LISTED INFRASTRUCTURE:
A complementary allocation in an institutional investor's portfolio

At-a-glance:

- Many investors have achieved infrastructure exposure exclusively through the private markets, yet the asset class can also be accessed through listed infrastructure equity strategies.
- In our view, the lower volatility typically ascribed to private infrastructure is better understood as a characteristic of private markets investing generally, rather than a benefit specific to private infrastructure.
- We believe listed infrastructure has the potential to serve a variety of complementary roles as part of an overall infrastructure allocation, including to complete a portfolio, preserve liquidity, gain immediate exposure, access tactical opportunities, and/or stay on top of trends.
- Listed infrastructure can also be utilized by institutional investors to enhance a public equity allocation.

Since its emergence as an asset class in the 1990s, infrastructure has increasingly been featured as a distinct allocation within institutional investment portfolios. Traditional infrastructure assets typically share specific attributes that support the delivery of steady investment returns throughout an economic cycle. These businesses tend to provide services that are essential to our society and operate under regulated or contracted frameworks that provide investors with a high degree of revenue and cash flow visibility. Income is also typically a meaningful component of investment returns.

Historically, many investors have achieved infrastructure exposure through the private markets, either by investing in private equity fund structures or into assets directly. This approach closely aligns with the role other private markets asset classes, such as private equity and private real estate, play in a portfolio. It is also possible to access the infrastructure asset class through listed equity strategies, however. The long-term return drivers of listed infrastructure tend to closely mirror those of private equity infrastructure strategies, and as such long-term investment returns have been comparable.

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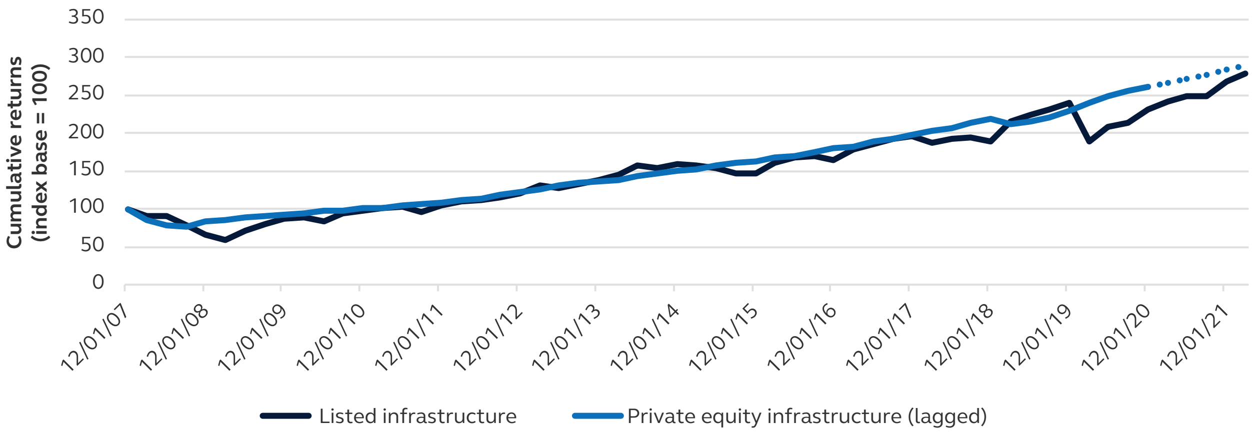
EXHIBIT 1: Historical returns of listed and private infrastructure are comparable



Source: FactSet, Preqin, Principal Real Estate Investors. As of 31 March 2022. Listed Infrastructure is represented by the FTSE Global Core Infrastructure 50/50 Index. Private equity infrastructure is represented by the Preqin private infrastructure index with performance lagged by one year. Please see notes to exhibits on page 9 for further information.

