Deutsche
Asset Management

Research Report

Global Listed Infrastructure and Macroeconomic Environments

October 2016

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Executive Summary

A slow global economic recovery, low interest rates, and uncertainty surrounding the future of the global economy continues to increase investor's appetite for yield. Amidst the uncertainty of macroeconomic changes, it is our opinion that global listed infrastructure should attract more interest among investors as an alternative source of return because of its unique performance characteristics. To address this interest, we continue to follow and analyze the performance and risk characteristics of global listed infrastructure[1] as the asset class continues to grow and mature over time. The following highlights our main findings, each of which will be explained in more detail throughout the paper.

— Equity and fixed income-like characteristics. Earnings growth contributes to equity-like returns, whereas relatively stable and predictable cash flows contribute to fixed income-like stability.
— High returns and lower volatility. On a historical basis, global-listed infrastructure, as represented by the Dow Jones Brookfield Global Infrastructure Index, has offered higher returns and commensurate volatility, both on an absolute basis and relative to the broad equity market, as represented by the MSCI World Index, which has resulted in higher risk-adjusted returns. (See Figure 2)
— Nominal Interest Rate Environments. During periods of falling nominal sovereign yields, global-listed infrastructure has outperformed global equities by 9.7% annually.
— Real Interest Rate Environments and Inflation Expectations. Changes in real interest rates are strongly negatively correlated with infrastructure returns, whereas changes in inflation expectations show a significant positive relationship to infrastructure security returns.
— Credit Environments. Listed infrastructure has been shown to be resilient during periods of rising credit spreads. This has contributed greatly to their defensive nature when viewed relative to global equities.
— Growth Environments. Similarly to global equities, listed infrastructure benefits from periods of high GDP growth and performs poorly in lower growth environments.
— Inflation Environments. Listed infrastructure delivered higher returns relative to equities when inflation was above average. However, on an absolute basis, listed infrastructure performs best in periods of low inflation.

This paper is organized into three sections: in the first section, we discuss the various attributes of global listed infrastructure as an asset class, in the second section, we describe the performance characteristics of global listed infrastructure over the past eight years, and in the third section, our main point of concern, is to analyze how global infrastructure securities behave in various macroeconomic environments. Past performance is no assurance of future results.

The values of equity investments are more volatile than those of other securities. Fixed-income investments are subject to interest-rate risk, and their value will decline as interest rates rise. Commodities are long-term investments and should be considered part of a diversified portfolio; market-price movements, regulatory changes, economic changes and adverse political or financial factors could have a significant impact on performance. Alternative investments can be less liquid and more volatile than traditional investments, and often lack longer-term track records.

The opinions and forecasts expressed are as of October 2016, and may not actually come to pass. This information is subject to change at any time, based on market and other conditions and should not be construed as a recommendation of any specific security.

[1] Throughout this paper we shall refer to infrastructure securities as those that fall into the "pure-play" category. Pure-play companies generate at least 70% of operating cash flows from directly owning or operating infrastructure assets in the following categories; airports, toll roads, ports, communications, electricity transmission & distribution, oil & gas storage & transportation, water, and diversified. The Dow Jones Global Brookfield Infrastructure Index follows this methodology and was used for the majority of the analysis. The start date of 8/1/2008 was chosen because that is when the index was created. Figures 12 & 13 in the appendix lay out the different sectors within the Dow Jones Brookfield Global Infrastructure Index, along with market capitalizations and the top names within those sectors, and the distribution of country exposures represented by each sector.

1. Global Listed Infrastructure

Global infrastructure securities can be thought of as an alternative asset class, which allows investors to capture equity-like returns through earnings growth and fixed income-like stability through relatively predictable cash flows. From August 2008 to June 2016, global listed infrastructure equities (as represented by the Dow Jones Brookfield Global Infrastructure Index) have outperformed global equities (as represented by the MSCI World Index) in terms of higher total returns and lower volatility with an annualized return of 9.0% and volatility of 14.5% versus global equities annualized return of 5.7% and volatility of 17.5% (See Figure 1). Global infrastructure securities have also outperformed global equities in a number of different macro environments which include; above average inflation, falling sovereign bond yields, falling real rates, and increasing corporate credit spreads as further illustrated in this paper. Many of these outcomes are not surprising given the underlying fundamentals of infrastructure assets which generally follow certain physical and economic characteristics:

Physical Characteristics

— Hard assets that provide efficient movement of people and products.

— Provisions of essential services such as water, power, and transportation.

— Long dated assets with perpetual lives in most cases.

— High barriers to entry due to physical, regulatory, and capital constraints.

Economic Characteristics

— Lower revenue risk as income models are generally fixed, contracted, or regulated over a period of time.

— Highly inelastic demand profile by providing essential products and services.

— Large upfront capital investment, but low operating costs lead to high operating margins.

— Inflation protection from inflation-adjusted revenues to margin stabilization mechanisms.

Past performance is no assurance of future results.

2. Performance Attributes of Global Listed Infrastructure

Global listed infrastructure has consistently delivered strong returns and low volatility over various investment horizons. Compared to the broad equity and bond universe, infrastructure securities have outperformed in both absolute total returns and risk-adjusted terms over the past eight years as illustrated by Figure 1, 1.1 and 1.2. Over this timeframe, global listed infrastructure, as measured by the Dow Jones Brookfield Global Infrastructure Index, has outperformed the MSCI World equity index by 3.3% per year. Total returns of infrastructure securities have been less volatile than global equities largely due to their relatively predictable cash flows and higher level of capital intensity. As Figure 2 illustrates, average dividend yields of infrastructure equities were 1.0 percentage points higher than those of global equities over this timeframe. In addition, infrastructure equities have had more stable earnings growth, compared to global equities. Over the measured timeframe, EBITDA (earnings before interest, taxes, depreciation and amortization) for global infrastructure has grown at an average annual rate of 7.6% versus equities, which have grown by 7.4%. Moreover, the standard deviation of EBITDA growth for global infrastructure is 2.7% versus global equities, which is 6.7%. Fixed contract pricing and utility-like characteristics have contributed to this less volatile earnings picture and return on equity.

