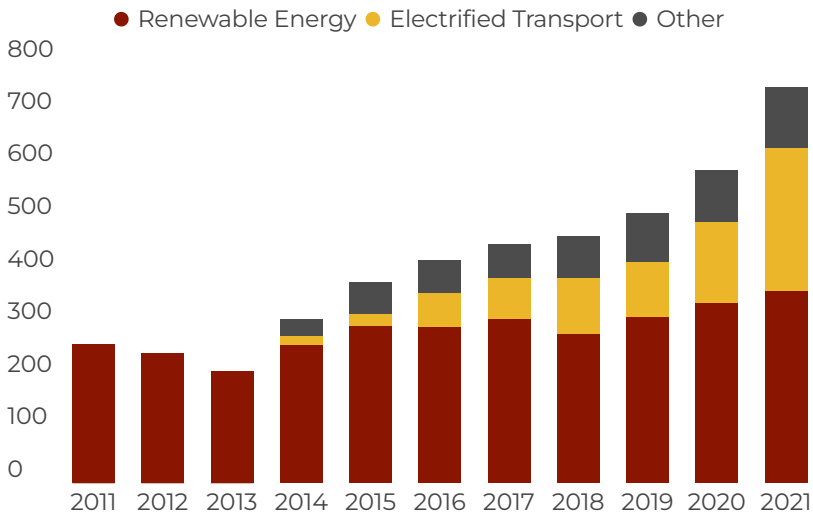
"Many wind farms can now compete on the open market with no subsidy," Dickson explains. "So, investors have been ok with short-term risk in recent times. There have been concerns around long-term demand but now this issue of energy security provides that guaranteed market growth. It will make investors feel even more comfortable."

A robust market

As well as more interconnectivity across markets, storage developments and green hydrogen, he expects to see more floating offshore wind platforms allowing for farms in deeper waters. "It will open up large coastlines in the US, south of the English Channel and the Med," he says. "Investors are getting more comfortable with offshore wind construction. They are being developed by more highly competent and experienced constructors who are able to offer very accurate cost guarantees and projections of risk from the outset. It is a robust market right now."

The North Sea is the main offshore wind battleground with the European Commission expecting it to deliver half of the over 400GW capacity increase needed to reach European carbon neutrality by 2050. According to the Global Wind Energy Council about a third of global offshore wind development will come from the UK over the next decade.

Energy transition investment shifts gear



Source: Bloomberg New Energy Finance

Largest infrastructure funds, currently fundraising

NAME	VINTAGE / INCEPTION YEAR	STATUS	STRATEGY	GEOGRAPHIC FOCUS	FUND SIZE ($bn)
Brookfield Global Transition Fund	2021	First Close	Infrastructure Core	Canada, North America	7.5
EQT Active Core Infrastructure	2022	Raising	Infrastructure Core	Europe	5.7
AMP Capital Infrastructure Debt Fund V	2020	First Close	Infrastructure Debt	North America	5.0
Blackstone Energy Partners IV	2022	Raising	Infrastructure Core	North America	5.0
Arkansas Opportunity Zone Fund (USA Bioenergy)	2022	Raising	Infrastructure Core Plus	US	5.0
Global Infrastructure Partners Emerging Markets	2022	Raising	Infrastructure Opportunistic	Asia	5.0
CICC Infrastructure Fund II	2021	First Close	Infrastructure Core	China	4.6
West Street Infrastructure Partners IV (Goldman Sachs Asset Management)	2021	First Close	Infrastructure Core	North America	4.0
European Diversified Infrastructure Fund III	2020	First Close	Infrastructure Core	Europe	3.9
Macquarie Asia Infrastructure Fund III	2022	Raising	Infrastructure Core Plus	Asia	3.0
Stonepeak Asia Infrastructure Fund	2021	First Close	Infrastructure Core	Asia	3.0

Source: Preqin Pro, April 2022

In the US there are plans to generate nearly 35GW of offshore wind power in eight East and West Coast states by 2030 with a series of license auctions already in place. According estimates, there is an 'unprecedented' 1,000 GW of US offshore wind resource which remains untapped.

Having a keen focus on offshore wind is also on the agenda at fund manager KGAL as a key component of its green hydrogen investment plans.

Role of PE

"Renewable energy has to be prevalent in every industrial sector especially those heavy emitting areas such as steel and chemicals," says Thomas Engelmann, head of energy transition at KGAL. "Private equity can play a huge role in pushing with capital new technologies and developing impact projects to reduce emissions and increase energy independence. We are looking at hydrogen which is flexible in both its usage and storage as an alternative to oil and gas in these sectors."

The group is looking at investing in hydrogen projects such as storage and electrolyser plants – which converts electricity into hydrogen and oxygen. The electricity would be supplied for example via a PPA from offshore wind farms.

"Hydrogen will play a major role in society and industry in the future," he explains. "We are creating a new fund and talking to the capital markets at the moment about investing in green hydrogen projects. We are looking to close it at the end of 2022 and start investing between 2023 and 2027."

In the UK's April energy security strategy, there was an explicit 10GW of hydrogen production targeted by 2030. According to view on the plan by Richard Nourse, managing partner at Schroders Greencoat, hydrogen is widely seen as the Swiss-army-knife of the net zero story, but it is unlikely to arrive at scale until late in the energy transition story.

