INTRODUCTION
Listed infrastructure appeals to investors in many ways. It has a history of attractive returns and volatility; providing an increased level of transparency and liquidity versus private-market investments. Its yields support an investment outcome that often rises with inflation. Listed Infrastructure’s total return is anchored by predictable cash flows and attractive dividends. In our view, global infrastructure is a distinct and separate asset class that deserves an allocation within a broadly diversified portfolio.

WHO INVESTS IN INFRASTRUCTURE?
Listed infrastructure is often part of an allocation to global equities or real assets. In our experience, it’s particularly popular among the following types of investors:

- **Investors with an Allocation to Real Assets**
  Like other real assets, global infrastructure assets are tangible, physical assets that provide a real return that often rises with inflation.

- **Investors who Seek Attractive Income**
  The dividend yields on listed infrastructure are higher than those of global stocks and bonds. The dividend yield has served as an anchor to the historical total return of listed infrastructure.

- **Investors Seeking Competitive Risk-Adjusted Returns**
  Listed infrastructure has historically had less volatility than equities. The asset class seeks to provide investors with an attractive combination of stability, income, and growth, which may enhance the risk-adjusted return potential of a mixed asset portfolio.
Global infrastructure provides the structures and systems that are essential for society to function. It consists of physical assets that are costly and difficult to replace. Such assets often benefit from monopolies and inelastic demand, which are sources of their ability to provide stable cash flows over long periods of time. This means global infrastructure is less affected by economic cycles than other investments. Government regulation and oversight often limit competition to global infrastructure providers.

The wealth of global infrastructure opportunities has expanded greatly over the past 20 years, as governments have increased the private sector’s role. The core infrastructure universe identified by CBRE Clarion has grown from about $400 billion in 1995 to $4.0 trillion in 2019. Core infrastructure companies are defined as companies that own long-duration global infrastructure assets with a stable demand profile and low volatility of cash flows. These companies can be identified through an analysis of underlying assets, business models, and investment characteristics.

Approximately $70 trillion is needed to fund global infrastructure projects in the coming years. This suggests that there will be a good supply of attractive projects in regions that range from developed to emerging-market countries. This is likely to encourage the continued rise of global infrastructure as an asset class.

Examples of Global Infrastructure Assets:
- **Utilities**: Electric distribution, electric transmission lines, gas distribution pipelines, renewable energy facilities, water distribution systems
- **Communications**: Satellites, towers, data centers, fiber networks
- **Midstream Energy**: Pipelines/transport, storage, processing
- **Transportation**: Airports, toll roads, railroads, ports
GLOBAL LISTED INFRASTRUCTURE: POTENTIAL BENEFITS

ATTRACTION HISTORICAL RETURNS

Listed infrastructure has historically provided attractive returns with less volatility than stocks. Looking strictly at returns, it outperformed global stocks and global bonds.

Over a 20-year period, the annualized total return of listed infrastructure was 8.4% vs. 5.4% and 4.4% for global stocks and global bonds, respectively (Exhibit 1).

EXHIBIT 1: LISTED INFRASTRUCTURE HAS A HISTORY OF STRONG OUTPERFORMANCE

Historically, global infrastructure has provided attractive returns anchored by consistent and rising levels of dividend income.

ATTRACTION YIELDS

Listed infrastructure’s returns come partly from appreciation from rising investment and partly from dividend yields. Listed infrastructure’s dividend yields are greater than those of global stocks and bonds. Dividends have accounted for over 50% of the total return of listed infrastructure over the past decade (Exhibit 2).

EXHIBIT 2: DIVIDEND YIELDS PROVIDE A STRONG SOURCE OF TOTAL RETURN

Source: CBRE Clarion as of 09/30/2019.
**STABLE EARNINGS**

Listed infrastructure historically has generated relatively predictable and rising cash flows across market cycles, as in the period 2001 to the present (Exhibit 3). Listed infrastructure’s relatively stable and predictable cash flows rest partly on the long-lived contractual revenue streams that make the yields on this asset class attractive.

Moreover, demand for the essential services provided by global infrastructure may remain stable regardless of economic weakness. As a result, listed infrastructure’s cash flows are less vulnerable to fluctuations caused by unexpected world events.

**EXHIBIT 3: LISTED INFRASTRUCTURE MAY PROVIDE STABLE AND RISING CASH FLOWS**

Global infrastructure provides investors with stable and resilient cash flows that are less vulnerable to fluctuations caused by unexpected world events.

Source: CBRE Clarion’s Infrastructure investable universe, MSCI AWCI Index and U.S. Consumer Price Index data as of 12/31/2018. For comparison purposes, company operating earnings and the U.S. Consumer Price Index values were rebased to 100 on 12/31/2000.

### A BUILT-IN MECHANISM FOR GROWTH AND INFLATION PROTECTION

Listed infrastructure cash flows and dividends benefit from contractually driven, inflation-linked revenue growth, which may provide a long-term hedge against inflation and rising interest rates. For example, toll road assets may offer inflation protection because long-term contracts typically tie fees explicitly to inflation. In other instances, such as regulated utilities in the U.K. and Italy, returns are set based on real returns, rather than nominal returns, again allowing for a direct link to inflation.