Figure 1: Total Return (annualized)

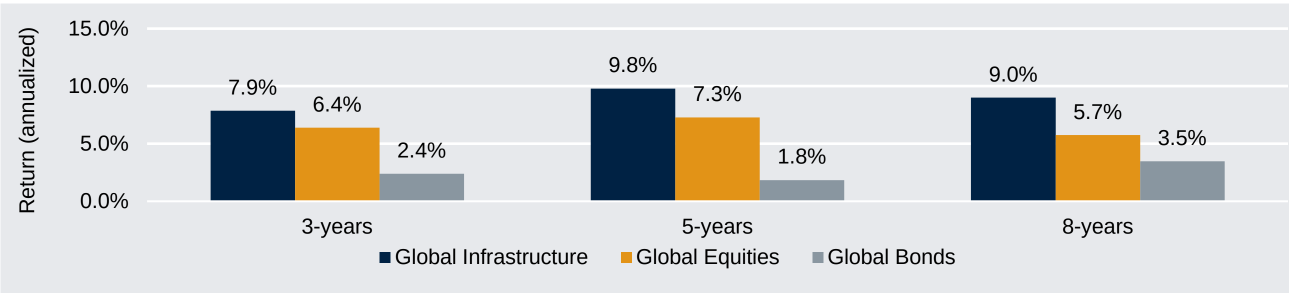


Figure 1.1: Risk (annualized)

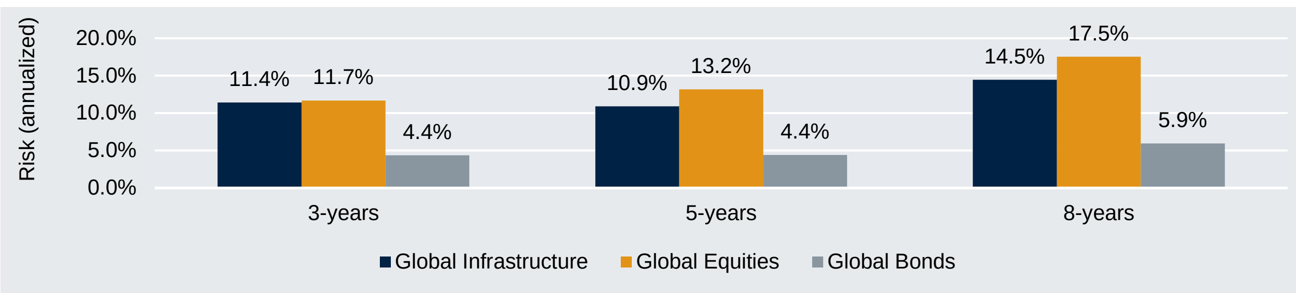
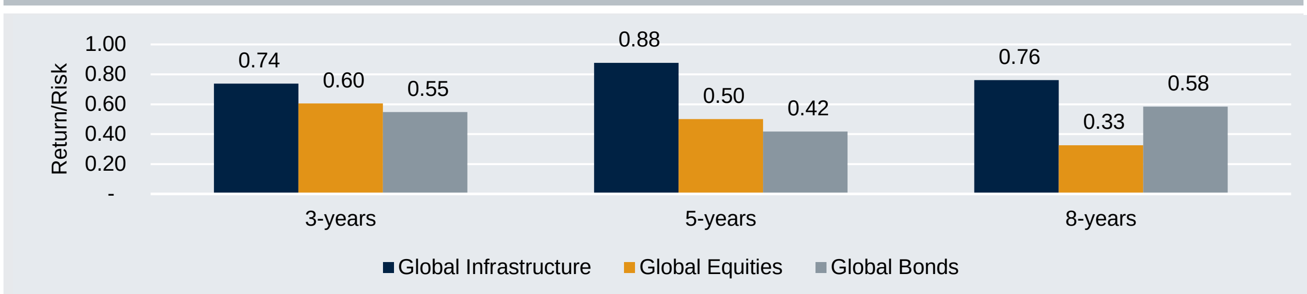
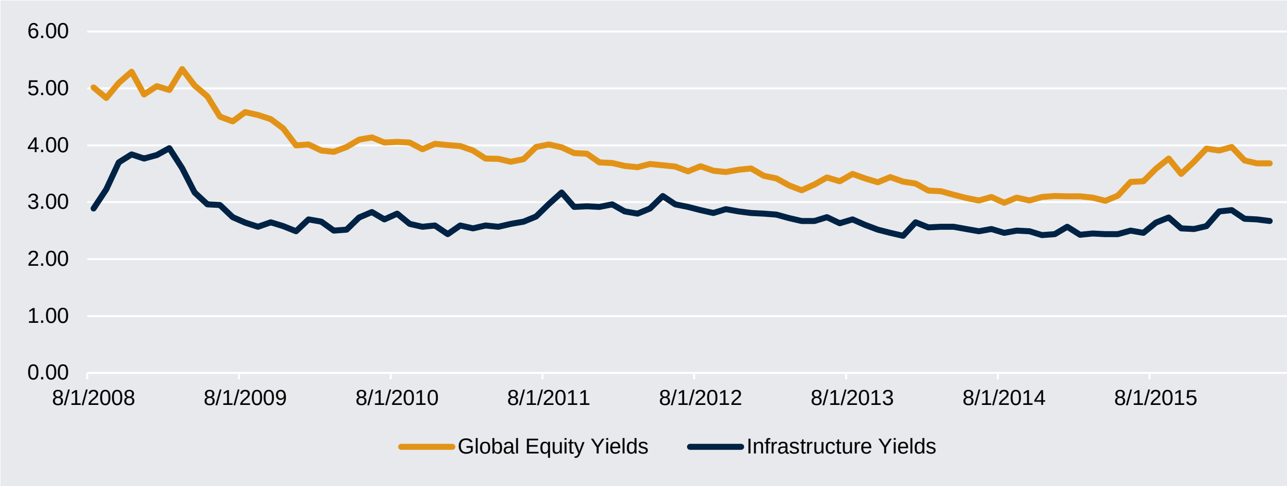