We also note that while neither public nor private markets indices are directly investable, investors will find it more practical to mimic the exposures of a listed infrastructure benchmark at any given point in time. This is simply because the constituents of private markets indices are not typically available for sale, and the securities that comprise public markets indices are bought and sold daily. Investors in listed infrastructure should therefore consider ascribing greater confidence to their ability to potentially achieve index-like returns over the long-term.

Addressing relative volatility

Many institutional investors have historically expressed a preference for private equity infrastructure over listed infrastructure due to the lower volatility typically ascribed to private infrastructure. In our view, the inherent lag and smoothing effects in private markets return indices are the most significant drivers of historically lower volatility seen from private infrastructure. This is best demonstrated when comparing the volatility of a range of private markets indices with the volatility of those same asset classes when accessed via the public equity markets.

EXHIBIT 2: Lower volatility in private markets not specific to infrastructure

	Private markets	Public markets	Relative volatility of public markets
Broad equity	9.1%	16.7%	1.8x
Real estate	9.3%	20.2%	2.2x
Infrastructure	6.7%	13.3%	2.0x
Venture capital	9.3%	N/A	N/A

Source: FactSet, Preqin, Principal Real Estate Investors. As of 30 September 2021. Listed infrastructure is represented by the FTSE Global Core Infrastructure 50/50 Index. Private markets data is represented by the respective Preqin private markets indices. Public markets equity is represented by MSCI All Country World Index. Public markets real estate is represented by the FTSE EPRA/NAREIT Developed index. Please see notes to exhibits on page 9 for further information.

In practice, institutions do not avoid all public equity investments simply because private equity offers materially lower volatility. Likewise, avoiding listed infrastructure on this basis alone may lead to missed opportunities to potentially enhance an overall infrastructure allocation.

Listed infrastructure as a component of an overall infrastructure allocation

Listed infrastructure has the potential to serve a variety of strategic and tactical roles as part of an overall infrastructure allocation. The most common reasons institutional investors may benefit from combining public and private infrastructure exposure in a single infrastructure allocation include:

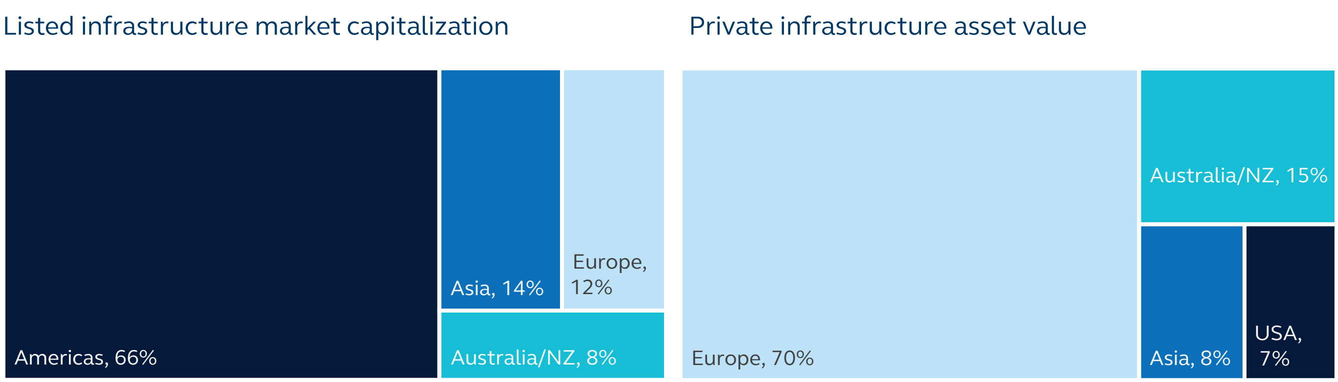
- Portfolio completion
- Liquidity preservation
- Gaining immediate asset class exposure
- Accessing tactical opportunities
- Keeping a pulse on forward-looking trends

Portfolio completion

While there is certainly overlap in the available investment opportunity set across private and public markets, the two universes are also notably different in many respects. This creates an opportunity for listed infrastructure strategies to be used alongside existing or anticipated private markets infrastructure exposure as part of a portfolio completion strategy.

