Perspectives

CBRE Investment Management

A Strategic Allocation in Listed Infrastructure

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Across both institutional and retail, allocations to infrastructure are on the rise. Investors are considering infrastructure to be a strategic allocation—as a complement to broad equities and fixed income, or as a key constituency within a real asset allocation. In this guide for investors, we review:

— Rising institutional allocations to infrastructure, the comparison to real estate and the implications for retail ownership.

— The portfolio benefits of listed infrastructure, the opportunity to enhance risk-adjusted returns and potential allocations based on risk tolerance.

— The benefits of listed infrastructure in combination with private exposures.

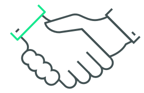
— The thematic underpinnings of infrastructure growth and the potential for enhanced returns from active management.

Figure 1: Listed Infrastructure: Potential benefits as a strategic allocation

A Portfolio Benefit

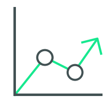
- All-weather potential performance
- Consistent income
- Enhanced risk-adjusted returns
- A history of inflation protection
- Limited broad market overlap

A Liquid Complement



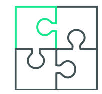
- Complementary to private exposures
- A benefit of liquidity
- Immediate access to the asset class
- Geographic and regulatory diversity
- Discounted valuation to private

Driven By Secular Growth



- Decarbonization
- Energy Security
- Digitalization
- Asset Modernization

With the Potential for Enhancement



- A history of manager outperformance
- Disparate benchmarks
- An underfollowed asset class
- Significant linkage to private market activity

Rising allocations to infrastructure

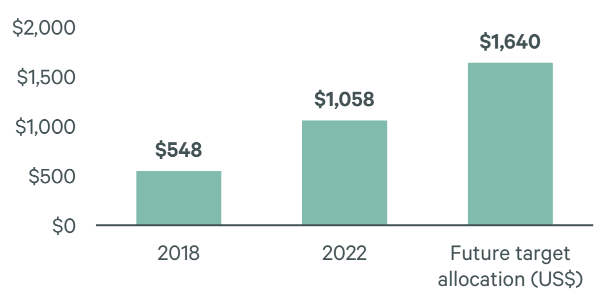
Over the last decade, infrastructure AUM has grown at a 17% clip to reach over $1 trillion under management[1]. Rising AUM is a function of rising allocations, as investors seek returns with resilient earnings, inflation protection and secular growth. Today, global institutions sit at an approximately 5% exposure to infrastructure. This is likely to rise as (1) institutions are under-allocated relative to their targets of ~6% and (2) just shy of 80% of institutions expect to increase or maintain allocations in the coming years[2]. CBRE Investment Management projects that if current investors were merely to reach their average targets, infrastructure AUM could grow to over $1.6 trillion. Further gains could occur if U.S. investors trended toward other regional allocations or if institutional investors allocated in line with the 10%+ they target in real estate[3].

Figure 2: Demand for infrastructure assets is increasing

Institutional allocations to infrastructure are below target[1]

Country	Avg. current allocation	Avg. target allocation
Canada	7.5%	9.9%
Australia	5.7%	7.3%
U.K.	6.6%	9.1%
Europe ex. U.K.	4.1%	5.2%
United States	3.4%	3.8%

Substantial capital targeting infrastructure investment[2] (US$ billions)