In addition to inflation-linked revenue, global infrastructure companies grow revenues and income through capital expenditures to upgrade, improve, or enhance existing infrastructure. Such spending offers them an opportunity to earn a rate of return on these investments in excess of their cost of capital and drives cash flow growth. Regulators typically establish the rate of return such listed infrastructure companies can earn on their capital investments, which has typically been higher than the companies’ cost of capital.

**EXHIBIT 4: INFLATION PROTECTION A HALLMARK OF INFRASTRUCTURE ASSETS**

~85% of listed infrastructure has effective means to pass through the impact of inflation to shareholders.

Source: FTSE Global Core Infrastructure Index 50/50 as of 12/31/2016.
LOWER HISTORICAL VOLATILITY THAN OTHER MAJOR EQUITY INVESTMENTS

Listed infrastructure’s historical returns look even more attractive when you look at the asset class’ historical volatility and compare it with other types of stocks. As measured by standard deviation, listed infrastructure was significantly less volatile than other major equity investments, including U.S. large-cap stocks (Exhibit 5).

EXHIBIT 5: LISTED INFRASTRUCTURE MAY PROVIDE LESS VOLATILITY THAN MAJOR ASSET CLASSES

<table>
<thead>
<tr>
<th>10-Year Standard Deviation Comparison</th>
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<tbody>
<tr>
<td>Global Listed Infrastructure</td>
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<tr>
<td>U.S. Equities</td>
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<tr>
<td>Global Equities</td>
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<tr>
<td>Global Real Estate</td>
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<tr>
<td>Emerging Markets</td>
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<td>MLPs</td>
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</table>

Source: CBRE Clarion as of 09/30/2019.

PORTFOLIO DIVERSIFICATION

Historically, listed infrastructure has contributed to portfolio diversification and portfolio-level risk-adjusted returns. The global universe of listed infrastructure securities includes a diverse opportunity set of industry sectors that are affected by the economic conditions, regulatory trends, and supply/demand dynamics that are unique to the local markets and sectors in which they operate. As a result, there has historically been a wide disparity of returns generated across the listed infrastructure sectors providing diversification and opportunities for active management (Exhibit 6).

EXHIBIT 6: VARIABILITY OF SECTOR PERFORMANCE ENHANCES PORTFOLIO DIVERSIFICATION AND CREATES OPPORTUNITIES FOR ACTIVE MANAGEMENT

<table>
<thead>
<tr>
<th>Infrastructure Calendar Year Total Return by Sector</th>
</tr>
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<tbody>
<tr>
<td>2014</td>
</tr>
<tr>
<td>Regulated Electric</td>
</tr>
<tr>
<td>Rail</td>
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<tr>
<td>Water</td>
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<tr>
<td>Communication</td>
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<td>Integrated Electric</td>
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<tr>
<td>Gas Distribution</td>
</tr>
<tr>
<td>Airports</td>
</tr>
<tr>
<td>Midstream/Pipelines</td>
</tr>
<tr>
<td>Toll Roads</td>
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<tr>
<td>Ports</td>
</tr>
</tbody>
</table>

Index data prior to 2015 is represented by UBS Global Infrastructure & Utilities 50/50 Index; 2015 data is represented by UBS Global Infrastructure & Utilities 50/50 Index; beginning March 1, 2015, FTSE Global Core Infrastructure 50/50 Index – net of withholding tax as of 12/31/2018 in USD. Data represents annual returns for sectors defined by CBRE Clarion, based on constituents of the FTSE Global Core Infrastructure 50/50 Index and Alerian MLP Index.
ATTRACTIVE RISK-ADJUSTED RETURNS

The combination of attractive returns and lower volatility means that listed infrastructure may provide stability and reduce portfolio risk as part of a well-diversified portfolio. Adding listed infrastructure, while reducing the allocation to global equities, may enhance a global portfolio’s risk-adjusted returns (Exhibit 7).

EXHIBIT 7: LISTED INFRASTRUCTURE MAY ENHANCE A PORTFOLIO’S RISK ADJUSTED RETURN

The combination of attractive returns and lower volatility means that listed infrastructure may provide stability and reduce portfolio risk as part of a well-diversified portfolio. Adding listed infrastructure, while reducing the allocation to global equities, may enhance a global portfolio’s risk-adjusted returns (Exhibit 7).

INVEST FOR RISK-ADJUSTED RETURNS, INCOME, AND DIVERSIFICATION

The historical combination of attractive returns and lower volatility than other equity investments means that listed infrastructure has produced attractive risk-adjusted returns. Investor acceptance of this growing asset class is gaining momentum due to the risk-adjusted benefits to a mixed asset portfolio. Investors also appreciate the income and diversification potential of this asset class, along with the transparency and liquidity of listed infrastructure. We welcome the opportunity to share our capabilities at CBRE Clarion Securities for investment into this attractive asset class.
ABOUT CBRE CLARION SECURITIES

CBRE Clarion Securities is an industry-leading global investment management firm specializing in the management of listed real asset securities including real estate, infrastructure, and midstream energy. CBRE Clarion manages client portfolios with a focus on generating attractive risk-adjusted returns through a total return and income focused strategies. Headquartered near Philadelphia, Pennsylvania, the firm has offices in the United States, United Kingdom, Hong Kong, Japan, and Australia.

