

London Borough of Hammersmith & Fulham Pension Fund

Data Centre Investment Opportunity -
Briefing Paper

April 2024

isio.



Introduction and Background

Addressee

- This paper has been prepared for the Pension Fund Committee (“the Committee”) of the London Borough of Hammersmith & Fulham Pension Fund (“the Fund”).

Background

- The purpose of this paper is to provide the Committee with an introduction and overview of an investment opportunity in Data Centres - an asset class which Isio have identified as attractive.
- Specifically, this presentation provides detail on typical data centres assets and their tenant profile, why data centres are attractive for investors at the present time, alongside the pros and cons and risk vs return characteristics of the asset class relative to other available investments.

Next Steps

- The Committee should consider this report. If data centres are deemed an attractive opportunity, and one which the Committee wish to pursue further, proposed next steps are:
- consider opportunities within the Fund’s current investment portfolio where an allocation could potentially be implemented, and model potential alternative allocations
- consider the impact on the Fund’s risk vs return characteristics, overall portfolio liquidity, cashflow profile, fees and wider ESG and impact considerations.
- consider investment propositions within the data centres market and present these to the Committee for further attention.

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Asset Class Overview

This asset class is an alternative to traditional real estate and infrastructure investments. The portfolios are designed to produce returns primarily from rental payments (based on power capacity rather than traditional leases) and asset sales. Investments can offer higher returns given the specialised nature of data centres and a favourable demand-supply imbalance seen in the market.

What are Data Centres?

- Large industrial buildings designed to house racks of computer servers for storing data and connecting internet traffic.
- They are connected to fibre optic cabling (to connect to the internet) and high-voltage power supplies (to cope the large energy requirements).

Why Data Centres?

- Data centres are an increasingly critical component of both consumer and corporate dependence on technology.
- Digital data creation continues to grow at an exponential rate, leading to rapidly increasing demand for data centres. Capacity has tripled since 2015, whilst vacancy is at an all-time low (c.3% globally in prime markets).
- The hyperscale data centre market size is projected to more than double in the next 5 years. Q4 2023 saw the strongest historical leasing activity globally (c.1.5GW of new space).

Who are the Tenants?

- Operators run and lease the data centre capacity to the various users.
- Funds can target hyperscale cloud service providers – these include AWS, Google and Microsoft. They consume large quantities of data centre capacity and tend to have very high credit ratings, making them high quality tenants.
- These companies are likely to sign long-term leases (3-15 years) for large portions of the data centre's capacity (2-100MW) which are often inflation linked.
- Tenants can also include enterprise users, as small to large multinational companies lease and operate their data in data centres, however their requirements are typically much less.

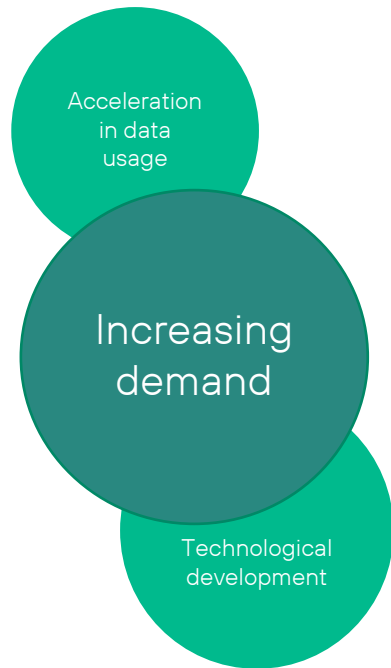
Typical Characteristics

Expected Return	Low		High	c.15%+ net IRRs
Credit Quality	Low		High	High
Shape of Outcomes	0% Contractual		100% Contractual	Leases and exit multiples
Capacity Lease	Low		High	High capacity
Diversification	Concentrated		Highly Diversified	Concentrated
Management Fee	Low		High	0.85% to 1.5%
Performance Fee	Low		High	20% over hurdle