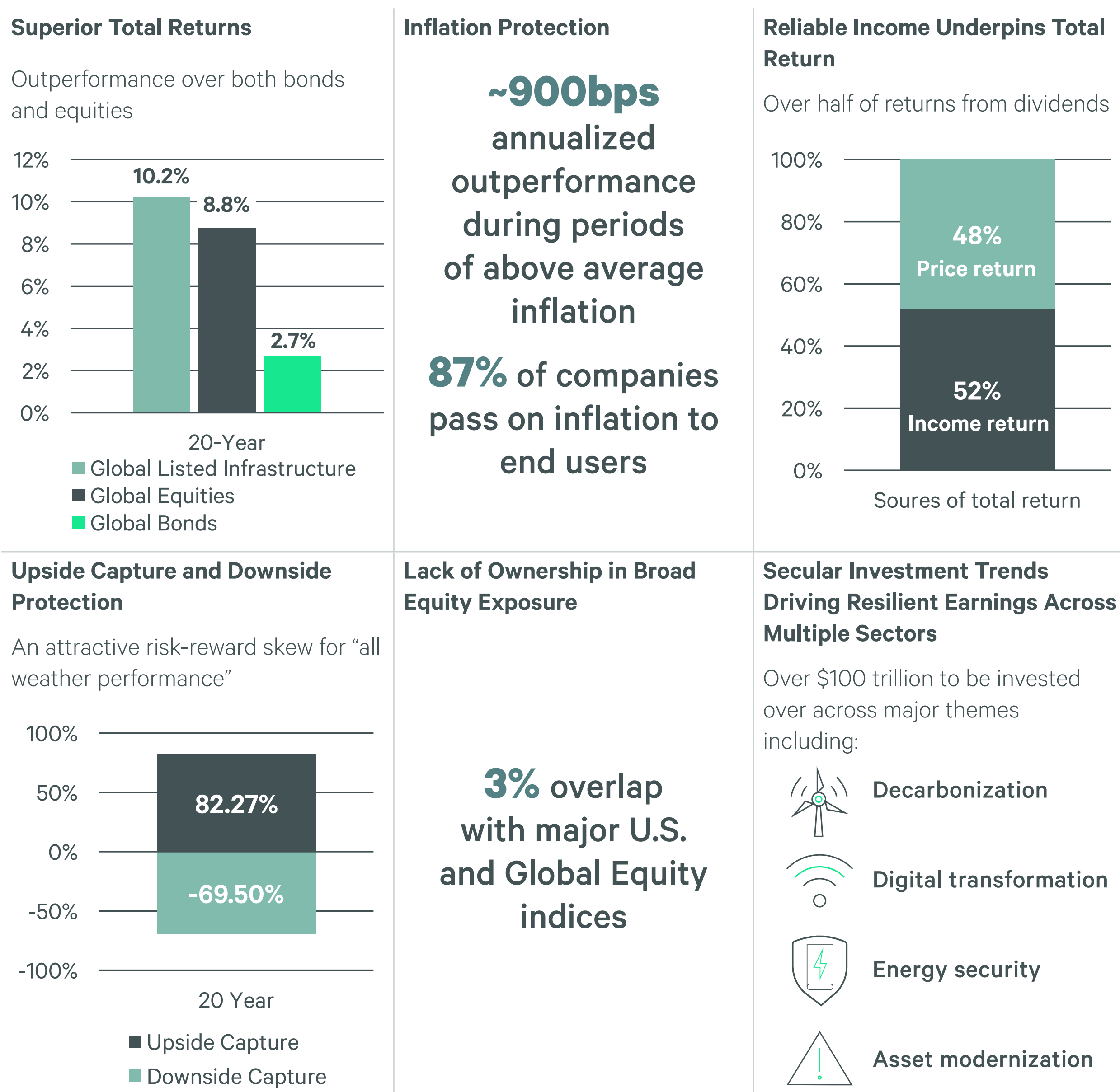
Source: Please see disclosures at the end of the document.

As institutional allocations grow, CBRE Investment Management expects momentum in retail, which includes high net worth and financial advisors as well as individual investors. Over the past decade, retail AUM in infrastructure has grown as a ~21% pace[4]. With individual investors perhaps seeking a higher component of return from income assets in the years ahead and with resilient earnings that has grown throughout economic cycles, infrastructure should be well positioned to grow in retail channels.

The portfolio benefits of listed infrastructure

From an investment characteristic perspective, infrastructure can offer several benefits. The asset class offers the opportunity for higher returns with lower volatility compared to broad equities. It has the potential to provide inflation protection, a reliable income component, an attractive upside/downside capture spread, limited overlap and access to secular demand. Below, we summarize the major offerings of infrastructure for traditional portfolios.