Engelmann is bullish about supportive hydrogen plans from the EU and the German Government's National Hydrogen Strategy. However, he raises some concerns about the development of offshore wind.

"We are looking at offshore wind investments, but the equity prices are very high at the moment. There are also risks in terms of delays for development permits," he says. "But we are looking more at buying in PPAs than holding or owning stakes in farms. More generally though energy transition without offshore wind isn't possible so there will be more PE investments there. Even without permits these projects are still investable."

There are concerns however that renewable infrastructure development and construction could be hit in the short-term by higher inflation in the



> You need to bring in technical expertise to your PE team when you make these investments

supply chain with Pierre Abadie, group climate director at Tikehau Capital also cautioning that new investments in LNG terminals or nuclear plants will not come to fruition for between five and 10 years.

"It is naive to think in the next 12 months we are going to be fully renewable," he says. "We need to look at energy efficiency measures in buildings, homes and factories and small-scale solar panel installations which can be done in just a few months."

Tikehau Capital through its Energy Transition Fund has investments in companies such as energy efficiency group Crowley Carbon, biomass plant operator ENSO and utility-scale solar provider Amarenco. "We are looking at more investments in these areas as well as electric vehicles powertrains and small-scale solar," Abadie says.

Over in the US, Alex Darden, head of US infrastructure at EQT Partners, has a focus on solar and is calling for recent state support for offshore wind such as investment tax credits, auctions and a focus on the supply chain to be mirrored throughout the renewables sector.

"The development of solar is hampered by interconnection to the grid. There are multiple different grids in the US, and they don't work in concert together. We need regulatory agencies to work closer together, sharing best practice and incentivising capital into the right places," he identifies. "The opportunity set in areas such as solar, EV infrastructure and storage is going to increase exponentially. It will be a long transition but there will be significantly more capital and investors in the sector."

A mature approach

More PE investment coming into energy transition appears likely, but sources call for a mature approach to the power and renewables sectors.

"There is a lack of PE financing in this area at present. Most of the people coming in to provide the finance don't have an industrial background. Do they understand the concerns of a factory owner converting from gas to renewable sources of electricity?" Abadie asks. "You need to bring in technical expertise to your PE team when you make these investments to better understand the risk. That way we will see more investments and more energy independence in Europe."

DATA CENTRES BECOME A CORE INFRA PLAY

Behind the eye-watering valuations and growth projections, a wider spectrum of risk-return strategies is opening up in the digital infrastructure sector

KKR and Global Infrastructure Partners' (GIP) acquisition of one of the world's largest data centre operators, CyrusOne, in March was notable not just for the size of the transaction at USD15 billion but also for how the two buyers used different risk strategies to close the investment.

Data centres have always featured some overlap between corporates, real estate and infrastructure funds but KKR's use of both infrastructure and real estate equity along with GIP's infrastructure funds proved how buyers have expanded their offering in line with the asset class itself.

"The asset class has continued to mature and evolve, with an increase in different profiles of risk capital evaluating the sector," says Chris Hogg, senior investment director at Amber Infrastructure. "There is a continued richness of opportunities, with investors looking to assess the appropriate risk-return profile for each opportunity for them."

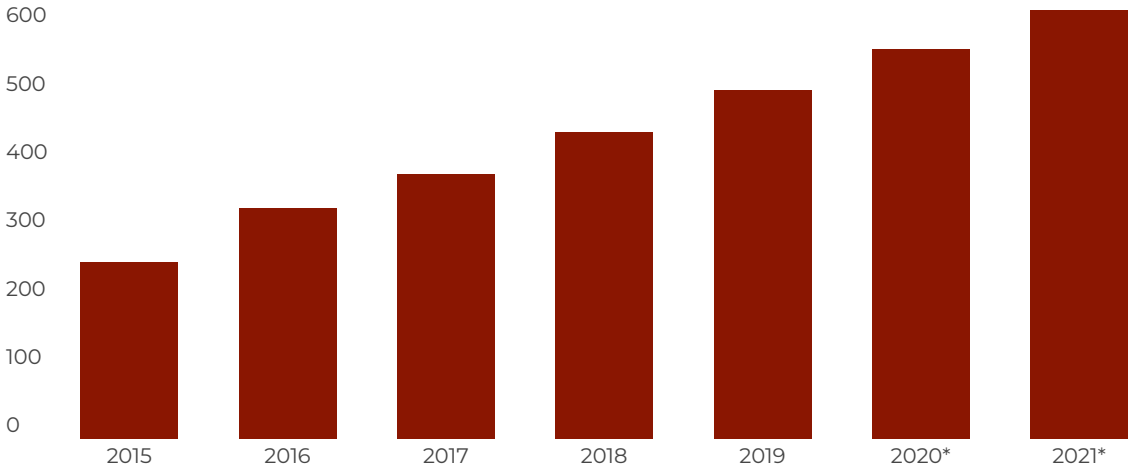
Risk spectrums

Telecom operators have always been a hotspot for private equity. In the weeks before the CyrusOne move, KKR was simultaneously pushing a buyout (eventually rejected) of Telecom Italia in what would have been one of Europe's largest in history.