Implementation Considerations

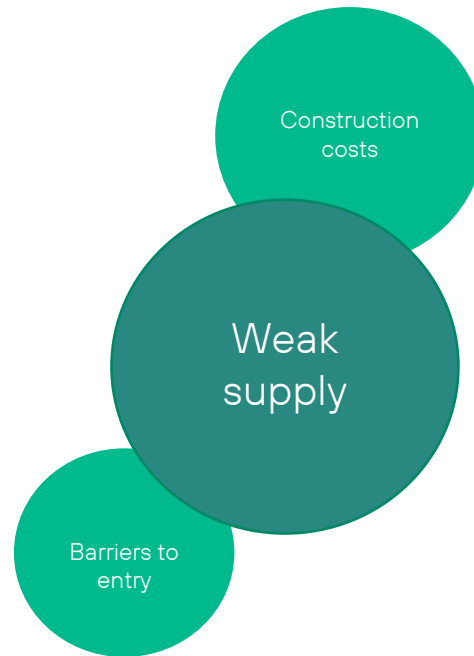
Availability	Limited number of pooled funds currently available Most assets sit within broader (digital) infrastructure funds
Structure	Closed-ended funds
Term/lock-ins	Depending on fund structure, but typically 8-10 years (+ extensions)
Turnover	Very low turnover – Deploying during initial investment period Build-to-core type risk profiles with exits at the end of the fund's life
Geography	US is the largest market, though EMEA market is growing There are tier 1/2/3 cities in each of the major regions
Past Performance	Limited historical performance given the asset class is nascent

Market Opportunity



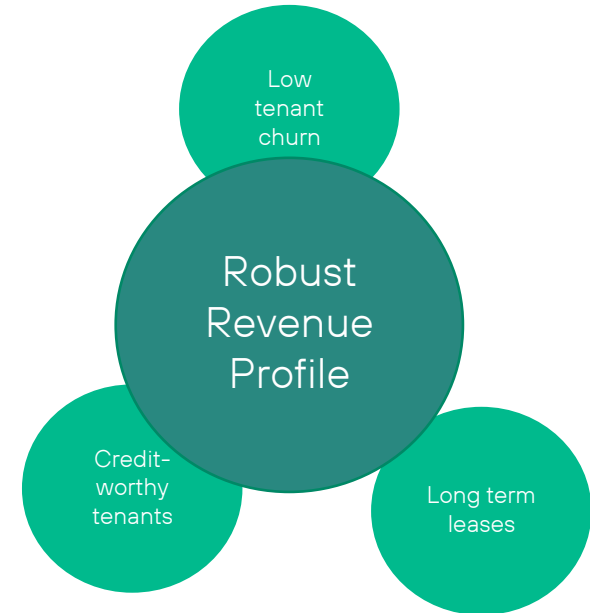
Demand

- Demand of data usage has increased as there has been a structural shift in how consumers and corporates use data, a theme that has been accelerated by the COVID pandemic.
- Expansion of AI products and the cloud is expected to exacerbate existing demand further, at a much faster rate, given the processing requirements.
- Hyperscale providers are scaling up their data centre footprint in anticipation.



Supply

- Supply remains weak due to this being a highly specialised asset class, requiring expertise in site selection, equipment, build-for-purpose approach and complex transactions.
- Rising land prices, longer lead-times for power and equipment, and higher labour costs are increasing construction costs and providing barriers to non-specialised developers



Tenant Profile

- The type of tenants (hyperscalers) the funds are exposed to are unique to this asset class. They tend to have high credit ratings and the majority are investment grade.
- This includes AWS, Meta, Google, Microsoft etc.
- Once tenants have occupied their lease, it is unlikely they will exit, given the high costs and risks associated with relocation. There is strong demand for the best locations

Investment Rationale and Risks

Rationale

Inflation linked income

Tenant leases can provide robust, contractual, and long term income and can have direct inflation exposure where rental increases are uplifted by inflation.

Diversification

Data centres provide diversification as the asset class is unique and has low correlation of returns relative to both other property sub asset classes and traditional asset classes e.g. equities and bonds.

Credit quality

The clients tend to be hyperscalers who provide high credit ratings, accelerating demand and longer and robust tenancy agreements.

Attractive Income Yield

Data centres can provide high yield, long term, predictable revenue streams, with strong exit routes through hyperscalers or wider core infrastructure funds/investors

The opportunity is niche and is expected to have a relatively **high risk/return profile** driven by the significant construction and development element, and other additional risks that are specific to this asset class.