Asset value in the private markets is heavily skewed towards Europe, while the majority of the listed infrastructure market cap remains in North America. The public markets offer greater exposure to utilities companies—particularly those with integrated electric and gas and transmission, distribution and generation exposure—railroad operators and cell phone tower operators. The private markets opportunity set is also more focused on individual renewables assets, particularly in recent years as publicly traded renewables developers have divested minority stakes in operating wind and solar farms to private markets investors as part of a strategy to recycle capital back into renewables development. Listed firms are also more likely to feature renewable generation that is fully integrated into utility or even transportation operations and are more likely to drive the closure of thermal generation. Evidence of carbon emissions reduction may therefore be more robust in listed infrastructure portfolios.

EXHIBIT 3: Regional exposures



Source: FactSet, FTSE. As of 31 May 2022. Listed infrastructure represented by the FTSE Global Core Infrastructure 50/50 index and private infrastructure represented by the EDHEC Infra300 equity index. Due to rounding, figures and percentages shown may not add to the totals or equal 100. May not reflect current allocations. Please see notes to exhibits on page 9 for further information.

We believe at least some of these differences are structural: the regulatory structures and scale of many leading U.S. infrastructure companies make privatization en masse unlikely, in our view. Other countries are increasingly wary of foreign private investment in critical infrastructure as well.

EXHIBIT 4: Subsector exposures

Largest distinctions between the two opportunity sets are highlighted below.

Subsector	Listed infrastructure	Private infrastructure
Toll roads	11%	13%
Airports	9%	9%
Water utilities	**3%**	**8%**
Electric & gas utilities	**47%**	**16%**
Waste	0%	3%
Pure play renewable generation	**0%**	**20%**
Energy pipelines & storage	10%	10%
Marine ports	3%	4%
Rail	**8%**	**1%**
Cell phone tower operators	**8%**	**0%**
Other communications infrastructure	1%	2%
Social infrastructure	**0%**	**7%**
Other	0%	7%

Source: FactSet, FTSE, EDHEC Infrastructure. As of 16 June 2022. Listed infrastructure represented by the FTSE Global Core Infrastructure 50/50 index and private infrastructure represented by the EDHEC Infra300 Equity index. Due to rounding, figures and percentages shown may not add to the totals or equal 100. May not reflect current allocations. Please see notes to exhibits on page 9 for further information.

Listed infrastructure also has the potential to introduce differentiated and therefore complementary exposures to private markets investments at the company level, by stage of development and to businesses where scale matters.

For example, all 46 airports in Spain are operated by a publicly traded company, and therefore access to this high-quality asset base requires public markets exposure. Likewise, all Australian airports can only be accessed through private markets at this stage. The majority of private strategies focus on operational, or brownfield, assets with relatively minor capital investment requirements. Publicly traded infrastructure companies, in contrast, are typically heavy deployers of capital and are frequently developing new assets across their service territories. In addition, listed infrastructure companies may provide differentiated exposure to newer asset types and evolving technologies.
In the public markets, such risks are more easily diversified away by companies of a certain scale, i.e. those with tens of billions of dollars in market capitalization. Listed infrastructure companies of this scale may also offer positively differentiated business quality, profitability, and network effects relative to typically smaller private equity operations.

When it comes to closed-end private infrastructure fund vehicles, we lastly note that few managers can commit to precise geographic and sector breakdowns in advance. Private infrastructure portfolios may only hold 10-15 assets, so the opportunity to deliver precise exposures is more limited. Listed infrastructure managers, however, are typically able to offer more certainty and precision when it comes to achieving targeted portfolio allocations.

Liquidity preservation

Investing in private equity infrastructure, whether accessed directly or through fund vehicles, generally necessitates the lock up of capital for years. Reserving a modest portion of an overall infrastructure allocation for listed infrastructure equities can help institutional investors strike the right balance between asset class exposure and liquidity without sacrificing total exposure to infrastructure. This approach can also prove advantageous through periods when an overall infrastructure allocation outperforms other plan assets, as it is relatively straightforward to divest from listed infrastructure to bring the overall allocation back in line with a strategic target. There are typically restrictions on redemptions in private vehicles or it may simply take time to find a buyer for an individual asset.