The global transfer of ideas, in-depth local market research, and market intelligence distinguishes CBRE Clarion. Our team of dedicated listed real asset investment professionals draws upon the research and resources of CBRE’s global organization. Our global perspective and local infrastructure and real estate market insight combined with our disciplined investment approach, enhance our teams’ ability to underwrite risks and capitalize on potential opportunities.

CBRE Clarion Securities is the listed equity management arm of CBRE Global Investors, an industry-leading global real asset investment firm sponsoring investment programs across real estate, infrastructure, and private equity.

IMPORTANT DISCLOSURES

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Past performance of various investment strategies, sectors, vehicles and indices are not indicative of future results. Investing in infrastructure securities involves risk including potential loss of principal. Infrastructure equities are subject to risks similar to those associated with the direct ownership of infrastructure assets. Portfolios concentrated in infrastructure securities may experience price volatility and other risks associated with non-diversification. While equities may offer the potential for greater long-term growth than some debt securities, they generally have higher volatility. International investments may involve risk of capital loss from unfavorable fluctuation in currency values, from differences in generally accepted accounting principles, or from economic or political instability in other nations. There is no guarantee that risk can be managed successfully. There are no assurances performance will match or outperform any particular benchmark. Indices are unmanaged and not available for direct investment.
REFERENCES | INDEX DEFINITIONS


2. “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.

The UBS Global Infrastructure & Utilities 50-50 Index is a derivative of the UBS Developed Infrastructure & Utilities Index. The infrastructure sector and the utilities sector each have a 50% weighting in terms of free-float market capitalization, which removes the skew towards utilities found in the UBS Developed Infrastructure & Utilities Index. Constituents of the index are all listed in developed markets.

The FTSE Global Core Infrastructure 50/50 Index gives participants an industry-defined interpretation of infrastructure and adjusts the exposure to certain infrastructure sub-sectors. The constituent weights for these indices are adjusted as part of the semi-annual review according to three broad industry sectors – 50% Utilities, 30% Transportation including capping of 7.5% for railroads/railways and a 20% mix of other sectors including pipelines, satellites and telecommunication towers. Company weights within each group are adjusted in proportion to their investable market capitalization. The U.S. Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.

The MSCI ACWI IMI Index captures large, mid and small cap representation across 23 Developed Markets (DM) and 23 Emerging Markets (EM) countries. With 8,622 constituents, the index is comprehensive, covering approximately 99% of the global equity investment opportunity set.

The FTSE EPRA Nareit Developed Index is designed to track the performance of listed real estate companies and REITs worldwide. By making the index constituents free-float adjusted, liquidity, size and revenue screened, the series is suitable for use as the basis for investment products, such as derivatives and Exchange Traded Funds (ETFs).

The S&P 500 or Standard & Poor’s 500 Index is a market-capitalization-weighted index of the 500 largest U.S. publicly traded companies. The index is widely regarded as the best gauge of large-cap U.S. equities.

FTSE Emerging Markets indices includes large and mid cap securities from advanced and secondary emerging markets, classified in accordance with FTSE’s transparent Country Classification Review Process. The FTSE Emerging Index provides investors with a comprehensive means of measuring the performance of the most liquid companies in the emerging markets.

The Alerian MLP Index is the leading gauge of energy infrastructure Master Limited Partnerships (MLPs). The capped, float adjusted, capitalization-weighted index, whose constituents earn the majority of their cash flow from midstream activities involving energy commodities, is disseminated real-time on a price-return basis (AMZ) and on a total-return basis (AMZX).

The Barclays Global Aggregate Index provides a broad-based measure of the global investment grade fixed-rate debt markets. The Global Aggregate Index contains three major components: the U.S. Aggregate (USD 300mn), the Pan-European Aggregate (EUR 300mn), and the Asian-Pacific Aggregate Index (JPY 35bn). In addition to securities from these three benchmarks (94.0% of the overall Global Aggregate market value as of December 31, 2010), the Global Aggregate Index includes Global Treasury, Eurodollar (USD 300mn), Euro-Yen (JPY 25bn), Canadian (USD 300mn equivalent), and Investment Grade 144A (USD 300mn) index-eligible securities not already in the three regional aggregate indices. The Global Aggregate Index family includes a wide range of standard and customized subindices by liquidity constraint, sector, quality, and maturity. A component of the Multiverse Index, the Global Aggregate Index was created in 1999, with index history backfilled to January 1, 1990.

Risk Statistic Definitions: Standard Deviation is a statistical measure of the historical volatility of the portfolio. Sharpe Ratio is a risk-adjusted measure calculated using standard deviation and excess return to determine reward per unit of risk. Dividend yield is the yield a company pays out to its shareholders in the form of dividends. It is calculated by taking the amount of dividends paid per share over the course of a year and dividing by the stock’s price.

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