A worldwide boom in data use and storage, and the emergence of data centres and fibre broadband as asset classes in their own right, predate the pandemic by some years but form part of a trend that has accelerated rapidly in in the two years since.

Infrastructure funds in particular can now play these sectors across a range of risk spectrums, from the triple net lease real estate model of data centres through to investment in operating firms taking development risk on new

Hyperscale data centres globally, by number



Source: Cisco Systems, *forecast

fibre construction, with returns ranging from mid-single digits to high teens and above, say buyside sources.

"We see some of the small private equity groups funding fibre platforms at the small scale, say below GBP100 million, but in general we are finding that non-infrastructure private equity funds are not competitive on cost of capital and therefore struggle to get traction in the digital infrastructure space these days," notes Matt Evans, head of Europe at DigitalBridge, one of the world's largest digital infrastructure fund managers.

Some, such as Warburg Pincus with Amber on UK-based Community Fibre, have partnered with infrastructure funds to access the space.

"Different parties bring different perspectives and skill sets to the table," Hogg comments, "Infrastructure funds can be focused on downside protection and resilience, whereas private equity funds can bring a different operational perspective and a focus on multiple upsides."

Competitive market

At the core end of the risk spectrum, investors with a lower cost of capital are expecting a pipeline of data centres that have been built and tenanted over the last five years to be transitioned out of value-add capital and into the hands of lower risk buyers, says Evans. But these new core buyers are finding an intensely competitive market with a requirement for deep sector knowledge and long-term relationships with operators to build growth projections and valuations.

"Digital infra is probably one of the biggest infrastructure areas of movement today, even more so following the pandemic which has shown the resilience of the sector, you can see a lot of people piggybacking on this wave which is participating to driving the market up," says Elie Nammar, senior director at Vauban Infrastructure Partners in Paris. "When we are bidding for fibre, for example, you can see a lot of funds that three, four or five years back, you would not necessarily see there."

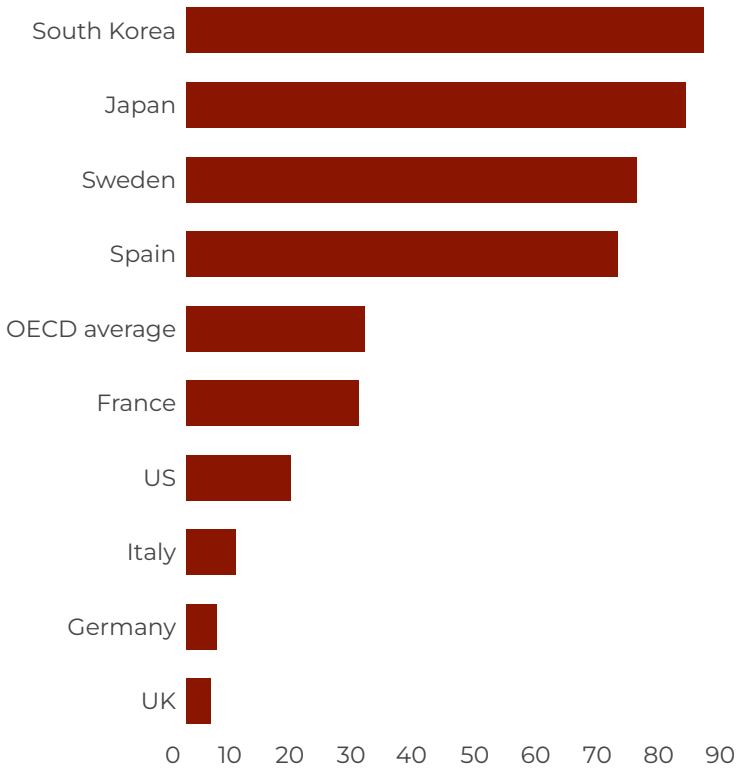
He cites recent examples where in certain auctions, cost of capital was the only differentiating angle which is driving the market up as bidders with lower cost of capital were competing.

Not all of these bidders will have the same level of expertise to partner with sell-side operators seeking investment however.

"I think fibre and towers have moved to a place where people are a little more comfortable but on the data centre front, there still needs some education," he says. "Large operators get much more comfortable with people that are able to bring in some expertise, bring in some knowledge, both on the operational side because of the experience that we've had, but also on the financing and structuring side, which is the place they lack."