Risks

Vacancy

Uncertainty around resident take-up of developments is a risk, as is the ability of tenants to meet rental payments on an ongoing basis.

Construction risk

Assets are not immediately operational with time taken to deploy capital and develop sites, carrying the risk of potential time and cost overrun or constructor default.

Illiquidity

Underlying assets are illiquid and cannot easily be sold on the secondary market.

Leverage

Funds are likely to utilise higher leverage than other asset classes. Most funds target 50%+.

Power, Supply chain, and Technical Obsolescence

Lack of available power (and fluctuations in cost) and supply chain delays are data centre specific risks that must be mitigated by operators. The data centres are purpose built and in the case of eventual technical obsolescence, investors may face high costs/ reduced returns

Locations and Markets

Factors that Determine a Strong Data Centre Market

Latency

Distance to consumer markets is an important part of site selection, as the closer the data centre is to its end-tenants the lower the delay in transmission.

Fibre Network Availability

Locations with greater availability of fibre networks provide increased bandwidth and result in improved latency and reliability

Power & Costs

Electricity makes up around half of data centre operating costs and so locations with affordable and easily available power are attractive.

Data Regulations

Certain markets have data regulations, meaning that certain types of data have to be located on shore.

Geographic Allocation

North America (52% of global capacity):

- Northern Virginia is the largest market globally (c2.5 GW)
- Constraints on suitable land and available power have driven vacancies to all-time lows across prime data centre markets in the US.
- Hubs include Northern Virginia, Northern California, Dallas, Chicago and Phoenix.

Asia – Pacific (28% of global capacity):

- Maturing markets have become a focus of attention as investors and developers are seeking opportunities in less crowded markets
- Hubs include Tokyo, Sydney, Singapore, Hong Kong, Seoul

Europe (20% of global capacity):

- Most market activity in Tier 1 locations: Frankfurt, London, Amsterdam, Paris, Dublin.
- Demand is continuing to outgrow supply and significant growth is being seen in the secondary markets, which are attractive given lower costs.
- Sustainability is a larger consideration in Europe than elsewhere.

What Does a Typical Asset Look Like?

Typical Asset Characteristics

- **Scale**
 - These structures are very large and can vary in value from \$100m to \$1bn, depending on scale, demand and location.
 - They are built in clusters to ensure connectivity for consumers in the event of an outage in one of the sites.
 - Historically, they were single story buildings due to the weight of the racks. Now they can be reinforced to be double story, which is more efficient given rising land prices.
- **Built-to-suit**
 - Built-to-suit data centres are highly specialised facilities that are customised to meet the specific customer's needs.
 - They are generally designed, constructed and maintained by providers that offer the operational services, then leased to the intended customer.
- **Leased per Mega Watt**
 - Unlike typical property leases, which are contracted by area/space (e.g. sq ft), data centres are leased in contracts pertaining to output capacity (Mega Watt).
 - MWs are used to measure the output capacity of a data centre but also can measure the input power needed.

