

Global Infrastructure: Essential Services Drawing More Investors

Count the defensive characteristics: enormous pent-up demand; historically stable and predictable cash flows; inflation protected revenues; attractive yields; and the potential for capital appreciation.

AUTHORED BY:



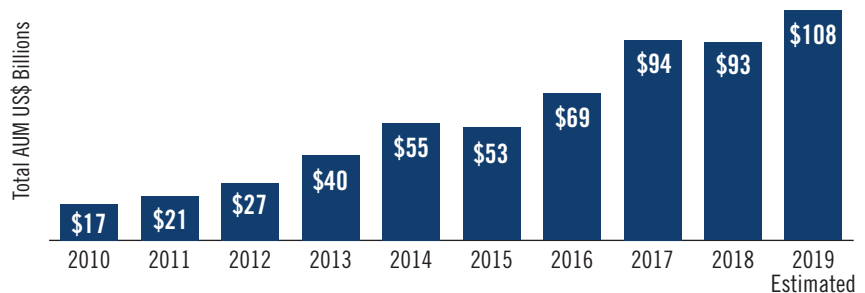
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Institutional investors have allocated to global listed infrastructure to benefit from its history of above-average income and moderate growth, lower correlations to other asset classes, and reduced sensitivity to market swings and economic cycles.

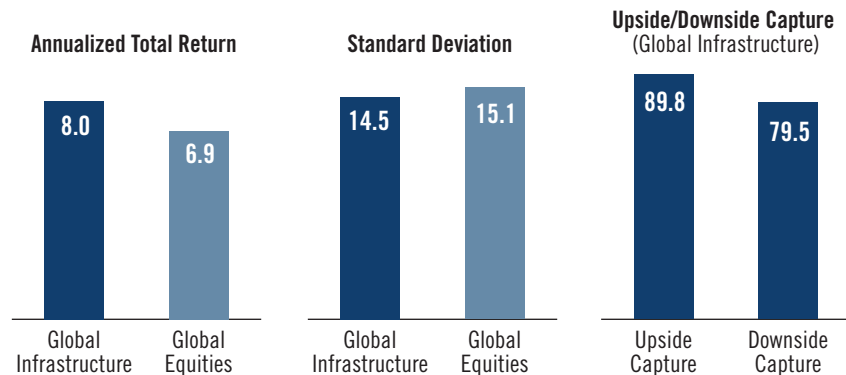
INVESTOR DEMAND FOR INFRASTRUCTURE HAS INCREASED STEADILY 2010-2019E



Source: GLIO, Developed and Emerging Markets. E= Estimated

GLOBAL INFRASTRUCTURE'S STRONG PERFORMANCE, RISK, AND RETURN CHARACTERISTICS (%)

Versus Global Equities, 1/1/05 to 12/31/19



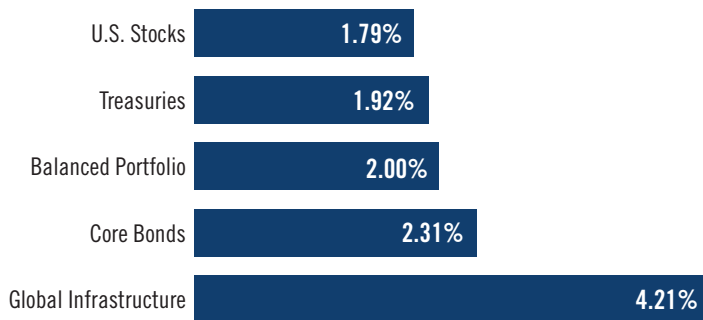
Past performance is not indicate of future results. Global Infrastructure represented by the S&P Global Infrastructure Index. Global Equities represented by the MSCI ACWI Index.

Source: Morningstar Direct

Attractive Income

Aside from the potential for capital appreciation, global infrastructure has historically offered almost double the income of a traditional stock and bond portfolio. Such yields, in turn, have attracted retail investors looking to supplement their fixed income allocations in a “lower for longer” interest rate environment.

GLOBAL INFRASTRUCTURE IN A FIELD OF YIELDS



Past performance is not indicative of future results.

Asset classes are not representative of any Duff and Phelps portfolio. Investors should consult their financial professional to identify suitable investments. For illustrative purposes only, the indexes are unmanaged, their returns do not reflect any fees, expenses, or sales charges, and are not available for direct investment. Source: Morningstar Direct, Virtus Performance & Analytics. All data as of 12/31/19. Yields for the various asset classes have material differences including investment objectives, liquidity, safety, fluctuation of principal, or return and tax features. Fixed income yields are yield-to-worst, and equity yields are current dividend yield. Treasuries represented by 10-year U.S. Treasury. U.S. Stocks by S&P 500® Index; Balanced Portfolio by 60% S&P 500® Index/40% Bloomberg Barclays U.S. Aggregate Bond Index; Core Bonds by Bloomberg Barclays U.S. Aggregate Bond Index; Global Infrastructure by S&P Global Infrastructure Index.