Figure 1.2: Return/Risk



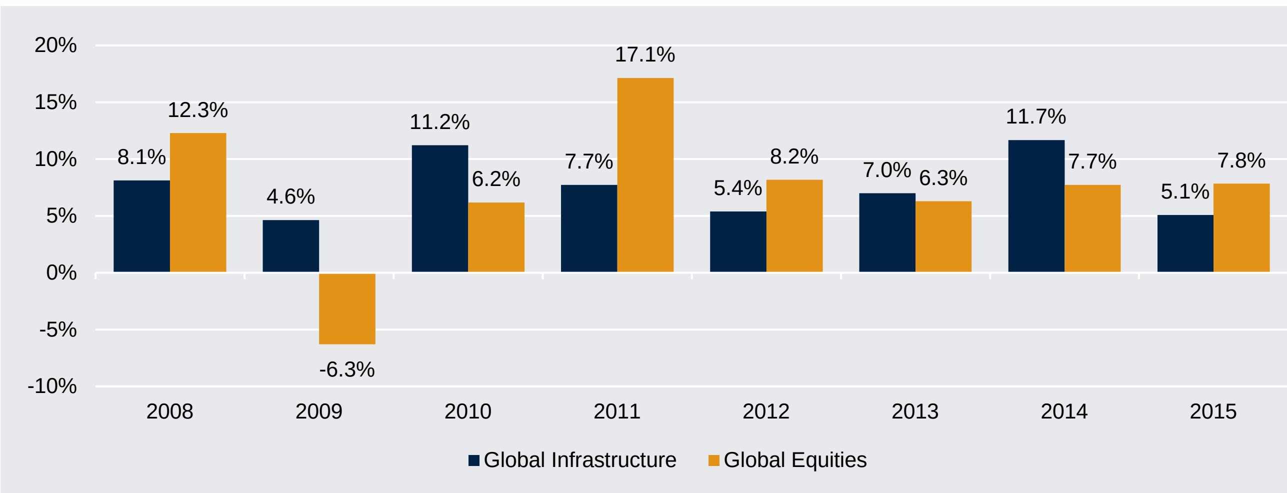
Source: Bloomberg as of 6/30/16. Global Infrastructure = Dow Jones Brookfield Index; Global Equities = MSCI World Index; Global Bonds = Barclays Global Aggregate Bond Index. Returns were analyzed from August 2008 through June 2016.

Figure 2: Infrastructure dividend yields are higher than global equity dividend yields (12-month trailing)



Source: Bloomberg as of 5/31/16. Yields for infrastructure are calculated by individual securities and exclude yields above 20%. Global Infrastructure = Dow Jones Brookfield Index; Global Equities = MSCI World Index.

Figure 3: Annual EBITDA growth has been strong and less volatile



Source: Bank of America Merrill Lynch as of 12/31/15. EBITDA = Earnings Before Interest Taxes Depreciation and Amortization. EBITDA is measured in local currency units. Past performance is not indicative of future returns. Global Infrastructure Equities = Dow Jones Brookfield Infrastructure Index; Global Equities = MSCI World Daily Index.

3. Infrastructure Returns and Macroeconomic Environments

In this section, we discuss how macroeconomic environments over the past eight years (8/1/2008 through 7/1/2016) have affected infrastructure security returns along four dimensions: interest rates, credit spreads, growth, and inflation. Not all macroeconomic data series were collected in the same manner, due to their unique characteristics. For example, GDP growth was taken at the global level, due to the existence of such data, whereas sovereign bond yields have no such global figure and, therefore, a G7 weighted index was used. For analyzing real interest rates, we decided to focus on the U.S. market because of the maturity and liquidity of the U.S. TIPS market. We are interested not only in the absolute performance of infrastructure securities, but also in their relative performance to global equities and bonds. We determined those periods in which macroeconomic drivers were above or below average (GDP growth and inflation) or rising or falling (interest rates and corporate yield spreads), and computed the absolute and relative performance of infrastructure to draw our observations. Figure 4 below illustrates our findings of global infrastructure returns, relative to global equities in each scenario. Absolute figures can be seen in Figure 10 in the appendix.

Figure 4: Performance comparison of global listed infrastructure relative to global equities in different macroeconomic environments

	Above Average GDP Growth	Below Average GDP Growth	Rising Interest Rate	Falling Interest Rate	Increasing Credit Spreads	Decreasing Credit Spreads	Above Average Inflation	Below Average Inflation
Global Infrastructure	○	○	↓	↑	↑	↓	↑	○
Oil &Gas Storage& Transportation	○	○	○	↑	↑	○	↑	○
Transmission & Distribution	○	○	↓	↑	↑	↓	↑	○
Airports	○	○	○	↑	↑	↑	○	↑
Toll Roads	↑	↑	↓	↑	○	○	↓	○
Water	○	○	↓	↑	↑	↓	↑	○
Communications	○	○	↓	↑	↑	○	↑	○
Diversified	○	↑	○	○	○	○	↓	○

↑ Outperforms by more than 5% annually ○ Similar performance ↓ Underperforms by more than 5% annually

Source: Bloomberg, Oxford Economics, Thomson Reuters, Dow Jones and Deutsche Asset Management as of 6/30/16. Performance is historical and does not guarantee future results. This information is for illustrative purposes only and does not represent any Deutsche Asset Management product. Asset-class representation is as Global Equities, MSCI World Index; Global Infrastructure, Dow Jones Brookfield Global Infrastructure Index. GDP refers to world real GDP, yields refer to G7 weighted sovereign 10-year yields and G7 weighted Baa corporate yields; inflation refers to IMF world CPI index. For each macroeconomic environment, global/sector infrastructure indices are compared to the MSCI World Index (see Figures 5 through 9 for details). All returns are in U.S dollars. Index returns assume reinvestment of all distributions and do not reflect fees or expenses. It is not possible to invest directly in an index. See back page for index definitions.