Figure 3: Listed infrastructure offerings for traditional portfolios

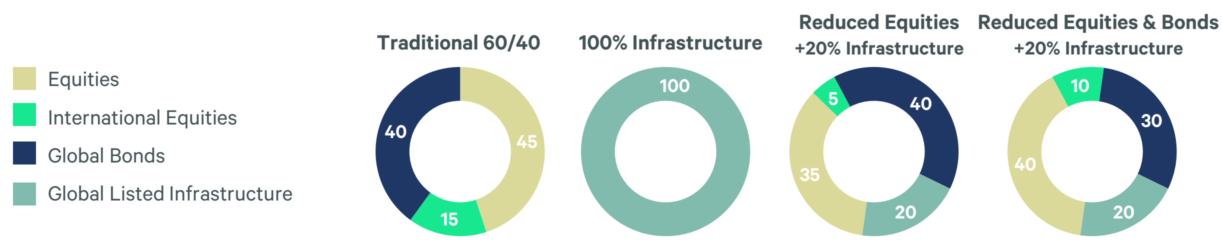


Source: Please see disclosures at the end of the document.

The blending benefits of listed infrastructure

Blending infrastructure into a traditional portfolio can provide benefits. Below, we showcase the potential of improved results to a traditional stock and bond portfolio as infrastructure takes share from U.S. and international equities and/or fixed income. Infrastructure can offer lower beta and downside protection compared to global equities and a return enhancement compared to bonds. As infrastructure takes share, risk adjusted returns improve.

Figure 4: Infrastructure is an enhancement for traditional portfolios



20-Year return and risk statistics (Gross of Fees)	Traditional 60/40	100% Infrastructure	Reduced Equities +20% Infrastructure	Reduced Equities & Bonds +20% Infrastructure
Annualized return	6.8%	10.2%	7.1%	7.7%
Standard deviation	10.1%	14.1%	9.6%	10.7%
Sharpe ratio	0.56	0.64	0.62	0.61
Portfolio Beta	0.64	0.77	0.60	0.68
Downside Capture	61.3%	69.5%	55.1%	64.2%

Source: CBRE Investment Management 12/31/2022. 60/40 mix includes, US Equities: S&P 500; International Equities: MSCI AC World Index ex USA; Global Bonds: Bloomberg Global Bond Aggregate Index; Global Infrastructure: FTSE Global Core Infrastructure 50/50 Index. The 20-year return and risk statistics are reflected by linked UBS Global Infrastructure & Utilities 50/50 Index and FTSE Global Core Infrastructure 50/50 Index. Portfolio beta and downside capture is in reference to the MSCI World Index. There can be no guarantee any such allocations or targets will ultimately be achieved. The above is for informational purposes only and does not constitute investment advice or a recommendation to purchase any security. An index is unmanaged and not available for direct investment. . Information is the opinion of CBRE Investment Management which is subject to change and is not intended to be a forecast of future events, or a guarantee of future results, or investment advice. Forecasts and any factors discussed are not indicative of future investment performance. Past performance is no guarantee of future results.

Optimal listed infrastructure allocations

In the prior section, our analysis demonstrated that blending infrastructure can improve risk-adjusted returns However, not every individual investor has the same risk tolerance. Below, we demonstrate the percentage allocation to infrastructure that is potentially appropriate for a range of investors given a potential risk tolerance. We consider:

— A conservative investor, who may traditionally align with a 40% stock and 60% bond portfolio.

— A moderate investor, who may traditionally align with a 60% stock and 40% bond portfolio.

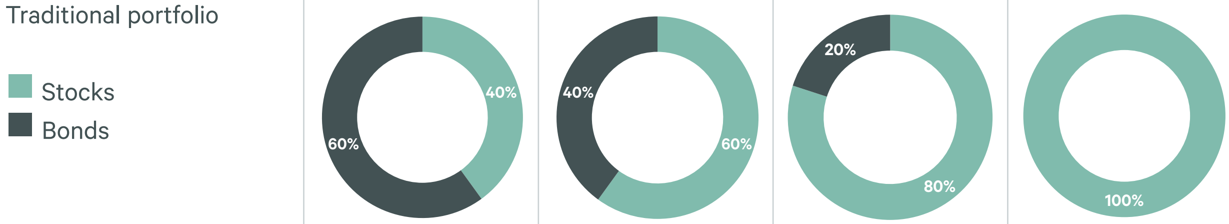
— A growth investor, who may traditionally consider an 80% stock and 20% bond portfolio.

— An aggressive investor, who may traditionally consider an all-equities portfolio.

