The Emergence of Global Listed Infrastructure as a Distinctive Growth Alternative

EXECUTIVE SUMMARY

– Global listed infrastructure is a broad and diversified universe of public companies that engage in the development, management, and ownership of assets related to energy, communications, water, transportation, and other systems essential to a functioning economy.

– Investment in infrastructure has historically been dominated by governments and banks, however a lack of capital and a trend of privatization of infrastructure assets have led to a proliferation of listed companies in the market.

– The projected growth of the market is driven by tremendous global demand for these assets, as well as individual growth stories in sectors such as renewable energy and global mobile telecommunications.

– In today’s economy, plagued by elusive growth and historically low yields, global listed infrastructure is a liquid alternative investment offering that has the potential to generate both yield and growth.

GLOBAL LISTED INFRASTRUCTURE: THE BACKBONE OF GLOBAL COMMERCE

In a global economy, it’s easy to take for granted the structures that facilitate everyday life and enable economic growth. Behind the scenes of our economy is a broad and intricate network of infrastructure assets that connect people, resources, trade, goods and services, and information around the world. The power to run our homes and businesses, the communication that enables personal and commercial interactions, the roads, rail and airports that allow us to move goods and trade, even the water systems that provide for a healthy society — these all depend on efficient and well-functioning assets, which together make up the network of global infrastructure.
We believe that these are the right conditions for a different kind of capital provider to step in and take on significantly more development and ownership of infrastructure assets — public infrastructure companies.

But what happens when these assets deteriorate over time, or fall short as the demands of commerce grow? What happens when clean energy technology and the discovery of new oil and gas deposits change the geographical supply and demand balance? What happens when technology moves at a pace that demands more sophisticated global communication equipment at blinding speed? Most importantly, what happens when these conditions converge at a time when governments, the historical leaders in infrastructure investment, are under pressure to reduce spending and limit new debt?

The need for investment in infrastructure, both to improve existing assets and create new systems for growing economies, has been recognized and cited by governments, institutions, and citizens worldwide. According to a McKinsey Global Institute study in 2013, simply to keep up with projected GDP growth $57 trillion in global infrastructure investment will be required before 2030 (Figure 1), nearly 60 percent more than the $36 trillion spent globally on infrastructure over the past 18 years. According to the WEF Green Investment Report in 2013, however, only approximately $24 trillion is earmarked to be spent on infrastructure before 2030. In addition, the $57 trillion estimate does not take into account the maintenance and improvements backlog in the existing system left by years of deferred maintenance and replacements in developed markets, nor does it account for the substantial growth in infrastructure that will be required by emerging markets if they are to meet human development needs such as safe drinking water, sanitation, and reliable power for their growing populations.

But fiscal pressure presents a challenge to the future of global infrastructure. Since the Global Financial Crisis, governments worldwide, particularly in developed economies, have been focused on deficit reduction, resulting in material spending constraints. With severe restrictions on the ability to invest in new infrastructure and to take on new debt to finance important projects, the infrastructure funding gap has widened, and Standard & Poor’s estimates that the annual gap between investment needs and available public funds will be at least $500 billion over each of the next 15 years.

Figure 1: Projected Global Investment, 2013–2030 in $ trillion ($ trillion, constant 2010 dollars)

The considerable demand for these investments presents a strong case for a solid long-term return on investment, with income stability, low volatility, and low correlation to other asset classes providing additional benefits.
and low correlation to other asset classes providing additional benefits. For instance, pension funds and insurance companies are increasingly recognizing that these investments can assist in matching asset profiles to their long-duration liabilities.

However, direct investment in infrastructure projects presents risks that some investors, even large institutions, find insurmountable. Deep knowledge and experience is required in a direct asset investment, and diversification is difficult to achieve due to the size and scale of individual projects. Even if increasing allocation targets by the institutional investment community are met in full, an enormous funding gap remains. We believe that these are the right conditions for a different kind of capital provider to step in and take on significantly more development and ownership of infrastructure assets — public infrastructure companies listed on global exchanges. These companies have the experience to develop and operate infrastructure assets in an efficient and profitable manner, the capital to invest in multiple assets and projects, and the transparency and governance to secure the trust of the capital markets and obtain attractive financing. We believe that in the coming years, listed companies will grow to play a much larger part in the infrastructure market, outweighing the role of governments, institutional investors, and private institutions.