Relative to broader equities, and on an annualized basis from 8/1/2008 to 7/1/2016, global infrastructure outperformed by more than 5% annually when either interest rates were falling, credit spreads were increasing, or inflation was above average. These scenarios were all tested independently for statistical significance and passed at or above a 95% confidence level (see Figure 11 in the appendix for all significance test p-values). The results highlight the fixed income-like qualities of listed infrastructure securities. Falling rates, rising credit spreads, and above average inflation are all scenarios in which global bonds outperformed global equities. Further in the paper we will discuss possible explanations for why global infrastructure securities outperform in these scenarios.

Relative to bonds (as represented by the Barclays Global Aggregate Bond Index), global infrastructure outperformed by more than 5% annually when either global GDP was above average, interest rates were rising, credit spreads were decreasing, or inflation was below average as can be seen by Figure 11 in the appendix. All but interest rate scenarios were statistically significant above a 95% confidence level. These results highlight the equity-like characteristics of infrastructure securities through their ability to grow profits during expanding credit environments. The following sections examine the results of our analysis in more detail.

Infrastructure Returns in Nominal Interest Rate Environments

In this section, we define global sovereign bond yields as the weighted average 10-year government bond yield of G7 countries. Increases and decreases in global sovereign bond yields have not been strongly correlated with absolute returns of global listed infrastructure, reflecting spurious effects of other macroeconomic variables. However, when looking at returns relative to equities, we see a negative relationship between global bond yields and infrastructure returns that is statistically significant at a 99% confidence level. Global infrastructure outperforms global equities by 9.7 percentage points annually during periods of falling sovereign yields and underperforms by 6.4 percentage points annually when nominal interest rates are rising as can be seen in Figure 5. Our analysis shows that all sectors, except for ports, outperform global equities when interest rates are falling (See Figure 5.1). One explanation for this relationship could be the presence of higher dividend yields and stable cash flows, the present value of which rise and fall in relation to changes in relevant discount factors. It could also be a reflection of investor preferences gravitating towards higher yielding securities as sovereign yields fall. However, we decided to test a third explanation for this difference in performance by also comparing performance to changes in real interest rates.

Figure 5: Absolute performance of infrastructure in interest rate environments

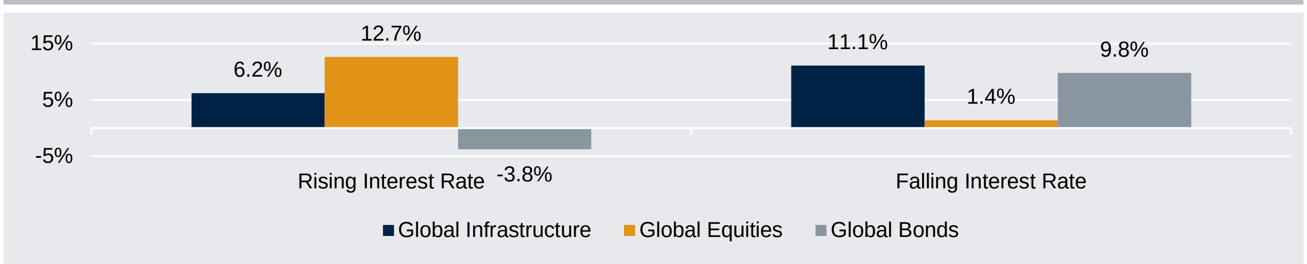
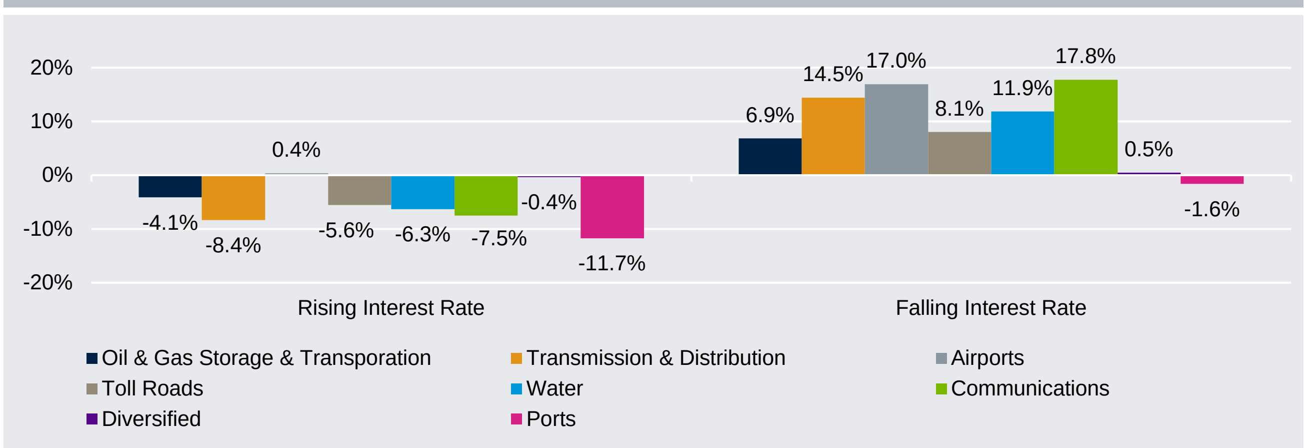


Figure 5.1: Performance of infrastructure sectors relative to global equities



Sources: MSCI, Bloomberg, Dow Jones and Deutsche Asset Management as of 6/30/16. Performance is historical and does not guarantee future results. This information is for illustrative purposes only. Asset-class representation is as follows: Global Infrastructure, Dow Jones Brookfield Global Infrastructure Index; Global Equities, MSCI World Index; Global Bonds, Barclays Global Aggregate Bond Index; Sectors are those of the Dow Jones Brookfield Global Infrastructure Index. Global interest rates refer to long-term bond yields for G7 countries, weighted by Real GDP and adjusted for PPP. Rising / declining interest rates refer to months during which interest rates rise / decline, relative to the prior month. For each interest rate environment, infrastructure sector indices are compared to the MSCI World Index. All returns are in U.S. dollars.