What Is Infrastructure?

Simply stated, “infrastructure” can be defined as the large scale physical assets that a society needs to function and grow effectively. Infrastructure companies generally provide the public with essential and irreplaceable energy, water, transportation and communication services. They make up the physical foundation that provides our everyday needs.

COMPANY AND INVESTMENT ATTRIBUTES

High Barriers to Entry, Pricing Power, Predictable Revenues, Reliable Cash Flows

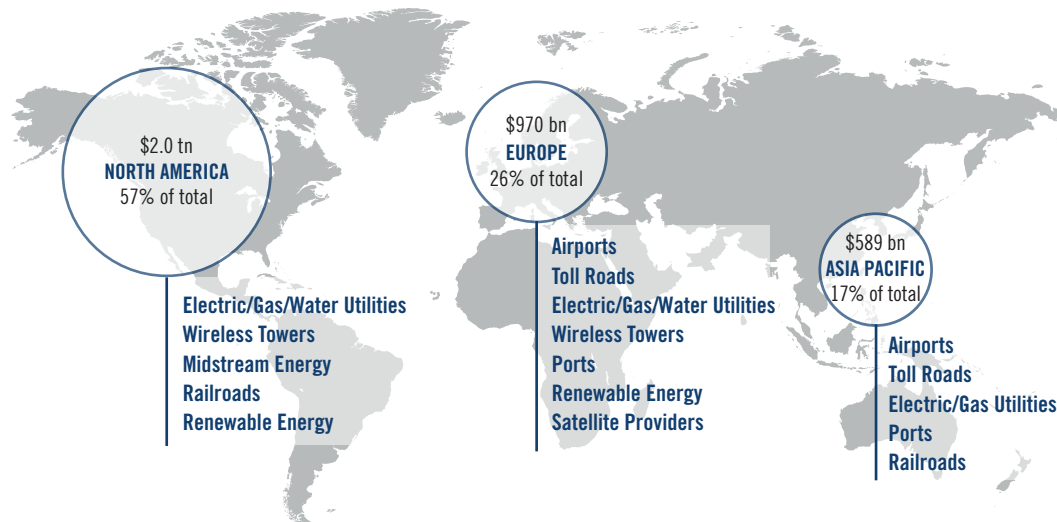
Communications	Utilities	Transportation	Midstream Energy
<ul style="list-style-type: none"> ■ Towers ■ Satellites ■ Fiber Networks 	<ul style="list-style-type: none"> ■ Electric ■ Renewables ■ Gas ■ Water 	<ul style="list-style-type: none"> ■ Toll Roads ■ Airports ■ Railroads ■ Ports 	<ul style="list-style-type: none"> ■ Pipelines ■ Storage ■ Gathering and Processing ■ LNG Facilities

Key Fundamentals

- Inelastic demand – essential and irreplaceable public need
- Demand increases with population growth
- High barriers to entry/competition – government granted monopolies, exclusive rights/concessions
- Capital intensive construction and long lived assets
- Government oversight – given reduced competition or potential for pricing power

AN ENORMOUS INVESTABLE UNIVERSE

Global Listed Infrastructure Investment Universe, 250 Global Infrastructure Companies, \$3.5 Trillion Equity Market Value



Source: Duff & Phelps Global Listed Infrastructure Developed Market Investment Universe, as of 12/31/2019.

Global Infrastructure: Secular Trends Driving Growth and Investment Opportunities

Historic Under-Investment

Infrastructure has experienced years of under-investment by governments worldwide and continues to lack funding across multiple sectors. Global infrastructure investment needs are estimated by the Organization for Economic Cooperation and Development to total \$95 trillion from 2016 through 2030. In water, the American Society of Civil Engineers' most recent report card graded U.S. water infrastructure a D. Similarly, the United States Environmental Protection Agency projects \$470 billion is needed to maintain and improve U.S. drinking water infrastructure over the next 20 years. Despite an immense and acknowledged funding need, fiscal constraints hold back government investment in infrastructure, necessitating listed infrastructure operators to bridge the funding gap.