For each investor, we assume they would wish to keep their tracking error to a 7.5% increase compared to their traditional portfolio. Given these constraints, analysis would suggest investors could consider a 6-14% allocation to the asset class on a strategic basis.

FIgure 5: Potential infrastructure allocations based on investor risk tolerance

	Investor Type			
	Conservative	**Moderate**	**Growth**	**Aggressive**
Traditional portfolio				



	Conservative	Moderate	Growth	Aggressive
Historical traditional portfolio volatility	6.7%	9.2%	11.9%	14.8%
Recommended allocation to infrastructure	**6.0%**	**10.0%**	**13.0%**	**14.0%**

Source : CBRE Investment Management as of 12/31/22. Historical volatility data represents the annualized standard deviation of monthly returns from 2002-2022. Recommended allocation to infrastructure based on proprietary asset allocation and optimization model estimates. Fixed income is represented by Bloomberg Barclays U.S. Aggregate Bond Index; stocks are represented by the S&P 500 Index; and infrastructure is represented by the FTSE Global Core Infrastructure 50/50 Index. Tracking error is the difference in actual performance between a position (usually an entire portfolio) and its corresponding benchmark. Tracking error can be viewed as an indicator of how much risk an investor is taking versus their strategic benchmark. There can be no guarantee any such allocations or targets will ultimately be achieved. The above is for informational purposes only and does not constitute investment advice or a recommendation to purchase any security. An index is unmanaged and not available for direct investment. Information is the opinion of CBRE Investment Management which is subject to change and is not intended to be a forecast of future events, or a guarantee of future results, or investment advice. Forecasts and any factors discussed are not indicative of future investment performance. Past performance is not indicative of future results. An investment cannot be made in an index.

The complementary nature of listed and private infrastructure

Increasingly, investors are turning to listed infrastructure to complement private exposures. CBRE Investment Management believes the benefits of listed alongside private include:

Diversification and immediate access:

— With the ability to access a universe comprising $4 trillion in market cap that is diversified across multiple regions, a listed vehicle can diversify investors in a single investment.

The benefit of liquidity:

— In 2022, a year of volatility for multiple asset classes, investors sought to rebalance portfolios, which led to redemption queues for investors in private equity.

— Listed offers immediate liquidity if needed and the ability to take advantage of dislocations in the public markets for potential excess return.

Asset quality:

— From an asset perspective, holdings in listed can provide access to the largest and most-scaled platforms in the world, which private investors may struggle to access. For example, private equity has historically had difficulty buying large U.S. utilities, whose regulators may prefer a longer-term time horizon from owners.

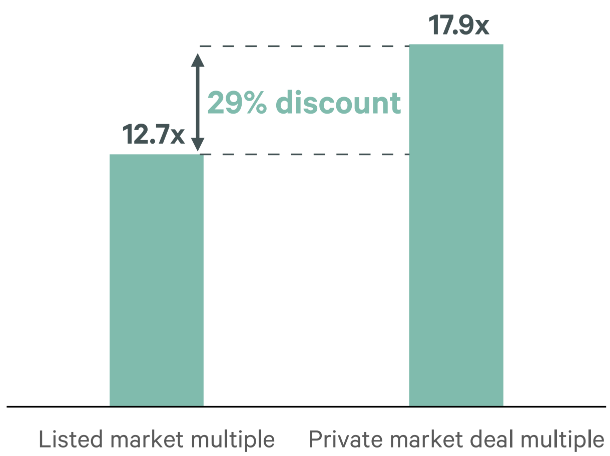
Discounted valuation to private markets:

— Listed infrastructure offers the opportunity to arbitrage for value and potentially benefit from privatizations of scarce, publicly-listed infrastructure assets.

— As we explore below, listed valuations are cheaper compared to private market valuations and have benefitted from the deployment of private equity capital.

Figure 6: Private markets awash with capital continue to highlight a valuation disconnect

Listed vs. Private market valuation gap[1]



Private allocations are growing

>$350B DRY POWDER

Average deal size has doubled

$4.9B AVG DEAL SIZE LAST 2YRS

Privatizations have increased...

~US$140B 2021-2022 TAKE-PRIVATE[2]

...at significant premiums to listed prices

35% WEIGHTED PRIVATIZATION PREMIUM[2]

1. CBRE Investment Management as of 12/31/2022. Comparison of average EV/EBITDA Multiples on 120 private infrastructure market transactions from 01/01/2016 through 12/31/2022 vs. listed infrastructure market multiples over the same period.