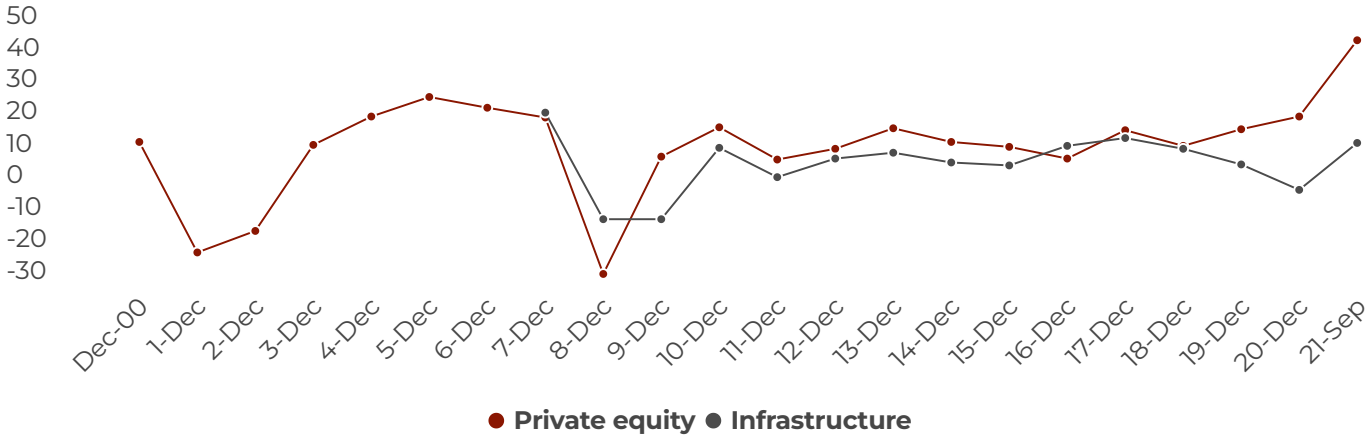
Alongside the core markets of the UK,

Most fibre connections, as a proportion of fixed broadband subscriptions



Source: OECD (percentages rounded), Q2 2020

Rolling one-year horizon IRRs (%)



Source: Preqin

Germany, the Netherlands and France, European countries such as Switzerland and Poland are seeing extensive new investment in data centres with a jump in new facility build-outs and over 70 projects underway in 12 countries from 2021 onwards, totalling 851,000 m2 – an increase from under 10 per cent in Sweden up to over 100 per cent in Ireland.

"Secular growth in data consumption globally has created tremendous opportunity for skilled data center developers and operators to provide critical infrastructure for their customers, including the world's leading technology companies," said GIP partner Will Brilliant following the CyrusOne acquisition.

In Spain, which is being targeted by CyrusOne, alongside other fund-backed operators including EdgeConneX, Equinix, Interxion and NTT Global Data Centers, raised floor space will grow by almost 50 per cent from the beginning of 2022 to the beginning of 2026, according to data provider Research and Markets.

Location, location, location

Geography is becoming more relevant in the race to acquire and build data centres as hub locations become overcrowded. A shift to regional markets and service providers specializing in second-tier cities and edge computing is therefore underway.

At the end of last year private equity firm The Carlyle Group acquired US regional data center provider Involta, based in Iowa, which operates 12 facilities in the Midwest. In Eastern and Southeastern Europe, similar moves have been made by infrastructure funds.

The regional push is even more pronounced in the fibre sector where opportunities to invest in new lines are determined by projected growth in new connections, potential government subsidy or regulation, construction capex and competition from other providers.

"The reason why you'd look at geography, in that sense, is because you're looking at the level of build versus opportunity but there are other elements to also consider such as cost per premises and wholesale pricing, concession, subsidy, among others," says Nammar. "Germany and England are places where there is a significant fibre coverage gap relative to other European countries and where everybody's going or trying to go which is

INFRATECH FINDS ITS FEET

Tech trends including data analytics, AI, autonomous vehicles, energy transition and cybersecurity have all created space for 'infratech' to become a viable asset class and multi-billion sector.

Market researcher TechNavio expects the AI infrastructure market alone to increase by almost USD19 billion by 2026 and for the market's growth momentum to accelerate at a CAGR of 18.46 per cent.

A report by McKinsey on infratech estimates that the asset class will boom to multi-billion-dollar growth in the coming years.

Infratech looks to improve or supplement existing infrastructure through technology. It includes investments in tech assets (data centres, fibre, cameras and sensors), software platforms and integrated tech systems.

A pioneer in the sector is French PE firm, Ardian. One of its portfolio companies, Wintics, has launched Cityvision: a real-time video analysis software for busy cities which aims to make roads and public spaces safer. The software uses computer vision (AI) to analyse and process images and the objective is to make roads more secure and sustainable.

"We've recommended several infratech strategies in recent years; the space is attractive," WTW head of real assets, Paul Jayasingha notes.

I Squared Capital, global infrastructure manager, last year launched a global infratech fund to target innovative growth-stage companies and apply technology to digital infrastructure and the energy transition, as well as transport and logistics.

Whitehelm Capital has a smart city infrastructure fund with the view of using infratech to develop a sustainable ecosystem. The fund received support from Dutch pension fund, APG, who allocated a total of USD750 million to the fund.

Though the industry is still in the process of deciding the exact significance of infratech, it's broadly understood as the next evolution of infrastructure assets. Other sector specialists in infratech include Meridiam, InfraVia Capital Partners, Generate Capital and SIM Networks. While traditional assets remain popular with investo rs, many feel that the effects of climate change and the advance of technology means that much of our current infrastructure will soon become outdated.

"There's certainly a need for more tech in infrastructure to improve efficiency, and I think we'll see more of that," says Minesh Mashru, global head of infrastructure investing, Cambridge Associates.

These investments are technology investments. However, due to long-term investments and the types of tech investments, they retain the traditional infra model of predictable cash flows.

"I think infrastructure will play a strong role in private market portfolios at various points in the risk/return spectrum for our clients," says Jayasingha.

While the sub-sector looks promising, it's still finding its place and developing in the industry.

"Industry definitions around infratech vary widely, and so truly understanding the nature of the underlying companies and contracts is critical to understanding what types of risk are taken on and whether an investor is likely to receive interesting returns," he concludes.