Key Features

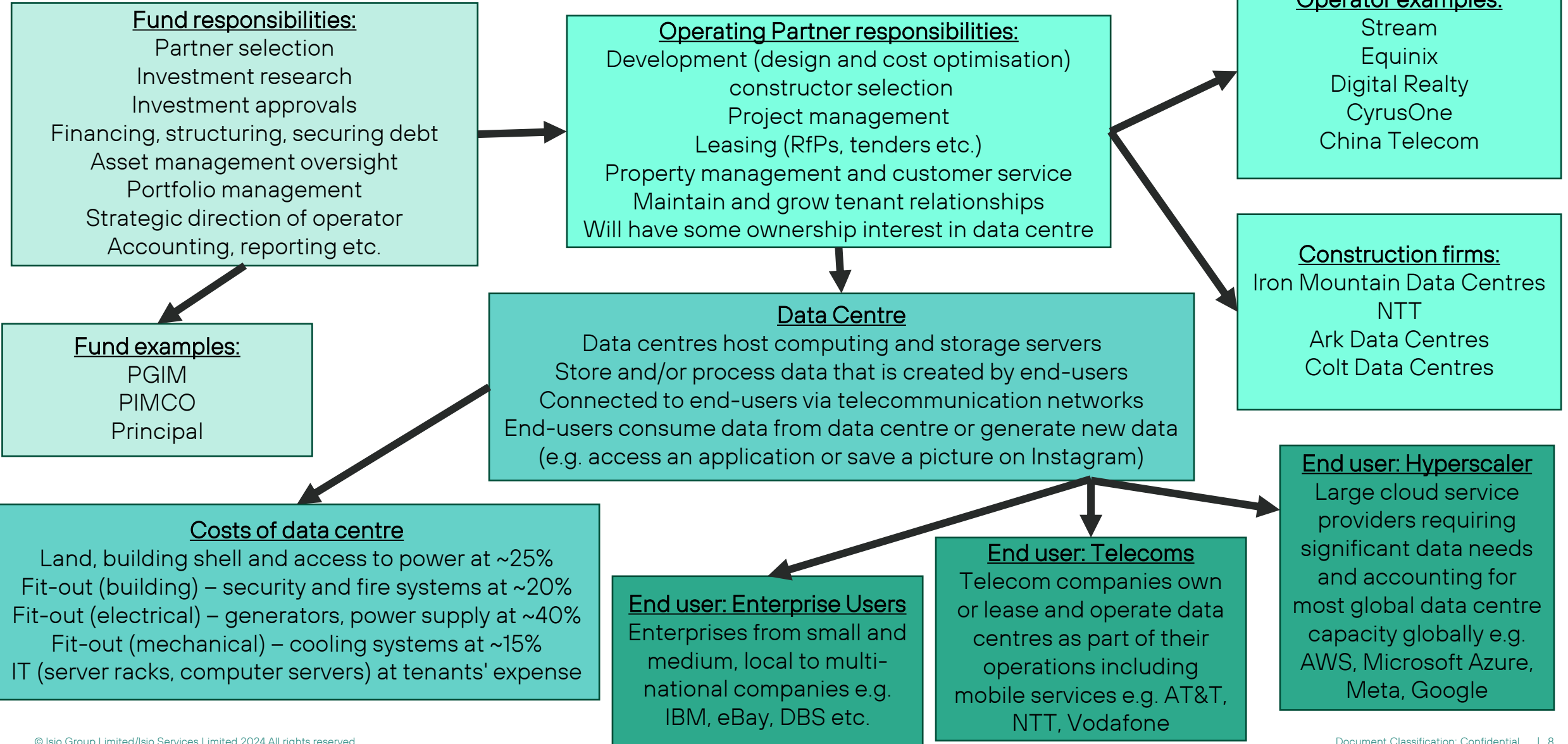
Power - These facilities have very large power demands, so uninterrupted power supply is essential, and batteries and generators on-site are often required.

Connectivity - Fast, efficient and reliable cloud and network connectivity is very important to the tenants.

Cooling - Cooling systems, chillers and heat exchanges are required given the heat output of the machines. The method of cooling used is up to the tenant, as this has an impact on the cost of their lease.

Security - Layers of security are required from the perimeter of the site to the IT environment, which is all expected to be provided by the operator.

Parties Involved



An Example Case Study

Phoenix II-VI - Goodyear

Investment overview

Property:	Phoenix II-VI Goodyear
Location:	Goodyear (Phoenix), AZ
Risk profile:	Development
Acquisition date:	February 2019
Projected capacity:	200 MW
Occupied/Leased:	0% / 7%*
Stabilization date:	December 2028
Total projected cost:	\$2,580,000,000



Resources



[Spec sheet](#)

Investment strategy

- Remainder of the 132-acre site from Phoenix I allows for future development of additional phases
- On-site substation helping generate a large amount of user interest
- Capital deployment assumes five fully-commissioned turn-key buildings

Tenancy

- 14 MW – Hyperscale A (15-year lease)

Source: Principal

As of August 2023. *Currently negotiating lease documents with hyperscale tenant to take all available capacity in Phoenix II and Phoenix III (to be built on currently owned land).