2. CBRE Investment Management as of 12/31/2022. Announced or completed privatizations of public companies over the period 01/01/2021 – 12/31/2022. Reflects the premium of the bid to the unaffected stock price prior to the announcement or rumor of announcement.

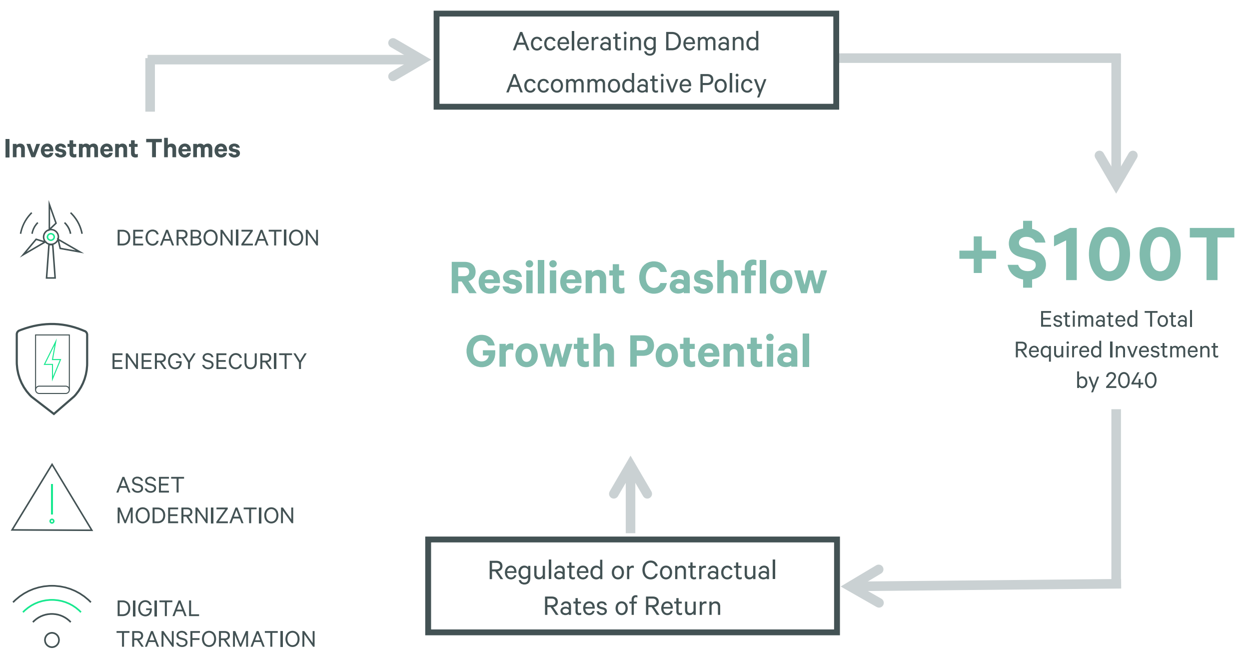
This the opinion of CBRE Investment Management, which is subject to change and is not intended to be a forecast of future events, a guarantee of future results, or investment advice. Forecasts and any factors discussed are not a guarantee of future results. Past performance is no guarantee of future results.

Secular underpinnings of growth

Historically, listed infrastructure has provided investors with a compelling total return. This has been influenced by its ~3.5% dividend yield and 7% dividend growth over the long-term.

Momentum across the infrastructure investment landscape has the potential to support earnings and dividends for the asset class. Across the investment themes of decarbonization, energy security, digital transformation and asset modernization, CBRE Investment Management sees over $100 trillion in potential investment for infrastructure companies. Infrastructure investment can be spread across the developers of renewable power and the owners of transmission grids in public utilities; the shippers of traditional hydrocarbons in midstream energy; and the transport and data networks within toll road, cell tower and data center assets. With this investment, by companies known for contracted and regulated returns, the asset class is positioned to have significant visibility to future growth.

