

## A Review of Infrastructure Investment Indexes

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Due to heightened uncertainty in markets across the globe, a sizeable number of investors have sought alternative assets to invest in. There has been a growing appetite for infrastructure assets among institutional investors. Exposure to infrastructure can be gained through multiple channels and investment vehicles as seen in Table 1. This paper highlights various indices for infrastructure investment when considering equity investment in listed infrastructure assets.

Table 1. Equity and Debt for Infrastructure Financing (Kim, 2016)

Capital Type	Financing Instrument	Investment Vehicle	
		Direct	Indirect
Equity	Public	Listed infrastructure & utility stocks	Listed infrastructure equity funds, index funds
	Private	Direct equity investment in infrastructure companies or projects	Unlisted infrastructure equity funds
Debt	Bonds	Corporate bonds, municipal bonds	Infrastructure bond funds
	Loans	Direct loans to companies and projects	Infrastructure debt funds

Similar to popular stock market indices like the S&P 500 and the Dow Jones Industrial Average (DJIA), there are several infrastructure indices which track the performance of a representative portion of the infrastructure investment market. The infrastructure indices commonly referred to are the S&P Global Infrastructure Index, Dow Jones Brookfield Global Infrastructure Index and the MSCI Infrastructure Index. The importance of these indices is underscored by the fact that there will be increased private participation in infrastructure by way of debt and equity investments. Based on current estimates of infrastructure needs around the world, private capital can provide a means of addressing the spending gaps. In the US, the American Society of Civil Engineers (ASCE) estimates investment needs of about \$3.6 trillion by 2020 to significantly improve the state of the nation's infrastructure (Bovino, 2015). It has become apparent that governments alone cannot provide the needed funding and so this presents a unique opportunity

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for institutional investors seeking to diversify their portfolios. Investment in listed infrastructure related equities provides benefits of pricing transparency and liquidity (S&P, 2016).

Infrastructure indices mainly reflect the performance of infrastructure securities which can serve as the basis for research on the characteristics of infrastructure as an asset class. Also, the indices can help in the creation of infrastructure index tracking funds and in addition provide a way for investors to benchmark the performance of investments. The aim of this paper is to review the infrastructure indices mentioned earlier taking into consideration what makes each index unique.

The differences between various infrastructure indices can be summarized into 5 main categories. These are: (1) Definition of infrastructure (2) Constituents (3) Regional Distribution (4) Sector Distribution and (5) Weights. The most notable and important difference between infrastructure indices is how each of them defines 'infrastructure' or infrastructure-related securities. While some indices consider a threshold value for the proportion of estimated cash flows from various infrastructure sectors, others define the asset class based economic characteristics such as the ability of the asset to generate inflation-linked streams of revenue. For example, the FTSE Infrastructure Index Series defines core infrastructure companies as those which own, operate, manage or maintain physical structures and networks used to process or move goods, services, information, people, energy and/or life essentials (FTSE Russell). This definition is based more on the services that are facilitated by infrastructure systems and companies. As stated earlier, there is also variation based on the constituent stocks in each index which are usually selected from their corresponding parent indices. The regional distribution of stocks in indices also vary considerably. Most of the infrastructure indices have significant number of constituents in the United States and Canada. Interestingly, there are some indices which focus exclusively on infrastructure securities in emerging economies, Australia and different parts of Asia. Infrastructure indices also vary based on the dominant sectors which are represented. An index such as the Dow Jones Toll Roads Infrastructure Index is designed to track performance of toll road assets. On the other hand, the MSCI World Infrastructure Index has 33.57% and 24.41% weighting in integrated telecommunications services and electric utilities respectively which implies changes in these sectors may have more of an impact on the overall index compared to the other sectors. Finally, the weighting methodology is also another way by which infrastructure indices vary. While most of the indices are calculated using weights which are based on the market capitalization, few indices use equal weights to determine the index values.

This paper summarizes the differences between popular infrastructure indices: (1) S&P Global Infrastructure Index (2) Dow Jones Brookfield Global Infrastructure Index (3) FTSE Global Infrastructure Index and (4) MSCI World Infrastructure Index.

The S&P Global Infrastructure Index is made up of stocks which are part of the S&P Global Broad Market Index. Constituents must have a minimum total market capitalization of \$250 million and a three-month daily value traded above \$1 million and \$500,000 for developed and emerging markets respectively (S&P Dow Jones Indices, 2016 (a)).