> "With a limited pool of really deep knowledge, there's been a lot of people trying to staff up"

creating a land-grab situation. Ultimately, you're looking at take-up rate and how fast you can achieve the target take-up rate given the local conditions."

Although revenues from fibre assets and data centres tend to be index-linked and therefore offer some inflation protection, finding an edge must now be matched against the threat of rising input costs, such as labour and materials, and in the case of data centres: power costs.

"Inflation is definitely a question across the board that will have implications," Nammar points out, adding that Vauban's data centres are powered by renewable energy so remain relatively protected from rising gas prices.

In terms of greenfield construction for rural fibre broadband deployment, labour costs can also be eclipsed by availability as large workforces are not always accessible in provincial regions for limited periods of time.

While fibre broadband deployment will generally lean into more captive markets with high barriers to entry, sales and marketing to new clients is also becoming more important for data centre owners and investors. Expertise and knowledge in this area, along with some key anchor clients, can then be used to justify the high valuation multiples paid for a platform, at times going well above 20 times earnings.

"With a limited pool of really deep knowledge, there's been a lot of people trying to staff up with people who at least have some knowledge," says Evans.

Despite robust growth projections these teams may have their work cut out in the years ahead.

"Even a strong macro tailwind will never compensate you for bad assets," he adds.

WHY STONEPEAK SEES A 'LARGER OPPORTUNITY SET'

Following the close of its fouth flagship infrastructure fund, and with strategies targeting Asia and renewables, Luke Taylor at Stonepeak explains what is driving interest



LUKE TAYLOR, SENIOR MANAGING DIRECTOR & CO-HEAD AMERICAS, STONEPEAK INFRASTRUCTURE PARTNERS

In February, Stonepeak announced final close on its fourth infrastructure fund with USD 14 billion of commitments, almost doubling the size of its previous Fund III raised in 2018. The manager also has mutli-billion-dollar infrastructure funds targeting Asia and renewable energy and now holds more than USD 46bn in assets under management. Here, one of the leading figures in the firm's US team explains how the investment landscape is evolving.

What is driving LP investors into infrastructure funds in 2022?
There are more and more investors coming into the space, driven by the fact that people see the resiliency of the asset class through different cycles. Infrastructure broadly has always had very good inflation linkage and now it's been tested through various cycles of dislocation, such as what's gone on with the pandemic. You've also got a tonne of required capital investment over a long period of time that creates a big opportunity set to reinvest. And in terms of driving value across the operations of these assets, not only from an ESG perspective, but there tends to be a lot of value drivers in these assets as well.

Large-cap GPs are raising larger, core infrastructure funds. What makes the lower target returns there more attractive?
If you look at core infrastructure, you're seeing a pretty active allocation from investors away from long duration fixed income to core infrastructure, because they can see the benefits of the inflation linkage in these assets. So not only is there a huge opportunity set among sectors like utilities given there's a lot going on from an energy transition perspective, but the larger opportunity set is there too. We're seeing a huge demand from investors to get access to those assets.

But I don't think the high inflationary environment has necessarily changed where we're focusing as a firm, we've always been pretty thematic in terms of picking out the sectors which we think have the best growth dynamics. And we've always invested on the basis that eventually, the long run of declining interest rates was going to come to an end, so you need to make sure you're thinking about that when you're underwriting assets ultimately.

[In terms of volatility] the stock market may be a little more choppy, but infrastructure assets are very long duration assets so you can usually pick the time that you want to exit. Also, you're seeing continuation vehicles which offer the option to continue to hold these assets for the longer duration and you've seen the proliferation of core vehicles which are open-ended.

Supply chains and data usage have put a spotlight on infrastructure post-pandemic. How has your investment philosophy changed?
In terms of sector focus, everybody's got these big themes around digital

> "We've always been pretty thematic in picking out the sectors we think have the best growth dynamics"

and energy transition: the winners there will be the firms that have the deep relationships around each of those sectors. We've also got some real supply chain challenges and so we are seeing a big opportunity to invest in those assets, particularly in increasing capacity across subsectors like terminals or cold storage.

I do think we've seen emerging classes like healthcare, which is an area we've invested in recently. I think broadly, you see a lot of healthcare in portfolios, places like Australia a little more and Europe, probably less than the US as the US infrastructure market is inherently a younger market compared to some of the longer established markets like the UK and Europe and Australia.

From a geographic perspective, we started off investing in North America 10 years ago and we've slowly become global. We've got an ambitious investment thesis across Asia, we've seen great macro tailwinds in that region, a lot of opportunity to invest in their infrastructure as they as they continue to build out those economies. We've also opened a London office with the goal of investing more across Europe [so] as a general matter we try to invest in places that have strong legal frameworks.

As an early investor into communications assets, how difficult is it to invest into digital infrastructure at the moment with increased competition?

The world is going through a sort of digital densification and we think that data usage is a great long term trend to invest in, so we've been investing in all the infrastructure that supports the proliferation of the use of data by individuals. [But] it's having those deep industry relationships, and a deep operating bench of partners which drives a lot of deal flow. So for example when you see opportunities where the hyperscale [data center operators] are spending a lot on capex, having a deep relationship from doing it for a long period of time creates a tremendous opportunity to partner with them to build out their asset base. I think that when you're buying one of these platforms, you've got to have a pretty good lens and understanding of what are the growth prospects and can you truly deliver on that.