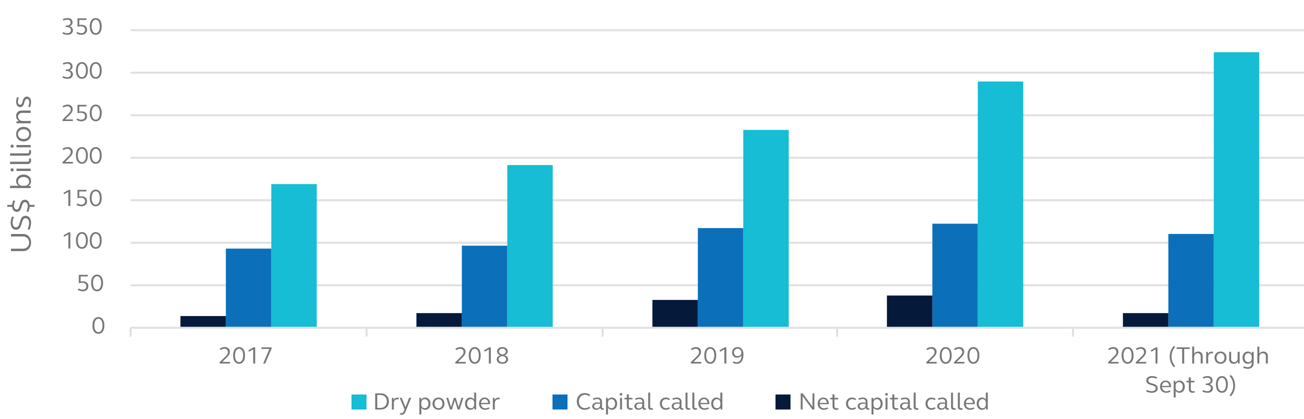
Immediate asset class exposure

The listed infrastructure universe comprises US$4.5 trillion in market capitalization, and average daily traded volume exceeds US$15 billion.[1] Even the largest of institutional investors should have a fair degree of confidence in how quickly money can be put to work when investing in infrastructure through the public equity markets. We believe this characteristic of listed infrastructure should also increase an investor's confidence in its ability to potentially achieve index-like returns over the long-term.

Further, maintaining some degree of listed infrastructure exposure allows an investor to quickly reinvest income or sales proceeds received from private infrastructure investments. It can also help an investor maintain desired asset class exposure in advance of anticipated capital calls. This is particularly relevant for investors who are just now starting to invest in infrastructure, at a time when dry powder held by private equity infrastructure funds continues to set new record highs.

In the nine months ending September 2021, capital called represented less than 35% of dry powder.[2] We believe this suggests that investors accessing infrastructure through private equity fund vehicles should plan for roughly three years to be fully invested. The picture is even less rosy when examining net capital called, or capital called less capital distributed. Net capital called was just US$17 billion relative to dry powder of more than US$300 billion over this same period.

EXHIBIT 5: Private infrastructure dry powder and capital calls



Source: Preqin, September 2021

While most market participants acknowledge that investing in private infrastructure requires some degree of patience, any lag in capital deployment has implications for expected return and volatility that are often overlooked, in our view. Depending how undeployed capital is invested in advance of capital calls, the returns achieved from a private infrastructure allocation are likely to be either lower or more volatile than indices based solely on invested capital will suggest.

[1] FactSet, Principal Real Estate, September 2021.

[2] Preqin, September 2021

Tactical opportunities

Listed infrastructure offers a tool for investors looking to tactically adjust exposure to certain segments of the infrastructure market. A desired exposure to different infrastructure sectors, geographies, asset lifecycles, and even specific assets can be achieved relatively precisely via the public markets, and with little advance planning required. Importantly, by maintaining strategic exposure to both listed and private equity infrastructure strategies as part of an overall allocation, institutional investors also put themselves in a position to take advantage of relative valuation opportunities that may arise.