Infrastructure Returns in Real Interest Rate Environments

In order to test the significance of nominal and real interest rate changes on the values of infrastructure and broader equity returns, we decided to restrict our analysis to U.S. based infrastructure securities (as represented by U.S. infrastructure securities in the Dow Jones Brookfield Global Infrastructure Index; S&P 500 equity index) U.S. infrastructure securities were chosen because they represent the largest number and largest diversity in sector exposure of all the countries in the Dow Jones Brookfield Global Infrastructure index (see Figure 13 in the appendix) with 34% of the total number of companies and 5 out of 8 sectors represented.

Figure 6 below shows the difference in returns when real yields are rising and falling. The p-values of 0.935 for U.S. infrastructure and 0.006 for the S&P 500 presented in Table 1 of the appendix confirm that infrastructure security returns are not explained by nominal yield changes where equity returns are. Table 1 also shows that the opposite is true for real yield changes; infrastructure security returns are strongly negatively impacted by real interest rate changes, whereas equities show no such statistical significance. The difference between nominal and real interest rate changes can mostly be explained by inflation expectations; holding nominal yields constant, as inflation expectations rise, real yields will fall. The fact that infrastructure securities benefit from falling real yields, whereas equity securities show no correlation, would imply that infrastructure securities should provide a hedge against rising inflation expectations. Figure 6.1 below highlights two different time periods in which the breakeven inflation rate rose and then fell. This rate best captures the movement in inflation expectations. From December 2008 to March 2013, the rate moved from 9 basis points to 251 and, during that time period, U.S. infrastructure outperformed U.S. equities by a total of 54%. The rate then moved down to 143 basis points and U.S. equities outperformed U.S. infrastructure by a total of 23%.

Figure 6: Absolute performance comparison in real interest rate environments

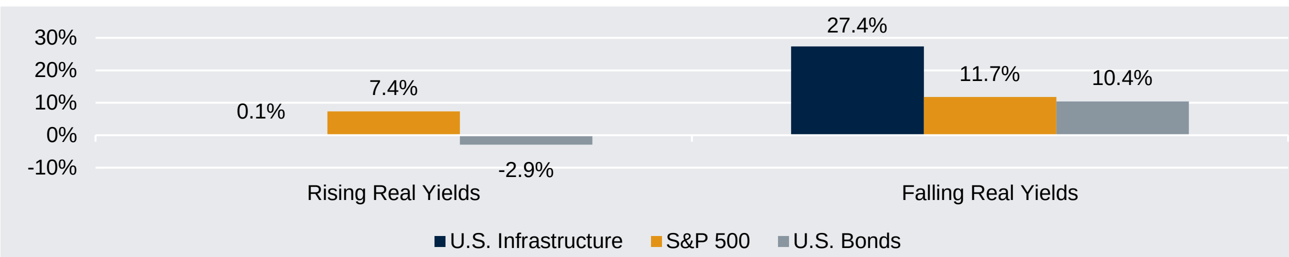
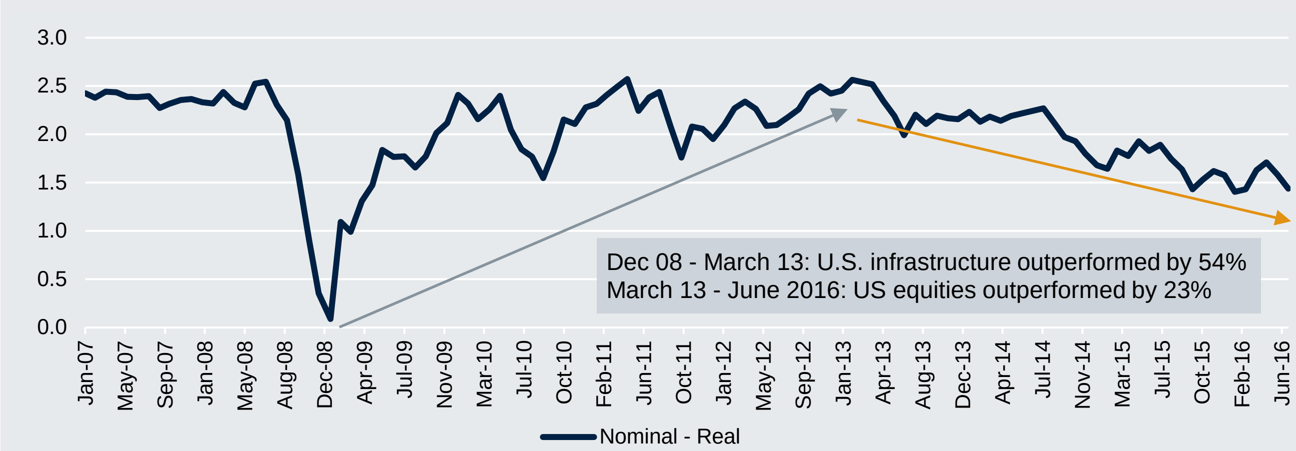


Figure 6.1: **U.S. breakeven inflation rate (nominal yield (%) – real yield (%))**



Sources: MSCI, Bloomberg, Dow Jones and Deutsche Asset Management as of 6/30/16. Performance is historical and does not guarantee future results. This information is for illustrative purposes only. Asset-class representation is as follows: U.S. infrastructure, U.S.

infrastructure securities in the Dow Jones Brookfield Global Infrastructure Index; S&P 500, S&P 500 equity index. Nominal yields refer to the yield on 10-year U.S. Treasury bonds, real yields refer to the yield on 10-year U.S. government TIPS. Final chart shows the simple difference between the two yields.