The Dow Jones Infrastructure Index Family comprises indices which measure the performance of companies which own and operate pure-play infrastructure assets across the following sectors: 1) airports 2) Toll Roads 3) Ports 4) Communications 5) Electricity transmission and distribution 6) Oil & Gas Storage & Transportation 7) Water and 8) Diversified (multiple sectors). Indices which are part of the Dow Jones Infrastructure Index include Dow Jones Brookfield Emerging Markets Infrastructure Index, Dow Jones Brookfield Global Infrastructure Composite Yield Index, Dow Jones Brookfield Global Infrastructure Index and many others. For the Dow Jones Brookfield Global Infrastructure Index, constituents must have a developed market listing in addition to having 70% of cash flows from pure-play infrastructure businesses, minimum float adjusted market cap of \$500 million and a minimum three-month trading volume of \$1 million (S&P Dow Jones Indices, 2016 (b)).

The FTSE Infrastructure Index Series also tracks the performance of listed infrastructure and infrastructure-related securities. It uses a building block approach which gives investors greater flexibility in their use (FTSE, 2016). The FTSE Infrastructure Index Series is based on the FTSE Global Equity Index Series and covers both developed and emerging markets. The Series has several indices including but not limited to FTSE Global Infrastructure Opportunities Index, FTSE Global Infrastructure Index, FTSE Developed Infrastructure Index, FTSE Emerging Infrastructure Index and the capped FTSE Global Core Infrastructure 50/50 Index (FTSE Russell, 2015).

Constituents of MSCI World Infrastructure Index are selected from the parent index MSCI World which covers 23 developed market countries namely: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, UK and the US. Index constituents are categorized into 13 sub-industries whose weights as of July 2016 (MSCI, 2016) are shown in Table 1. The sub-industries are aggregated into the following 5 sectors: Telecommunications, Utilities, Energy, Transportation and Social Infrastructure.

In summary, these indices provide infrastructure investors with a basis for benchmarking their portfolios as well as researching the asset class. Some indices may provide more valuable insight depending on the focus of investors since the constituents and weights have an impact on how the index values change in response to larger market. Portfolio managers will need to select the specific indices that will provide valuable insight required to make informed decisions about their investments. As the asset class matures, infrastructure indices will continue to play an integral role in infrastructure investment decision-making.

	<i>S&amp;P Global Infrastructure Index</i>	<i>Dow Jones Brookfield Global Infrastructure Index</i>	<i>FTSE Global Infrastructure Index</i>	<i>MSCI World Infrastructure Index</i>
Launch Date	February 22, 2007	July 14, 2008	March 31, 2011	January 22, 2008
No. of companies	75	Variable (98 as of July 2016)	879	154
Sector weight Distribution (%)	Energy (20) Transportation (40) Utilities (40)	Oil & Gas Storage & Transportation (42.44) Electricity Transmission and Distribution (21.67) Communications (13.59) Water (6.32) Toll Roads (6.05) Airports (5.27) Diversified (3.61) Ports (1.05)	Pipelines (8.28), Aluminum (0.17), Iron & Steel (0.72), Building Materials & Fixtures (0.94), Heavy Construction (1.19), Delivery Services (0.81), Marine Transportation (0.25), Railroads (10.02), Transportation services (5.55), Trucking (0.21), Business support services (0.05), broadcasting & entertainment (0.50), Airlines (0.34), Travel & tourism (6.54), Fixed line telecommunications (3.86), Mobile Telecommunications (3.43), Conventional Electricity (33.02), Gas distribution (7.34), Multiutilities (9.58), Water (3.32), Real estate holding & development (0.00), Specialty REITs (3.79), Specialty Finance (0.00), Telecommunications equipment (0.07)	Integrated Telecommunication Services (33.57%) Electric Utilities (24.41) Multi-utilities (13.95) Wireless Telecommunication Services (10.17) Oil & Gas Storage & Transp. (7.43%) Gas Utilities (3.22) Health Care Facilities (2.1) Highway & Railtracks (1.67) Water Utilities (1.18) Airport Services (1.07) Other (1.23)
Weighting method	Modified market cap weighted	Float-adjusted market capitalization	Investable market capitalization	Free float-adjusted market capitalization
Geographic weight Distribution (%)	US (39.0) Canada (9.7) Australia (9.8)	US (47.25) Canada (14.28) UK (10.13)	US (51.96) Japan (10.52) Canada (8.13)	US (50.78) Japan (9.27) UK (9.16)
Top constituents	Transurban Group NPV Enbridge Inc Aena SA	National Grid PLC American Tower Corp A Enbridge Inc Kinder Morgan Inc	Union Pacific Corp. Duke Energy Corp. NextEra Energy Inc. National Grid	AT&T Verizon Communications Vodafone Group NextEra Energy
Review Frequency	Semiannually (March, September)	Quarterly (March, June, September, December)	Semi-annually (March, September)	Quarterly: February, May, August, November
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