LISTED COMPANIES: THE RIGHT OWNERS OF INFRASTRUCTURE
The growing participation of listed companies in infrastructure investment has been driven by two primary trends.

First, governments recognizing the need for development but reluctant to finance projects directly have enacted innovative tax and regulatory legislation to incentivize private companies to develop needed infrastructure assets. In some cases, infrastructure projects are structured for continued cooperation between government and private or listed investors, shifting elements of financing, management, operations, and risk to the private sector while maintaining some government participation. Such partnerships have proven successful internationally, and as of 2013, 33 states in the U.S. have passed legislation to support these structures, in addition to federal financing and tax policies in place.3

Second, governments and municipalities are taking advantage of the opportunity to outright sell existing assets as a way to free up capital. Since 1990, about $900 billion of state-owned assets have been sold in OECD countries, about 63 percent of which have been infrastructure assets.4 In many cases, this transfer has had the end result of improved efficiency, profitability, and maintenance of individual assets, reinforcing the benefits of private ownership. According to the OECD, “public provision of infrastructure has sometimes failed to deliver efficient investment with misallocation across sectors, regions, or time, often due to political considerations. Constraints on public finance and recognized limitations on the public sector’s effectiveness in managing projects have led to a reconsideration of the role of the state in infrastructure provision.”4 An additional advantage of private ownership is the greater transparency to all stakeholders in an asset. Over time, many governments have come to prefer selling assets to listed companies due to these advantages.

GLOBAL LISTED INFRASTRUCTURE: A DISTINCT ASSET CLASS
The proliferation of listed companies taking part in infrastructure projects has created an opportunity for shareholders to access the investment characteristics of infrastructure via actively traded equity shares on national exchanges. As of September 30, 2014, the market capitalization of the global listed infrastructure market is estimated to be approximately $3.3 trillion, represented by over 350 companies spanning regions and sectors around the world (Figure 2, on next page).

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3 AECOM, Fostering a Larger Private-Sector Role in United States Infrastructure, 2013.
What binds this universe of listed infrastructure companies as an asset class in its own right are the underlying assets that determine the risk and return characteristics of the stocks. These underlying infrastructure assets are long-lived, capital intensive investments, and in many cases, the revenue structures of these assets produce high yields, supported by stable, inflation-linked cash flows. Revenue streams are often guaranteed by long term contracts, as in the case of some ports and cell towers, or can be subject to regulatory oversight with some form of periodic inflation-linked adjustment, as in the case of utilities and tolls. These assets operate in markets with high barriers to entry that are often characterized by monopolistic or oligopolistic competitive landscapes due to either geography or regulation. In addition, these assets often enjoy inelasticity of demand, providing essential services that tend to be resilient during economic downturns. Currently, we see several areas of industry growth that appear attractive.

**GLOBAL RENEWABLE ENERGY OFFERS LONG-TERM GROWTH POTENTIAL**

Renewable energy has gained major global attention since the turn of the century, as governments have become increasingly concerned about climate change and energy independence. In Europe and the U.S., the push for cleaner air and interest in reducing carbon footprints has been abetted by improved technology and pricing for wind and solar components, making the economic argument more palatable. Coincident with these investment choices is a need for material incremental investment in electric transmission.

In Europe, one major source of future investment is the wind power capacity in the North Seas Countries’ Offshore Grid initiative. With the goal of reaching 40 gigawatts by 2020, this project, identified by the European Commission as part of a comprehensive package to improve trans-European infrastructure development, will require massive investment in the offshore grids, as well as integration into existing European networks to move power seamlessly across borders.
In the U.S., wind and solar capacity started from a lower base than Europe at the beginning of the century, but has realized approximately the same rate of growth in the period since. In order to comply with the Clean Air Act and the EPA’s introduction of new CO₂ standards, which should be finalized around mid 2015, private industry has been forced to shift investment into wind and solar to hit relevant emissions targets. This power is increasingly being generated in unpopulated areas such as west Texas, the Dakotas, and the desert Southwest, and needs to be transmitted to load centers for consumption, necessitating billions in investment in infrastructure.