Infrastructure Returns in Credit Spread Environments

Changing credit environments provide greater insight as to the performance characteristics of global listed infrastructure securities. Throughout our analysis of macroeconomic variables, credit environments proved to be the most significant variable that was tested at the global level, both on an absolute and relative basis as shown by the lowest p-value from a difference in means test (see Figure 11 in appendix). Our analysis shows that global infrastructure securities have a lower beta than global equities to credit spreads. On an absolute basis, global infrastructure securities peform best in periods of decreasing credit spreads, indicating the importance of capital costs on the outlook for future profitability. Figure 7 shows that global infrastructure securities returned 28.1 percentage points annually during periods when credit spreads decreased. Relative to global equity markets, infrastructure outperforms significantly when credit spreads widen. Our opinion is that in general, infrastructure benefits from a “flight-to-quality” effect in volatile/weakening credit environments. This can be seen in Figure 7 by the 11.4 percentage point outperformance over equities, during periods of increasing credit spreads.

As the cost of capital rises, most companies within the broader corporate sector have trouble to pass these costs onto their customers. We view the rising cost of capital as being akin to inflation. Infrastructure assets can be in a better position to pass these costs onto their customers, due to their monopolistic nature. Electricity transmission and distribution, water, and communications sectors appear to be the most defensive when it comes to rising credit spreads, whereas ports and diversified actually perform worse than equities when credit conditions tighten (Figure 7.1). Ports are highly sensitive to global trade volumes and are therefore more susceptible to lower revenue volume, when credit tightens, whereas the demand for utility power distribution and water services is highly inelastic and heavily regulated. There also appears to be a correlation between a sector’s sensitivity to credit spreads and that sector’s country exposure. Sectors with the highest exposure to the U.S., Canada, and the UK are generally more defensive when credit risks rise, as can be seen in Figure 13 in the appendix.

Figure 7: Absolute performance of infrastructure in credit spread environments

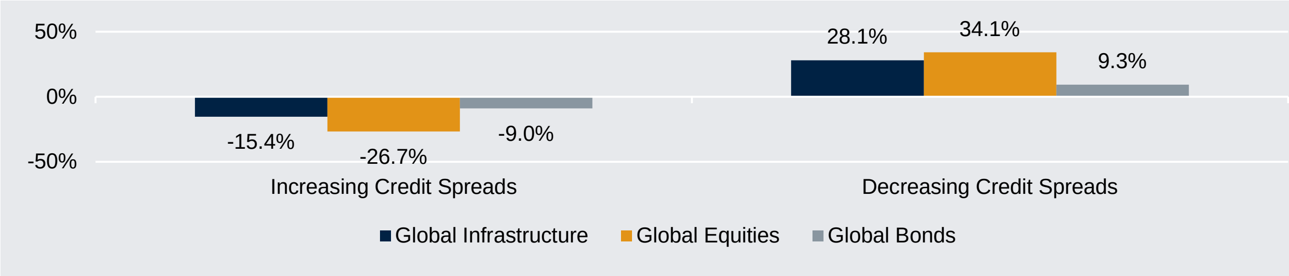
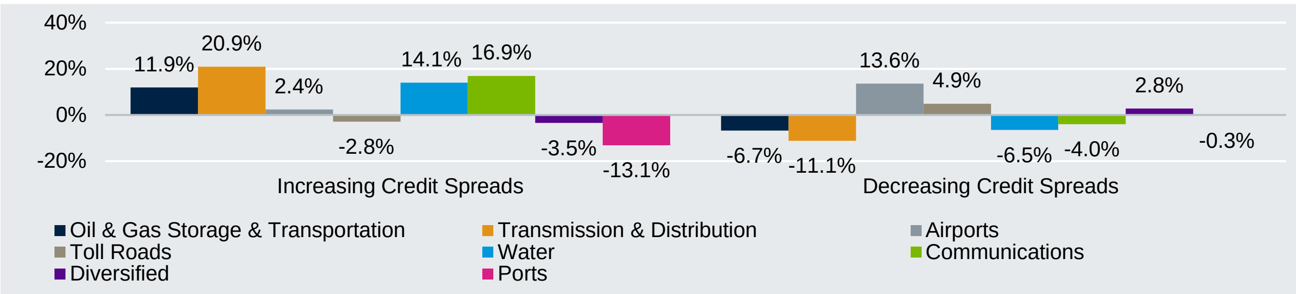


Figure 7.1: Performance of infrastructure sectors relative to global equities



Sources: MSCI, Bloomberg, Morningstar, Dow Jones and Deutsche Asset Management as of 6/30/16. Performance is historical and does not guarantee future results. This information is for illustrative purposes only. Asset-class representation is as follows: infrastructure, Dow Jones Brookfield Global Infrastructure Index; Global Equities, MSCI World Index Credit spreads refer to Baa yields for G7 countries over 10-year sovereign bond yields for G7 countries. Rising / declining credit spreads refer to months during which interest rates rise / decline relative to the prior month. For each credit spread environment, infrastructure sector indices are compared to the MSCI World Index. All returns are in U.S. dollars.

Infrastructure Returns in GDP Growth Environments

On an absolute basis, global infrastructure (as represented by the Dow Jones Brookfield Global Infrastructure Index) has performed well in above average global GDP environments[2]. However, there does not appear to be any statistical difference in returns versus equities when looking at different global GDP environments. This could be because both global equities and global infrastructure are differently weighted towards aggregate global growth which is weighted on a purchasing power parity basis. Across each sector, infrastructure securities have enjoyed higher returns when global real GDP growth has been above average. Higher energy use, increased mobility and global trade during expansions all contribute to increased demand for infrastructure. Airports in particular have experienced significant growth in the last few years, driven by increased demand for air travel and increased air traffic to specific destinations within such countries as France, Spain, and Mexico. The airports sector has also seen its ability to take on leverage increase as capacity levels at new locations increase. Ports, diversified, and oil & gas storage & transportation sectors have done fairly poorly when growth has been below average (Figure 8.1). The ports sector has been especially affected by decelerating growth in China, but ports are a relatively immaterial weight in the Brookfield index, dropping below 1% in the most recent quarter as of June 2016.