A Move to Sustainability

Against the backdrop of a growing population, government-mandated zero-emissions and renewable generation targets are driving a global movement from thermal power to renewables. In 2018, global wind turbine manufacturer Vestas estimated clean energy represented <10% of all global electricity consumption, but clean energy is forecast to grow to at least 33% by 2035, becoming the largest source of power by 2040. Multiple technologies and industries underlie the transition to clean energy. For instance, the shift to electric vehicles and the electrification of heating are projected to increase electricity demand >40% by 2035. The phasing out of coal in favor of natural gas to generate electricity is also a key development; natural gas produces approximately 50% lower greenhouse gas emissions, according to the International Gas Union. Notably, sustainability reaches beyond utilities in infrastructure. Another driver is the way in which goods are transferred between geographies. Moving more goods by railroads, which is three to four times more fuel efficient than trucks, will have large reverberations on multiple levels.

Growing Data Demand

As wireless traffic increases, investment by telecommunications carriers will include more towers, including small cells and fiber networks, to meet demand. According to Ericsson, data traffic is accelerating and estimated to quadruple through 2025 alongside increased cloud adoption and data demand. Through the year ending September 30, 2019, mobile data traffic grew 68%, fueled by users who are increasingly using mobile devices as their primary connection for communication, productivity, and entertainment. Through 2025, mobile data traffic is estimated to grow close to 30% each year, causing mobile operators to invest in 5G wireless equipment and deploy the necessary infrastructure to accommodate user demand.

Global Resource Management

Airport, railway, and port assets are fundamental to conducting global business. Despite the short-term, negative impacts of COVID-19 on air travel, airports will benefit most from global supply chains. Eventually passengers will return to the skies, and growing economies and rising incomes should result in an air passenger market that is significantly larger in 20 years. Airport infrastructure would naturally benefit from a strong increase. In a similar fashion, rails should continue to benefit from globalized business. According to the U.S. Department of Transportation, total U.S. freight movements are estimated to rise 30% from 2018 to 2040. Such increased utilization would require better technology to maximize operational and fuel efficiency. As the U.S. has become one of the world's largest gas producers, a growth in global gas usage would provide demand visibility for natural gas pipelines infrastructure used to transport gas to end markets and export facilities. Duff & Phelps estimates U.S. production of liquefied natural gas (LNG) to nearly triple by 2025, which, if fully utilized, would make the U.S. the largest LNG exporter in the world.

Rise in Urban Congestion

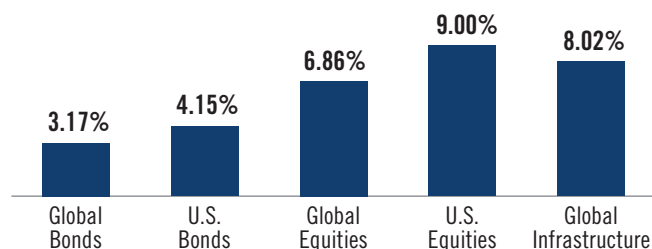
The migration of people from rural to urban and suburban areas is putting pressure on transportation infrastructure globally. In 2017 the United Nations forecasted the world's urban population will nearly double in 2050 from 4.2 billion in 2018. This urban population boom could result in nearly 1 billion more vehicles on the road by 2040. Consequently, additional toll road infrastructure would be needed to relieve congestion and fund investment. Such an unprecedented era of urbanization would require the strengthening of transport systems linking people, places, goods, and services.

Need for Private Expertise

Private companies typically have the ability to deploy technological advancements more quickly than governments to achieve efficiencies in infrastructure. In its investor briefing on May 4, 2020 Transurban, a leading toll road operator, noted an "increased need for private-sector investment to fund infrastructure and drive growth on the other side of COVID-19." We have witnessed the success of privatization in recent years. For example, the private sector toll road companies have been at the forefront of developing dynamic tolling systems for managed lanes. Construction and engineering divisions of private infrastructure companies are actively involved in the greenfield development of toll roads. Additionally, government-owned airports acquired by experienced private airport operators have increased investment in the infrastructure and improved the efficiency of the airports, supporting economic growth. Already, railroads across North America are implementing "precision-scheduled railroading", improving the network's efficiency and reducing costs. Finally, the private sector's innovation of shale drilling led to increased oil and gas pipeline construction across the U.S., making the U.S. a major global player in the energy sector. Though initially government funding and management may have been necessary for infrastructure development, the private sector has the expertise and advanced technology needed to scale infrastructure assets more efficiently.

TOTAL RETURN COMPARISON

Global listed infrastructure has historically offered attractive returns relative to bonds and equities – 1/1/2005-12/31/2019*



Past performance is not indicative of future results.

*Includes 2008 global financial crisis. Excludes 2020 Covid-19 shock and global oil market sell-off.