It is well understood that public equity markets tend to overshoot fundamentals, both to the upside and downside. In the public markets, technical selling and short-term trading activity may further exacerbate disconnects between business fundamentals and company valuations, especially during periods of high uncertainty. Volatility is often viewed as a proxy for risk, yet it can also create opportunities for investors with a long-term horizon to add or increase exposure to quality infrastructure businesses that are trading at compelling valuations. Such dislocations are generally less common in the private markets, where buyers operate with locked-up capital and sellers are typically sophisticated asset owners with less proclivity to panic.

The coronavirus pandemic has been an example of an opportunity for investors in listed infrastructure to benefit from volatility. An acceleration of take-private transactions over the past 18 months has highlighted a valuation dislocation between public and private markets.

EXHIBIT 6: Acquisition activity in listed infrastructure, 2021 through May 2022

Company	Sector	Buyer	Premium paid	Offer date
Atlantia	Transportation	Blackstone / Benetton Family	24.4%	April 2022
Contour Global	Utilities	KKR	36.0%	March 2022
South Jersey Industries	Utilities	The Infrastructure Investment Fund	46.3%	February 2022
Ausnet	Utilities	Brookfield	33.8%	Novemeber 2021
Sydney Airport	Transportation	IFM / GIP / Various pension funds	50.6%	September 2021
Spark Infrastructure	Utilities	KKR / Various pension funds	25.5%	July 2021
Vocus	Communications	Macquarie / Aware Super	25.6%	March 2021
Signature Aviation	Transportation	Blackstone / GIP / Cascade	53.0%	February 2021

Source: Public news reports, May 2022

Beyond just this singular event, we note that private infrastructure transactions have consistently occurred at an average premium to listed trading multiples of over 30% for over a decade now, while few private infrastructure owners have relied on the public equity markets as a successful exit strategy during this time. There are several explanations for why private infrastructure investors may have been willing to transact at a premium to listed valuations for such an extended cycle, ranging from challenging supply and demand dynamics in private equity infrastructure to the ability of a private asset owner to employ higher leverage than is typically seen in the public markets. Regardless, private equity infrastructure fund managers have proven adept at recognizing and taking advantage of value in publicly traded infrastructure when and where it occurs. Institutional investors, we believe, have this same opportunity to capture relative value, albeit more directly than is commonplace today—through investing in listed infrastructure themselves.

Understanding forward-looking trends

For sophisticated investors, maintaining a relationship with a listed infrastructure manager or managers can provide a window into actionable insights across an entire infrastructure allocation. As mentioned previously, listed infrastructure businesses tend to be more heavily involved in new asset development than their private counterparts, and the scale at which public companies operate means there is more likely to be budget for investment in emerging technologies.

Environmental, social, and governance (ESG) transparency is also generally more developed in public markets. Institutional investors may be able to reference insights from listed infrastructure management teams in driving improvements in the ESG practices of private operations.

In addition, public equity markets are well-recognized as a potential leading indicator of private market valuation. Having access to first-hand commentary on recent share price movements can support institutions in assessing where there may be downward pressure on private market valuations. Our public equity real estate team at Principal is often called on to provide insights of this nature to institutional clients that are also large investors in private real estate.

Listed infrastructure as an enhancer to a public equities allocation

Beyond its ability to add value to a broader infrastructure allocation, listed infrastructure also has the potential to deliver differentiated outcomes as a component of a global public equity allocation. Utilizing listed infrastructure within a public markets allocation—in the same way institutions have historically added targeted exposure to specific sectors and theme—may make the most sense for investors that already are fully invested within their infrastructure allocations or have other reasons for preferring to focus on private markets infrastructure.