[2] GDP growth refers to quarter-over-quarter changes in global real GDP. Above / below average GDP growth refers to quarters in which GDP growth was above / below the average GDP growth for the entire period.

Figure 8: Absolute performance of infrastructure in GDP environments

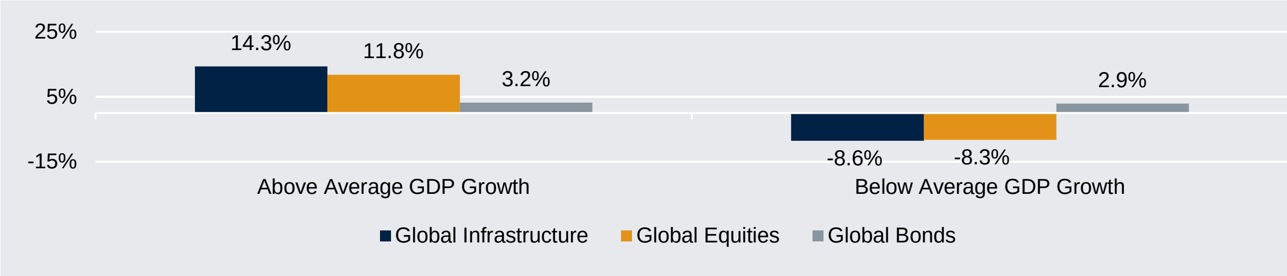
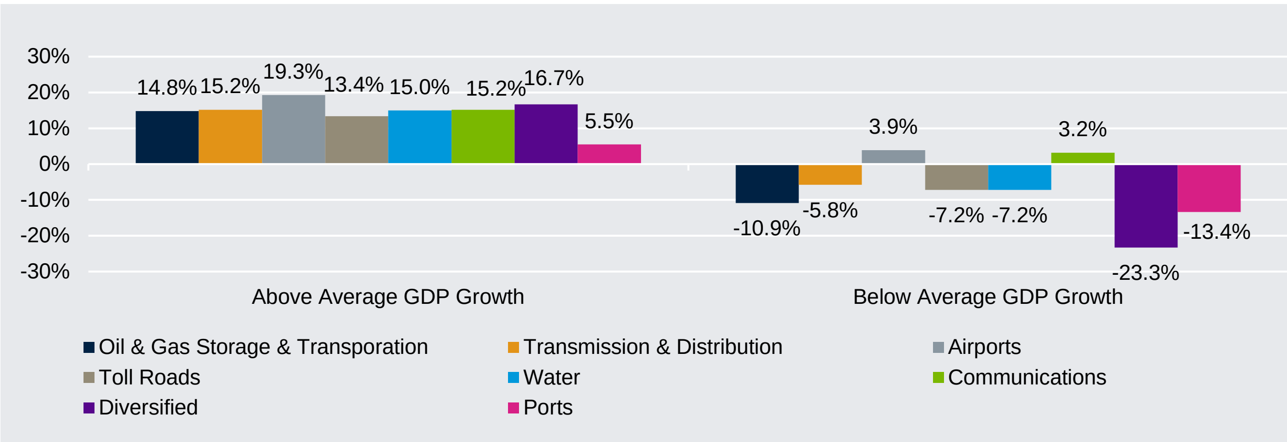


Figure 8.1: Absolute performance of infrastructure sectors in GDP environments

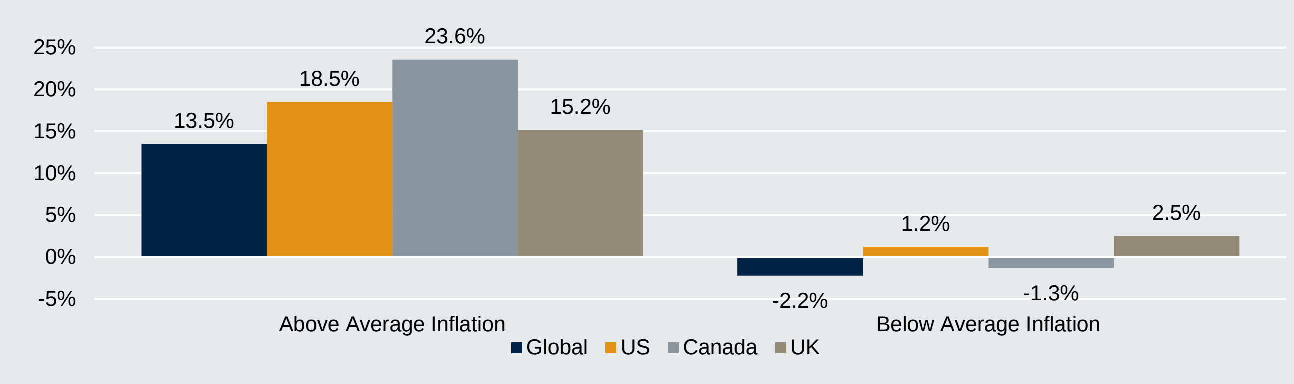


Sources: MSCI, Bloomberg, Oxford Economics, Dow Jones and Deutsche Asset Management as of 6/30/16. Performance is historical and does not guarantee future results. This information is for illustrative purposes only. Asset-class representation is as follows: Global Global Infrastructure, Dow Jones Brookfield Global Infrastructure Index; Global Equities, MSCI World Index Global Bonds, Barclays Global Aggregate Bond Index; Sectors are those of the Dow Jones Brookfield Global Infrastructure Index. GDP growth refers to quarter-over-quarter changes in global real GDP. Above / below average GDP growth refers to quarters in which GDP growth was above / below the average GDP growth for the entire period. For each GDP growth environment infrastructure sector indices are compared to the MSCI World Index. All returns are in U.S. dollars.