Figure 7: Accelerating demand, accommodative policy drives resilient cash flows



Sources: Global Infrastructure Hub, International Renewable Energy Agency (IRENA) and CBRE Investment Management, June 2021. Estimated required investment from 2016 to 2040. Information is the opinion of CBRE Investment Management, which is subject to change and is not intended to be a forecast of future events, a guarantee of future results, or investment advice. “f” refers to forecasts. Forecasts and any factors discussed are not a guarantee of future results. Past performance is no guarantee of future results

Potential benefits for active management

As a niche asset class, infrastructure offers advantages that can support manager outperformance over the long-term.

— First, infrastructure benchmarks aren't uniform: they tend to each capture only a portion of the whole universe. Some benchmarks may make sizable bets to cyclical sectors such as midstream and transportation, while others have disparate geographic concentration.

— Second, managers with a private-public research platform and specialized knowledge of their niche sectors (relative to global equities coverage) have an opportunity to outperform. In infrastructure, private market data is not widely available, so those managers with dedicated resources and on-the-ground knowledge can have an edge.

Data supports the view that active infrastructure managers can outperform over the long-term. Below, we demonstrate the median manager alpha compared to their respective benchmarks over major time periods. While unprecedented macro volatility in 2022 hampered relative active returns for the median manager, over the long-term infrastructure managers have outperformed.

Figure 8: Median manager alpha relative to manager benchmarks

	Trailing 1 Year	Trailing 3 Years	Trailing 5 Years	Trailing 10 Years
Median Manager	-2.0%	1.5%	2.0%	1.6%

Source: CBRE Investment Management, eVestment. Sample reflects listed infrastructure managers with 10 years of history, gross of fees, identified benchmarks, and reported alpha within the eVestment listed infrastructure category as of December 2022.

A strategic allocation to a growing asset class

Whether as a complement to broad equities and fixed income, or as a key constituency within a real asset allocation, infrastructure has the potential to benefit investors. A wave of allocations across institutional and retail channels has the potential to provide support for the valuations of companies that are prized for all-weather performance, reliable income, resilient earnings and secular growth. As listed infrastructure offers the opportunity to complete private allocations, active managers in listed can further enhance returns for clients. In the years ahead, CBRE Investment Management is excited to see listed infrastructure grow within investor portfolios as a strategic allocation.

[1]Preqin as of June 2022, and Global Listed Infrastructure Organization as of February 2023, respectively.

[2]Preqin, Plan Documents, and CBRE Investment Management as of June 2022. Institutional allocations include Public/Private Pensions, Endowments and Foundations, Sovereign Wealth Funds and others investing in infrastructure included in the Preqin database. Excludes Asset Managers and Fund of Funds. Trend in investor allocations per Infrastructure Investor Investor Report Full Year 2022.

[3]Pensions and Investment, November 2022.

[4]Morningstar Open Ended Mutual Fund and ETF assets under management in infrastructure.

Figure 2 sources: Preqin, Plan Documents, and CBRE Investment Management, all AUM totals expressed in US$ as of June 2022. Institutional allocations include Public/Private Pensions, Endowments and Foundations, Sovereign Wealth Funds and others investing in infrastructure included in the Preqin database. Excludes Asset Managers and Fund of Funds.

1. The increase in future target allocation includes the change in target allocation disclosed in plan documents and an estimated change, for those infrastructure investors without a target allocation, to regional allocation averages. Information is the opinion of CBRE Investment Management, which is subject to change and is not intended to be a forecast of future events, a guarantee of future results, or investment advice. Forecasts and any factors discussed are not a guarantee of future results.

Figure 3 sources (left to right):

Listed infrastructure represented by the UBS Global Infrastructure & Utilities linked to FTSE Global Core Infrastructure 50/50 Index. Global Equities represented by the MSCI World Index. Global bonds represented by the Barclays Global Bond Index.

Outperfomance during above average inflationary regimes is calculated based upon trailing 20-years based on average monthly total returns during inflation regimes, annualized. Inflation Regimes calculated using the year-on-year change in the U.S. CPI, normalizing its history using a z-score, and tracking the 3-month moving average of that z-score. The Inflation Regime is determined by both the level and the change in the indicator, requiring two months in the same cycle in order to confirm a new regime. Information is the opinion of CBRE Investment Management, which is subject to change and is not intended to be a forecast of future events, a guarantee of future results, or investment advice. Forecasts and any factors discussed are not a guarantee of future results.