Public markets divisions may not feel particularly well-equipped to evaluate a listed infrastructure strategy, in some cases, and so we recommend that institutional investors consider cross-department collaboration when evaluating listed infrastructure equity strategies. In the absence of this type of organizational flexibility, 'We don't do listed infrastructure' becomes the default response to a sales approach. This can be a missed opportunity for institutional investors, in our view.

We believe listed infrastructure is particularly well-positioned in the current environment, given the expected defensiveness of infrastructure business models through a variety of macroeconomic environments, exposure to favorable structural growth trends and ESG leadership. Further, active listed infrastructure managers continue to deliver excess returns across the peer group, suggesting the listed infrastructure market remains less efficient than other areas within public equities.

The case for listed infrastructure in six charts

EXHIBIT 7: Historically, global listed infrastructure has exhibited comparable returns relative to global equities for lower risk

Historical return profile, trailing 15 years (2007-2021, includes hypothetical index returns)

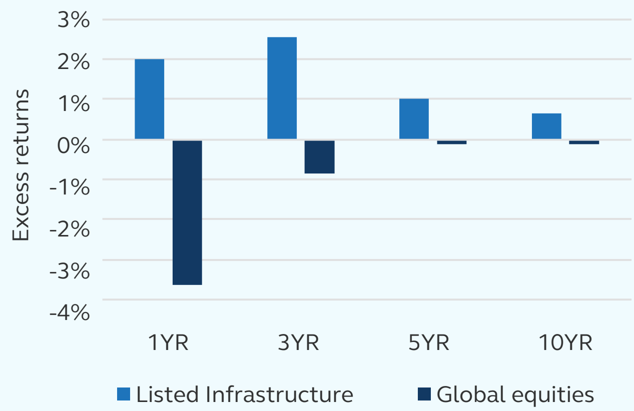
Category	Benchmark	Annualized return (%)	Standard deviation (%)
Listed infrastructure	FTSE Global Core Infra 50/50 TR USD	7.92	13.13
Global equities	MSCI ACWI GR USD	7.61	16.27
Global developed market equities	MSCI World GR USD	8.02	16.00
Global emerging market equities	MSCI EM GR USD	4.80	21.33

Source: Morningstar, FactSet data start December 31, 2006. As of December 31, 2021. Please see notes to exhibits on page 9 for further information.

EXHIBIT 8: A lower beta equity alternative

Source: FactSet. As of 29 April 2022. Listed infrastructure represented by the FTSE Global Core Infrastructure 50/50 Index. Please see notes to exhibits on page 9 for further information.

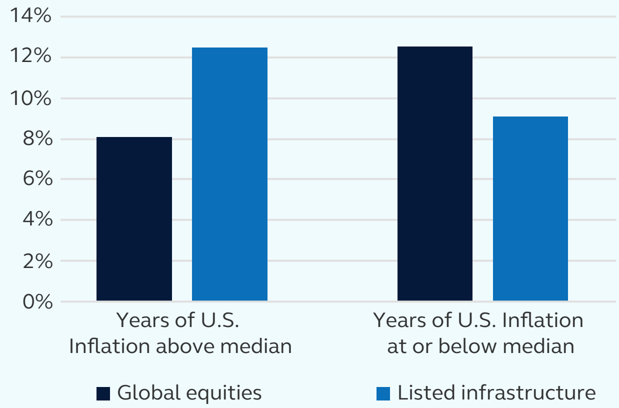
EXHIBIT 9: History of positive excess returns generation



Source: eVestment. As of 31 March 2022. Listed infrastructure represented by the Listed infrastructure peer group in evestment. Global equity represented by the All Global Equity peer group in evestment. Please see notes to exhibits on page 9 for further information.