Source: Morningstar. Performance data as of 12/31/19. Global bonds represented by the Bloomberg Barclays Global Aggregate. U.S. Bonds represented by the Bloomberg Barclays U.S. Aggregate. Global equities represented by the MSCI ACWI Index. U.S. equities represented by the S&P 500® Index. Global infrastructure represented by the S&P Global Infrastructure Index. Index performance reflects the reinvestment of earnings and gains but does not reflect the deduction of any fees or expenses, which would reduce returns. An index is unmanaged and not available for direct investment.

Portfolio Diversification: How Global Infrastructure's Correlation Compares

Global listed infrastructure's low correlation to traditional asset classes reduced overall portfolio risk.

HISTORICAL CORRELATION – 15 YEAR

Stocks, Bond and Real Assets

Global Large Cap Equity	0.89	Global REITs	0.85
U.S. Large Cap Equity	0.80	Global Natural Resources	0.77
Global Bonds	0.54	Commodities	0.53
U.S. Bonds	0.25	TIPS	0.36

Past performance is not indicate of future results.

Source: Morningstar. Data covers 1/1/2005-12/31/2019. Correlation measured against the S&P Global Infrastructure Index. Global Large Cap Equity: MSCI ACWI Index; Large Cap Equity: S&P 500® Index; Global Bonds: Bloomberg Barclays Global Aggregate Bond Index; U.S. Bonds: Bloomberg Barclays U.S. Aggregate Index; Global REITs: FTSE EPRA/NAREIT Developed Index; Global Natural Resources: S&P Global Natural Resources Index; Commodities: S&P GSCI® Index; TIPS: S&P U.S. Treasury TIPS Index.

Defensive Nature, Less Sensitive to Economic Cycles and Competition

- Diversified across sectors
- Diversified geography
- Diversified regulatory regimes and political risks
- Less subject to disruption from product cycle, competition, economic conditions
- Liquid stocks with transparent pricing

Why Now?

- Infrastructure is an investment “for all seasons”
- Long tail of secular growth opportunities for all infrastructure sectors
- Defensive asset class
- Less economically sensitive due to contracted revenues and long-term concession agreements
- Resilient, non-cyclical cash flows
- Government granted monopoly or concession status – less competitive pressure
- Product cycle or technology risk – less susceptible than other industries



QUALITY. RELIABILITY. SPECIALIZATION. SINCE 1932.

In 1932, securities analysts William Duff and George Phelps saw that institutional investors needed a source for objective security research of utility companies. Despite the challenging investment climate, they founded a firm to help insurance and trust companies steer portfolios toward sources of reliable returns and away from outsized risks.

As the firm's reputation grew post-World War II, its reach extended to analysis of industrial companies and the creation of formal credit ratings. In 1979, Duff & Phelps Investment Management Co. was formed to provide portfolio management to institutions. In 1995, the firm became a wholly owned, independent subsidiary of Virtus Investment Partners.

Over more than eight decades, we have built a reputation for fundamental research that reflects our heartland values of quality and reliability.

For more information about our firm and product offerings please contact:



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The **S&P Global Infrastructure Index** is designed to track 75 developed and emerging market companies from around the world chosen to represent the listed infrastructure industry while maintaining liquidity and tradability. To create diversified exposure, the index includes three distinct infrastructure clusters: energy, transportation, and utilities. The index is calculated on a net total return basis. The **MSCI ACWI Index** is a free float-adjusted market capitalization index that is designed to measure the equity market performance of global developed and emerging markets. The index is calculated on a net total return basis. The **Bloomberg Barclays Global Aggregate Bond Index** measures the global investment grade fixed rate bond market. The index is calculated on a total return basis. The **Bloomberg Barclays U.S. Aggregate Bond Index** measures the U.S. investment grade fixed rate bond market. The index is calculated on a total return basis. The **S&P GSCI® Index** is designed to reflect the performance of a production-weighted basket of physical commodities. The **S&P 500® Index** is a free-float market capitalization-weighted index of 500 of the largest U.S. companies. The index is calculated on a total return basis with dividends reinvested. The **S&P Global Natural Resources Index** is designed to track the 90 largest natural resources and commodities businesses primarily in the agribusiness, energy, and metals & mining sectors. The index is calculated on a total return basis with dividends reinvested. The **S&P U.S. TIPS Index** is designed to measure the performance of the U.S. Treasury Inflation Protected Securities market. The index is calculated on a total return basis. All the aforementioned indexes are unmanaged, their returns do not reflect any fees, expenses, or sales charges, and they are not available for direct investment.

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