Last year you reached closes on an Asia fund and a renewables fund, before closing your fourth flagship infrastructure fund in February. Do you expect to see further sector specialisation among GPs?

You'll continue to see strategies emerge around the energy transition, and active strategies where, for example we're choosing to invest heavily in renewables or where you can responsibly invest in a sector like natural gas where you can actually do a lot of things to reduce methane leakage. We've always had the view that natural gas was going to be a pivotal piece of that transition. And so you want to continue to invest in those assets to make sure the transition can occur as quickly and reliably as possible, rather than I think people avoiding those assets, and then suddenly energy prices start to spike.



BANKING ON GOVERNMENT

Around the world, public sector infrastructure spend is in focus. The trillions of dollars promised will need to leverage private capital but the projects themselves could be far in the distance

The economic shock of the pandemic coupled with the need to future-proof critical infrastructure from climate change has put infrastructure spending at the top of the agenda for governments around the world.

This makes sense: infrastructure spending has an economic multiplier effect, with each USD 100bn spent yielding as many as one million full-time jobs, in addition to the benefit of the infrastructure itself, according to research by the Economic Policy Institute.

Current plans include the UK's latest National Infrastructure and Construction Pipeline, which promises GBP 650bn of infrastructure projects over the next decade. The US is to spend USD1.2 trillion on what President Biden has called "the decade of infrastructure" and the European Commission has unveiled a major infrastructure investment strategy to mobilise up to EUR300 billion of investment by 2027.

In Asia, China's One Belt, One Road plan predates the pandemic and countries including India and Indonesia have cranked up infrastructure and energy spending in their budgets since the crisis.

In most cases, private investment will be leveraged to meet these grand ambitions but in Europe and the US there is still uncertainty over how exactly.

The UK government has spoken of a "big bang" in pension fund investments.

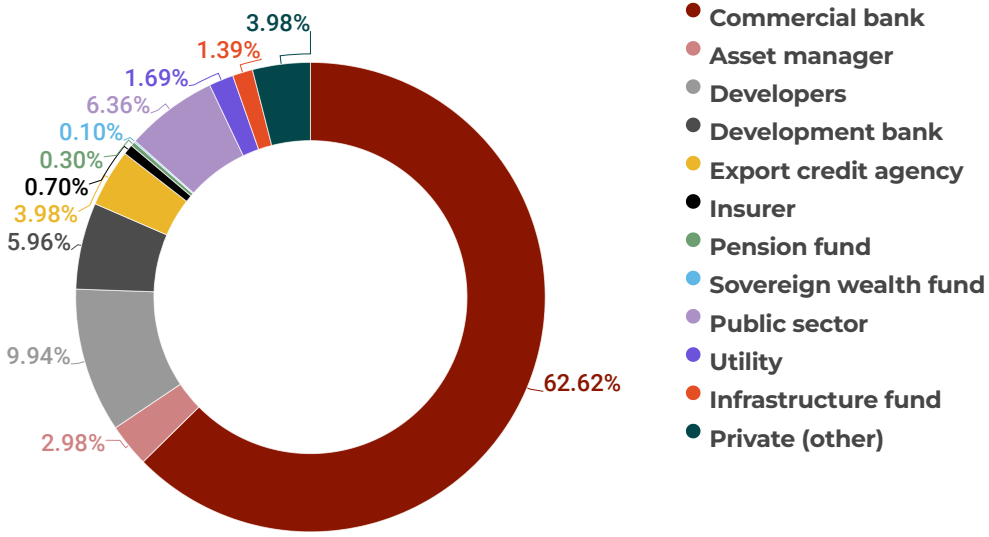
But private equity and infrastructure funds and their investors have historically tended to avoid the construction risk within new-build, or greenfield infrastructure – opting instead for the acquisition of operational (brownfield) assets or taking private the large construction firms that build them.

"There is potential for improved coordination between policymakers and institutional investors, to find some common ground and for it to be more of a mutually beneficial relationship," says Amarik Ubhi, partner, Mercer. "For the typical institutional investor, it is helpful in the sense that it helps the conversation get started."

The UK's private finance initiative (PFI) and its successor PF2 – previously used for hospitals, schools and transport – have also faced opposition from critics after dealflow peaked pre-global financial crisis. In the US, public-private partnerships (P3) for courthouses, schools and roads have inched forward but typically face resistance at local or state level.

"P3s around sectors like transportation have been talked about for some time but greenfield infrastructure takes a long time to do," notes Luke Taylor, co-head of Americas at Stonepeak

Private investment in infrastructure, by type



Source: Global infrastructure hub, 2020

Infrastructure Partners. "I think the government's tried to address some of the issues in terms of getting these projects permitted but a lot of the challenges in the US come from the fact that a lot of these decisions are at the local level and they tend to have a number of political challenges. I think things like private investment in airports would be fantastic but it's not something we sit here and wait on with bated breath to happen.

In Germany, Italy and Spain, PPP pipelines for large projects have been shrinking rather than expanding. With governments able to borrow at historically low interest rates, why pay the private sector to do it?