In all, we see renewable generation and concurrent transmission investment and network de-bottlenecking as key areas of infrastructure growth in both the U.S. and Europe, and expect to see meaningful opportunities for listed infrastructure companies to see higher rates of capital investment and earnings growth from these projects.

**Figure 3: Renewable Energy Generation**

![Graph showing renewable energy generation](image)


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**GLOBAL TELECOMMUNICATIONS INFRASTRUCTURE AND THE DATA REVOLUTION**

Mobile towers are an indispensable part of global telecommunications infrastructure. The original owners of towers were wireless network operators and broadcasters, however as competition between these firms increased, the pressure to monetize tower assets intensified. In addition, the practice was inefficient, and zoning laws complicated the ability to build multiple towers in the same area. Finally, in the 1990’s, several major carriers such as Bell Atlantic and BellSouth announced deals to sell their towers, and by 2013 approximately 80% of towers in the U.S. were owned by listed infrastructure companies specializing in data towers and providing telecommunications services to multiple operators. We have seen similar trends in tower sharing across Asia, where currently two listed infrastructure companies control nearly 70% of all mobile towers in India. In Africa, wireless operators have also found tower sharing to be a cost effective method to expand their footprint.

In down markets, the relative stability of cash flows, stable balance sheets, and inelasticity of consumer demand produce countercyclical returns, often outperforming global equity counterparts.
The demand for the mobile data facilitated by these towers has expanded tremendously over the course of recent history. Increased use of tablets, wide scale migration from 2G to 3G to 4G smartphones, and other trends are driving growth in this demand for data, but the increased usage has caused congestion, lags, and in some cases, disruption of service to customers. In order to provide quality service to users, wireless carriers continue to spend heavily on expansion and upgrades to their networks. These improvements will require more and better mobile towers to be built and managed around the world.

**Figure 4: Global Data Traffic Forecast**

![Chart showing global data traffic forecast from 2014 to 2019.](image)


**THE NORTH AMERICAN SHALE GAS REVOLUTION**

Geologists have known for many years that there were significant amounts of natural gas and oil trapped in shale deposits below the earth’s surface. However, it was not until 1988 that horizontal drilling and fracture stimulation (“fracking”) were combined to produce gas and oil in an economic manner in the Barnett Shale in North Texas.

The success of fracking in the Barnett Shale was followed by the ramp-up of a number of shale plays; most importantly, the Marcellus Shale in Pennsylvania and West Virginia in 2009. The Marcellus Shale altered the market dynamic completely, with wells that were more prolific and more economic than anywhere else in the country. Soon, investment in greenfield gathering, processing, and compression needs in the Marcellus Shale play began. Gas production in the Marcellus went from 1.5 billion cubic feet per day (“bcf/d”) in 2009 to over 10 bcf/d in 2013, and is expected to surpass 20 bcf/d in 2020, supplying over 15% of U.S. demand.
Historically, natural gas had travelled from supply centers in the South and West to the highest demand centers of the Midwest, Northeast, and Gulf Coast, and nearly all of the pipeline infrastructure in place was constructed to move product in this manner. The Marcellus Shale, however, produces very large volumes in the Northeast market, creating a massive oversupply and a significant bottleneck. Infrastructure for gas compression, storage, and processing are all needed to make sure that gas meets pipeline specifications, and new pipelines are needed to help these volumes reach their end markets. This regional dislocation has created the opportunity for pipeline reversals, an economically preferable option to the initiation of greenfield development of new pipelines, and one that is seeing ongoing investment by a number of listed infrastructure companies. Going forward, moving production to demand centers will continue to have important investment implications, as new shale plays such as the Utica, Niobrara, and Montney Shale continue to develop. As a result, energy infrastructure new capital expenditures are expected to be $40 billion annually through 2018, and exceed $640 billion to 2035.  