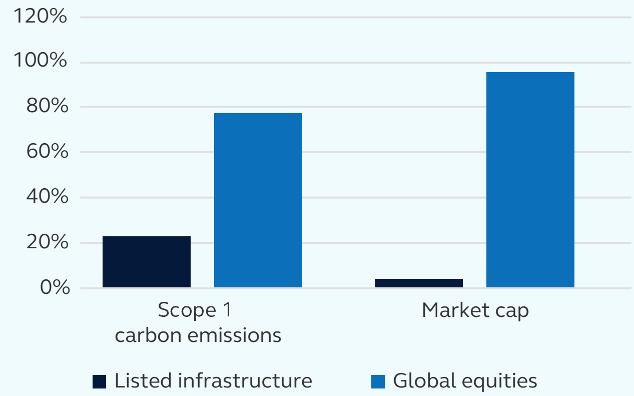
EXHIBIT 10: Attractive expected contributions to several of the UN's Sustainable Development Goals (SDGs)

EXHIBIT 11: The potential to perform well in periods of higher inflation



Source: FactSet. As of 31 December 2021. Listed Infrastructure is represented by the FTSE Global Core Infrastructure 50/50 Index from 2006-2021 and by MSCI World Core Infrastructure from 2004-2005 and MSCI AC World Infrastructure from 2002-2003. Global Equity is represented by MSCI All Country World Index. Please see notes to exhibits on page 9 for further information.

EXHIBIT 12: A differentiated opportunity for environmental impact via carbon emissions reductions



Source: MSCI ESG data. FactSet. As of 31 March 2022. Listed infrastructure represented by the FTSE Global Core Infrastructure 50/50 index and global equity represented by the MSCI ACWI index. Please see notes to exhibits on page 9 for further information.

FINAL THOUGHTS

Infrastructure has increasingly been featured as a distinct allocation within institutional investment portfolios, though many investors to date have achieved infrastructure exposure exclusively through the private markets. To the extent this approach has been justified largely by the lower volatility of private infrastructure relative to its public equity alternative, institutional investors may be missing opportunities to enhance portfolio outcomes.

In our view, listed infrastructure has the potential to serve a variety of complementary roles as part of an overall infrastructure allocation, or alternatively can be utilized in a manner that seeks to enhance a public equity allocation. Regardless of how exposure is implemented, we believe listed infrastructure has the potential to deliver compelling risk-adjusted returns through a range of macroeconomic scenarios.

Notes to exhibits

Indices are unmanaged and do not take into account fees, expenses, and transaction costs and it is not possible to invest in an index. The MSCI World Infrastructure Index was launched on Jan 22, 2008. The MSCI World Core Infrastructure Index was launched on Jan 16, 2015. FTSE Global Core Infrastructure 50/50 Index was launched on March 15, 2015. All performance presented prior to the launch date is back-tested performance. The back-test calculations are hypothetical and are based on the same methodology that was in effect when the index was officially launched. However, back tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index. All back-tested index values for periods prior to the launch date of an index are provided for informational and educational purposes only.

Exhibit 1:
Preqin index returns shown after the quarter ending 30 September 2020 are estimated using average quarterly performance since inception of the Preqin index.

Exhibit 2:
Volatility calculated as annualized standard deviation of quarterly returns for Private Markets asset classes and annualized standard deviation of monthly returns for Public Markets asset classes, as consistent with industry standards.

Exhibit 12:
Scope 1 carbon emissions represent the company's most recently reported or estimated Scope 1 greenhouse gas emissions, if available. Scope 1 emissions are those from sources owned or controlled by the company, typically direct combustion of fuel as in a furnace or vehicle.

Risk Considerations
Past performance is no guarantee of future results. Investing involves risk, including possible loss of principal. Infrastructure issuers may be subject to regulation by various governmental authorities and may also be affected by governmental regulation of rates charged to customers, operational or other mishaps, tariffs, and changes in tax laws, regulatory policies, and accounting standards. Foreign securities involve special risks, including currency fluctuation and lower liquidity. Some global securities may represent small and medium-sized companies, which may be more susceptible to price volatility than larger companies. Inflation and other economic cycles and conditions are difficult to predict and there Is no guarantee that any inflation mitigation/protection strategy will be successful.

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