Other procurement models, such as the regulated asset base (RAB) model and Ofwat's recently launched direct procurement for customers (DPC), mainly used in the UK's water and utilities sector, have arguably been most successful at answering this question.

Subsidies are generally no longer needed for cost-competitive solar and wind projects in Europe so government support here been building for more nascent sectors such as green hydrogen, carbon capture and storage and electric vehicles. This is where infrastructure funds and private equity are currently targeting with massive new energy transition and renewable energy funds. Fibre broadband, particularly in rural areas, is also on the agenda of governments but there are clear regional distinctions.

"There is still a broader policy agenda towards certain areas where it's probably been under-invested in the past," outlines Minesh Mashru, global head of infrastructure investing at Cambridge Associates.

Geographic discrepancies

"So if you take fibre, as an example, the UK has around 5 per cent fibre penetration, Germany has a similar number, the US is just under 20 per cent. Whereas in Asia, or the Nordics, you've got numbers like 80 per cent. We've had massive under-investment in these parts of the market, but it's clearly become more economic to make this type of investment."

The new UK Infrastructure Bank is due to publish its first strategic plan in June with an initial GBP12 billion of capital to deploy and around GBP10 billion of government guarantees. Its first private sector investment was in December to seed a 10-year, GBP500 million solar infrastructure fund managed by NextEnergy Capital. In March, the UK chancellor called on it to invest more in green energy as energy prices rise following Russia's invasion of the Ukraine.

The European Investment Bank and the World Bank have also typically used guarantees as a way to bring private investment into large infrastructure projects and will be thinking along similar lines.

Many of these infrastructure projects can take years to finance and sometimes even longer to build. If governments don't move quickly on procurement, private capital will look elsewhere.

HOW INFRA TICKS THE BOX FOR LPS

Energy transition and digital infrastructure strategies have attracted new LPs into the asset class. The majority now plan to increase their allocations as sustainable investment becomes the norm



The onset of the pandemic tested the infrastructure sector but ultimately demonstrated its resilience, resulting in increasing demand from investors.

As they search for safe havens from inflation, there seems no sign of this slowing down.

Up to 79%per cent of LPs plan to increase their allocation to infrastructure in 2022, with 30 per cent intending on keeping the same level of exposure to the asset class, according to recent sentiment surveys in the industry.

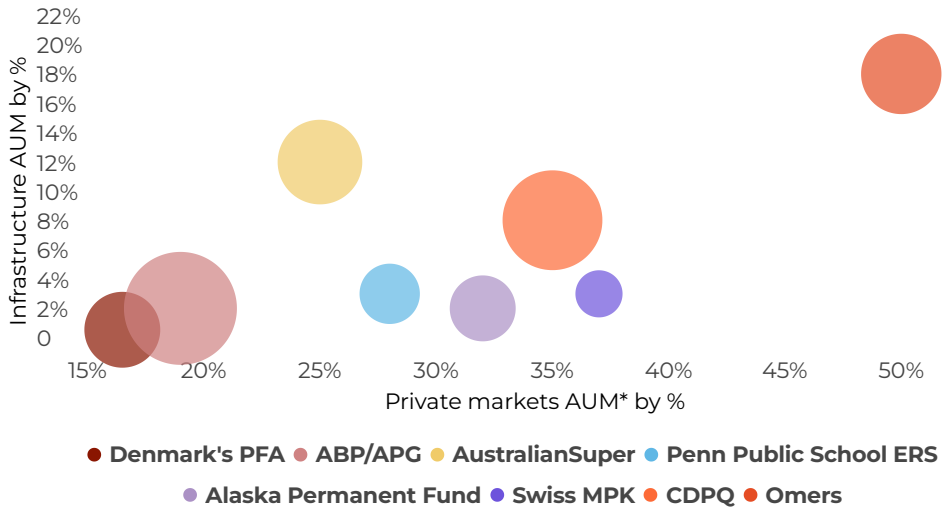
"What we've seen is a slow and steady increase in allocations to infrastructure at an aggregate level. There are more investors allocating, but also more investors increasing their allocations," comments Mercer partner, Amarik Ubhi.

Two of the largest infrastructure funds closed this year include KKR's Global Infrastructure Investors IV at USD17 billion, and Stonepeak's Fund IV which closed at USD14 billion. Each showed strong interest from North American pension funds – a bedrock of the current market.

According to news reports at closing, LP investors in KKR's fund include pension funds New York State Common Retirement Fund, the Teachers' Retirement System of the City of New York and the Minnesota State Board of Investment. Stonepeak's fund featured over 150 LPs including the Washington State Retirement System, Oregon Public Employees Retirment System, New York State Common Retirement Fund and Teachers' Retirement System of the State of Illinois.

The asset class is continuing to steadily grow, with a projected CAGR of ~16 per cent between 2022 and 2026, according to Campbell Lutyens' latest infrastructure market

Global pension funds, by allocation to infrastructure



Source: World Pensions Council
* includes private equity, venture capital, real estate and infrastructure (size of bubble corresponds to fund size)

research.

According to research from Global Infrastructure Hub, the current allocation to infrastructure is between 5 per cent and 12 per cent for Australia, between 8 per cent and 20 per cent for Canada, and Denmark's PFA pension (which represent a typical EU or US pension fund) has an allocation of 1.5 per cent in infrastructure.