Percentage of companies with the ability to pass along inflation is based upon the FTSE Global Core Infrastructure Index 50/50 as of 12/31/2022. “Explicit Inflation Pass Through” includes companies with the ability to offset higher costs through revenues that rise in tandem with inflation, over a relatively short timeframe. “Implicit Inflation Pass Through” applies to companies with revenues that rise with inflation over a longer timeframe. “Market Based Monopolistic” category applies to companies who have dominant pricing power in their sectors, whereas Market Based Competitive applies to those with less pricing power. Companies that have fixed escalators in their contracts are grouped in the “Escalators” category and are deemed to have the least inflation protection. Information is the opinion of CBRE Investment Management, which is subject to change and is not included to be a forecast of future events, a guarantee of future returns, or investment advice. Percentages may not total 100% due to rounding. Any factors noted are not indicative of future investment performance.

Historical price and income returns in listed infrastructure based on data as of 12/31/2022. This information is subject to change and should not be construed as investment advice. An index is unmanaged and not available for direct investment Yields fluctuate and are not guaranteed. Global Bonds: Bloomberg Barclays Global Aggregate Bond Index, Global Equities: MSCI World Index, Global Infrastructure: September 2001 through February 28, 2015, was the UBS Global Infrastructure & Utilities 50/50 Index, beginning March 1, 2015, is the FTSE Global Core Infrastructure 50/50 Index performance reflects the reinvestment of earnings and gains but does not reflect the deduction of any fees or expenses, which would reduce returns. Performance over 1-year is annualized. An index is unmanaged and not available for direct investment.

Upside and downside capture skew based upon CBRE Investment Management as of 12/31/2022 in USD. Global Equities: MSCI World Index, Global Infrastructure: UBS Global Infrastructure & Utilities 50/50 Index September 2001 through February 28, 2015, beginning March 1, 2015, is the FTSE Global Core Infrastructure 50/50 Index. An index is unmanaged and not available for direct investment. This information is subject to change and should not be construed as investment advice. There is no guarantee that risk can be managed successfully. Index returns do not reflect any fees. Past performance is not a guarantee of future returns.

Overlap with broad equities based upon CBRE Investment Management’s listed infrastructure strategy holdings and FactSet as of 12/31/22 in USD. Refers to Global Equities represented by MSCI World Index.

Estimates of the infrastructure investment opportunity based upon the Global Infrastructure Hub, International Renewable Energy Agency (IRENA) and CBRE Investment Management, June 2021. Estimated required investment from 2016 to 2040. Information is the opinion of CBRE Investment Management, which is subject to change and is not intended to be a forecast of future events, a guarantee of future results, or investment advice. “f” refers to forecasts. Forecasts and any factors discussed are not a guarantee of future results. Past performance is no guarantee of future results

About CBRE Investment Management

CBRE Investment Management is a leading global real assets investment management firm with $143.9 billion in assets under management* as of September 30, 2022, operating in more than 30 offices and 20 countries around the world. Through its investor-operator culture, the firm seeks to deliver sustainable investment solutions across real assets categories, geographies, risk profiles and execution formats so that its clients, people and communities thrive.

CBRE Investment Management is an independently operated affiliate of CBRE Group, Inc. (NYSE:CBRE), the world's largest commercial real estate services and investment firm (based on 2021 revenue). CBRE has more than 105,000 employees (excluding Turner & Townsend employees) serving clients in more than 100 countries. CBRE Investment Management harnesses CBRE's data and market insights, investment sourcing and other resources for the benefit of its clients. For more information, please visit www.cbreim.com.

If you would like to discuss the contents of this paper with our team, or would like more information about investing in infrastructure, please contact:

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*Assets under management (AUM) refers to the fair market value of real assets-related investments with respect to which CBRE Investment Management provides, on a global basis, oversight, investment management services and other advice and which generally consist of investments in real assets; equity in funds and joint ventures; securities portfolios; operating companies and real assets-related loans. This AUM is intended principally to reflect the extent of CBRE Investment Management's presence in the global real assets market, and its calculation of AUM may differ from the calculations of other asset managers and from its calculation of regulatory assets under management for purposes of certain regulatory filings.