The surge in natural gas production has created not just a domestic oversupply situation, but a structurally advantaged market relative to the rest of the world as well. The construction and operation of exporting facilities presents another opportunity for investment by listed infrastructure companies, and is expected to necessitate capital expenditures of over $50 billion in the next decade.

CONCLUSION
In summary, there are a number of economic, societal, and industry-level drivers that we believe make the global listed infrastructure space an attractive opportunity for investors to find value, including:

– The global need for investment in infrastructure across regions, economies, and sectors, ensuring growth in the scope and scale of infrastructure projects to be undertaken in the coming years;

– The lack of government capital availability, and recent successes in private participation in infrastructure projects, suggesting a greater role to be played by listed companies with the capital and experience to successfully develop needed assets;

– Sector-level trends such as growth in renewable energy and the proliferation of North American natural gas plays, which continue to create pockets of profitable opportunities for listed companies.

Though the global listed infrastructure market is in the early stages of what we expect to be significant growth, investors should be mindful of the lack of a widely accepted definition of the global listed infrastructure universe, which has led to some disparity regarding the appropriate index to represent the market opportunity. While several indices exist, variations in weighting methodology, concentration, and sector and regional focus result in widely diverging representations of the asset class.

We at CenterSquare believe that the FTSE Global Core Infrastructure Index is the best proxy for the global listed infrastructure opportunity set, offering much lower concentration risk relative to other indices used to approximate the universe (several of which were listed on page 4), and being the least likely to be skewed by arbitrary rules or outsized exposure to one sector. Of course, it is important to note that indices in general are not a complete representation of any asset class, but rather a guide for measuring performance over the long term.

CenterSquare’s investment approach narrows the broader market and focuses on four key specific characteristics — strong cash flow visibility, low commodity risk, long duration contracts, and a steady long-term demand outlook — as we view this to be an advantageous way to pursue demand-driven growth while seeking to maintain lower infrastructure market risk exposure.
INDEX DEFINITIONS

The Alerian MLP Infrastructure index is designed to give investors exposure to the infrastructure component of the Master Limited Partnership asset class. Constituents each earn at least 50% of EBITDA from assets that are not directly exposed to changes in commodity prices. The index is disseminated by the New York Stock Exchange and is a composite of 25 energy infrastructure MLPs.

The Dow Jones Brookfield Global Infrastructure Index measures the stock performance of companies that exhibit strong infrastructure characteristics. The index intends to measure all sectors of the infrastructure market and is weighted by float-adjusted market capitalization.

The FTSE Global Core Infrastructure Index is a subset of the FTSE Infrastructure Index Series, a comprehensive set of nine cap-weighted indices, diversified across six FTSE-defined infrastructure sub-sectors, to reflect the performance of infrastructure and infrastructure-related listed securities worldwide. The FTSE Global Core Infrastructure Indices are comprised of companies from the core sectors which generate a minimum of 65% of their revenue from infrastructure.

The S&P Global Infrastructure Index provides liquid and tradable exposure to 75 companies from around the world that represent the listed infrastructure universe. The index includes three distinct infrastructure clusters: utilities, transportation, and energy.

The UBS Developed Infrastructure & Utility Index is an unmanaged proxy that is calculated based on companies’ free-float market capitalization, as defined by S&P. The index was started in 2006 and has a back-filled history to 1990. Price and total return index data is calculated daily by S&P. UBS, in conjunction with Standard & Poor’s (S&P) launched the UBS Infrastructure and Utilities Index.

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Investing internationally involves special risks, including changes in currency exchange rates, political, economic and social instability, a lack of comprehensive company information, differing auditing and legal standards, and less market liquidity. These risks are generally greater with emerging market countries.

Stocks that invest predominantly in infrastructure sectors and projects may be subject to a variety of factors that may adversely affect their development, including (but not limited to): high amounts of leverage and high interest costs in connection with capital construction and improvement programs; difficulty in raising capital in adequate amounts on reasonable terms in periods of high inflation and unsettled capital markets; and costs associated with compliance with and changes in environmental and other regulations. Funds that focus on an single sector or asset class may also experience higher volatility than funds that have more diversified portfolios.

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