ESG Considerations

There are a few different and unique factors to consider from an ESG perspective for data centres, and different approaches taken by managers to mitigate the risks.

High power requirements – climate effects can be mitigated through use of renewable energy and the fund can also aim for zero use of fossil fuels in generators. New data centres are built with more efficient designs targeting **lower PUE (power usage effectiveness) ratios**.

Water requirements – large volumes of water are used for the cooling systems. Operators can aim for zero use of potable (drinkable) water and implement initiatives for water utilisation.

Large scale developments – Developers can seek to use sustainable materials and reuse construction materials on site (e.g. concrete), where viable.

Different geographical regions apply different regulations to data centre operations. The EU tends to apply more regulatory pressure to data centre developers and operators than the US.

- Power constraints, costs and regulatory pressures are pushing data centres towards sustainability.
- The ESG initiatives that are carried out are partly driven by tenants, as the hyperscalers tend to have very strong ESG commitments (more so than asset managers), with many considered global leaders in sustainability, and majority making public commitments to using renewable energy sources for their operations.
- Certain initiatives include, but are not limited to, renewable usage where possible, including solar panels, waste heat utilisation, water utilisation and smart construction tools.
- Fund managers and operators can support tenant and other stakeholders ESG initiatives by:
 - Negotiating and securing renewable energy contracts
 - Identifying and implementing energy and cost reduction programmes
 - Metering and sharing energy consumption and environmental performance data.

Attractions and Considerations

Advantages of the asset class

- Exposure to a dynamic and structurally driven sector, experiencing unprecedented **growth**.
- Newly constructed assets with **hyperscale tenants** in prime markets.
- Opportunity for potential **stable cashflow** through long-term leases to tenants with strong credit quality.
- Potential for **inflation hedge**.
- Diversifies a traditional real estate portfolio in terms of sector as well as style.
- High potential **returns**
- Low tenant **turnover**
- Relatively **defensive**, given that demand for this asset is generally uncorrelated to economic downturns and performance in other asset classes.

Considerations and points to flag

- Niche strategy and has a high **tenant concentration** risk.
- Highly **concentrated portfolio**- solely data centres
- **Fees** can be relatively high (c. 1.5%)
- Funds can and will utilise **leverage** to enhance returns, higher LTVs provide more risk to the investor
- High **power** requirements, and the **environmental** impact and/or availability of this
- Some are built assets – **non-transferable**
- **Supply chain delays** can impact delivery of the asset to tenants
- Risk of **technical obsolescence**, if the strategy is to hold the asset
- **Limited operating history** - most open funds are newly formed, and so have little operating history
- Strategies without a preidentified seed portfolio provide more risk to the investor, due to increased uncertainty or “**blind pool**”.
- Potential for “**J-curve**” of returns given construction and development element of some strategies.

Comparison vs Other Asset Classes

Data Centres

Traditional
Renewables

Digital
Infrastructure

Balanced
Infrastructure

Strategy	Solely focused on building data centres to lease to hyperscalers	Solely focused on renewable assets i.e. solar, wind etc	Broader infrastructure strategy focusing on data centres, communication towers, broadband fibre networks etc.	Broad infrastructure investing across a range of sectors, this can include renewable and digital infrastructure, and others
Expected Return (Net IRR)	12-16%	6-8% for operational strategies 10-12% for development strategies	10-12%	8-10%
Inflation linkage	High	High	Mixed	Mixed
Net income yield	6-10%	4-5%	6-8%	4-6%
Liquidity	Illiquid	Illiquid (open-ended options available)	Illiquid	Illiquid (open-ended options available)
Fees	High (c.1.5% AMC + performance fees)	Medium (c.0.7-1.0% AMC + performance fees)	Medium (c.1.0% AMC + performance fees)	Low (c.0.5-0.7% AMC + performance fees)

Source: Investment Managers

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Past Performance and Opinions

- This report sets out the past performance of various asset classes and fund managers. It should be noted that past performance is not a guide to the future.
- Our opinions (and comparison vs criteria) of the investment managers stated in this report are based on Isio's research and are not a guarantee of future performance. These are valid at the time of this report but may change over time.
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Thank you

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