In Australia and Canada and parts of Europe, public pension funds often invest directly in the asset class, or through an investment platform, but new entrants will often look first at the core part of the market.

"Our European pension fund clients are more focused at the secure income end of the spectrum, meaning low risk, long-term, inflation-linked, contractual income for investors," details Paul Jayasingha, head of real assets, WTW (previously Willis Towers Watson).

Renewables and digital infrastructure also remain popular strategies, with the majority of LPs planning on deploying more capital to these strategies.

While core assets such as roads and bridge remain popular investments, LPs are also deploying capital to newer areas, including early-stage tech ventures and operating companies, according to McKinsey's 2022 private markets report.

"Lots of investors are new to the asset class, so there's still a spectrum between those making initial allocations and those maintaining their investments and looking to grow those and diversify. But broadly, digital infra, the energy transition, and climate change are three strategies which are proving popular in the space," says Ubhi.

As infrastructure has developed and sectors including energy transition and digital infrastructure have become more prominent, wider coverage by the mainstream media of government spending plans and high-profile M&A activity can also be a factor in driving LP interest in the space, say sources. Digital

"Lots of investors are new to the asset class, so there's still a spectrum between those making initial allocations and those looking to diversify"

Largest infrastructure investors, by allocation

Rank	Firm Name	AUM ($bn)	Firm Type	Headquarters	INF Allocation ($bn)
1	Investment Corporation of Dubai	302.4	Sovereign Wealth Fund	United Arab Emirates	63.5
2	CDPQ	331.7	Public Pension Fund	Canada	36.0
3	National Wealth Fund	86.9	Sovereign Wealth Fund	Russia	34.8
4	CPP Investment Board	518.7	Public Pension Fund	Canada	34.2
5	Abu Dhabi Fund for Development	41.9	Government Agency	United Arab Emirates	32.3
6	Turkey Wealth Fund	245.3	Sovereign Wealth Fund	Turkey	31.9
7	Hassana Investment	250.0	Public Pension Fund	Saudi Arabia	25.0
8	MetLife Insurance Company	494.8	Insurance Company	US	24.0
9	OMERS	107.5	Public Pension Fund	Canada	23.6
10	National Pension Service	756.0	Public Pension Fund	South Korea	23.0

Source: Preqin Pro, April 2022



infrastructure has proved popular because of the effects of the Covid-19 pandemic, with hybrid working changing the face of the working world and requiring adjustments for people's new daily lives.

Tailoring exposure

"Investors are focusing on three significant trends which were accelerated by Covid-19: digital infrastructure, social infrastructure, and energy transition. We're also seeing interest in core+ and value add strategies that are addressing these key areas," says Redington research director, Jaspal Phull.

Investors are looking to tailor their infra portfolios and increase their exposure to digital infra and energy transition. Some sector specialists in this space include DigitalBridge, SDC Capital Partners, GI Partners in the digital infra space, and Stone Capital Partners, Generate Capital, and Copehagan Infrastructure Partners in energy transition.

Previously, insurance firms and pension funds were at the forefront of infrastructure allocations and those who allocated the most to the sector, due to the predictable nature of the asset class and for managing liability purposes, according to Goodwin partner, Shawn D'Aguiar. But McKinsey's report also shows that new investors entering the space are increasingly seeking higher risk and return opportunities than those available to LPs in traditional infrastructure investments.

2022 saw more LPs, specifically family offices and endowment plans, start investing in infrastructure according to Preqin research. Many of these will be looking for target returns in the mid to high teens, or above.

In terms of how LPs are shifting their allocations, Minesh Mashru, global head of infrastructure investing, Cambridge Associates says that there's still growing interest in PE allocations, but that LP portfolio buckets are diversifying, and often they are looking to infrastructure to do so.

Interest in infrastructure as an asset class has also grown with the increasing prioritisation of ESG criteria by institutional investors.

"There's a natural alignment between ESG integration and infrastructure as an asset class. Investors want their GPs to better demonstrate ESG integration in their investment portfolios, and infrastructure is an asset class they can do that in, due to the renewable energy component and the energy transition," outlines Ubhi.

LP specialisation

A third of fund managers are currently looking to invest in infrastructure assets in the green space, according to research from law firm Linklaters, and GPs in the space are working within Europe's recent SFDR regulation to launch Article 8 & 9 funds to meet strict sustainable investment criteria.

Indeed, there is increasing evidence that ESG investments can have a positive impact on portfolios, with a recent LP survey revealing that 74% of LPs believe strong ESG policies lead to better returns.

Jayasingha says that WTW has been "paying much more attention to ESG, measuring carbon emissions over time and also assessing team-based inclusion and diversity aspects of GPs."

And increasing specialisation among LPs, by risk/return but also sector, now seems likely as the asset class grows.

LPs are looking to focus increasingly on diversification and digging deeper into the asset class to find diversification, say sources.

Infra portfolio constructions have become more sophisticated, with investors looking to balance their portfolios with large, diversified generalists and complement these with specialist players, according to Campbell Lutyens research.

"I think investors will drill down further into infrastructure because of the potential for lower volatility over the long-term, as well as the long-term growth," says Ubhi.

The tailwinds remain largely positive for this asset class, with investors' interest steadily growing and signs of this only increasing in the months ahead.

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