Infrastructure Returns in Inflation Environments

We felt it necessary to take a deeper look into the question as to whether or not infrastructure securities outperform equities in an inflationary environment. While the cash flows of infrastructure companies are linked to inflation contractually or through regulation, we nevertheless wanted to test how stocks reacted to periods of above average inflation globally as well as in the United States, Canada, and the United Kingdom. These countries were chosen as they represent the largest proportion by market cap within the global index. We determined those periods in which inflation was above average and those periods in which inflation was below average. Sample means of relative returns for each scenario and each sample being tested can be seen in Figure 9 (see p-values in Table 2 in the appendix). The Global, U.S., and Canadian benchmarks (represented by Dow Jones Brookfield Global index, S&P 500 equity index, and S&P/TSX equity index respectively) are significant at the 95% level, whereas the U.K. benchmark (represented by the and FTSE 100 index) does not show any statistical significance between environments. The U.K. exception could be due to the fact that National Grid PLC makes up 72% of U.K. exposure by market cap and half of the company's revenue comes from the United States, whereas the other benchmarks are more evenly dispersed. The results appear to confirm the hypothesis that infrastructure security returns in general perform better than equities during inflationary environments. It should be noted that this analysis has been focused on short-term performance differentials, given the low level of inflation over the past decade. It would be worthwhile to do a similar analysis and focus on longer term periods of inflationary pressure as data becomes available.

Figure 9: Performance of regional infrastructure in inflation environments relative to regional equities



Sources: MSCI, Bloomberg, FactSet, Dow Jones and Deutsche Asset Management as of 6/30/16. Performance is historical and does not guarantee future results. This information is for illustrative purposes only. Asset-class representation is as follows: each set of country returns was created using individual infrastructure security returns from the Dow Jones Brookfield Global index, domiciled in the country of interest and weighted by market cap. The country level infrastructure indices were then compared against that country's benchmark equity index, S&P 500 equity index for the U.S., S&P/TSX equity index for Canada, and FTSE 100 index for the United Kingdom. The inflation indices we chose followed the same logic, a global CPI index created by the IMF for a global comparison and individual country CPI figures for each country level analysis. All returns are in U.S. dollars.

Conclusion

Since 2008, global infrastructure securities have not only outperformed global equities in terms of average annualized risk-adjusted returns, but also have exhibited defensiveness during adverse macroeconomic situations. Our analysis has shown that on an absolute basis, listed infrastructure generally performed well in environments when global GDP growth was above average, credit spreads were decreasing, and real interest rates were falling. Relative to equities, listed infrastructure provided a hedge against environments in which nominal interest rates were falling, credit spreads were increasing, and both inflation and inflation expectations were rising.

In light of these findings, we expect global listed infrastructure to remain a compelling source of diversification for investors. In the current environment of stimulative monetary policy, listed infrastructure should provide an attractive option for the growth-oriented investor wishing to hedge against the current course of falling global sovereign yields. We also believe in the potential for listed infrastructure to hedge against sudden, yet unexpected, rises in inflation expectations or credit spreads.

Further research also needs to study the longer term cyclical nature of listed infrastructure. A more refined approach of examining specific infrastructure sectors within a given region over a longer period of time may provide greater insight into the long-term relationship between macroeconomic environments and infrastructure security returns.

Past performance is no assurance of future results.

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Appendix

Figure 10: Annualized performance in different macroeconomic environments (8/1/2008 through 7/1/2016)

	Above Average GDP Growth	Below Average GDP Growth	Rising Interest Rate	Falling Interest Rate	Increasing Credit Spreads	Decreasing Credit Spreads	Above Average Inflation	Below Average Inflation
Global Infrastructure	14.3%	-8.6%	6.2%	11.1%	-15.4%	28.1%	-13.5%	16.3%
Global Equities	11.8%	-8.3%	12.6%	1.4%	-26.7%	34.1%	-27.0%	18.5%
Global Bonds	3.2%	2.9%	-3.8%	9.8%	-9.0%	9.3%	0.6%	4.0%
Oil & Gas Storage &Transportation	14.8%	-10.9%	8.5%	8.5%	-14.8%	27.3%	-6.9%	13.8%
Transmission & Distribution	15.2%	-5.8%	4.3%	15.7%	-5.8%	22.9%	-4.7%	15.2%
Airports	19.3%	3.9%	13.0%	17.9%	-24.3%	47.7%	-27.7%	30.3%
Toll Roads	13.4%	-7.2%	7.1%	9.5%	-29.6%	39.0%	-35.5%	23.4%
Water	15.0%	-7.2%	6.3%	12.7%	-12.7%	27.5%	-10.3%	16.4%
Communications	15.2%	3.2%	5.2%	19.1%	-9.8%	30.1%	-17.2%	22.4%
Diversified	16.7%	-23.3%	12.3%	1.7%	-30.2%	36.9%	-32.1%	20.3%
Ports	5.5%	-13.4%	0.9%	0.9%	-39.8%	33.8%	-46.5%	17.1%

Source: Bloomberg, Oxford Economics, Thomson Reuters, Dow Jones and Deutsche Asset Management as of 30 June, 2016. Performance is historical and does not guarantee future results. This information is for illustrative purposes only and does not represent any Deutsche Asset Management product. Asset-class representation is as follows: Global Equities, MSCI World Index and Global Infrastructure, Dow Jones Brookfield Global Infrastructure Index. Sectors are those of the Dow Jones Brookfield Global Infrastructure Index. GDP refers to world real GDP, yields refer to G7 weighted sovereign ten year yields and G7 weighted Baa corporate yields; inflation refers to IMF world CPI index. Absolute returns are shown for each macroeconomic environment. All returns are in U.S dollars. Index returns assume reinvestment of all distributions and do not reflect fees or expenses. It is not possible to invest directly in an index. See back page for index definitions. Numbers indicate absolute performance.

Figure 11: Student -test of annualized performance differences for global listed infrastructure (8/1/2008 through 7/1/2016)

	Above Average GDP Growth	Below Average GDP Growth	Rising Interest Rate	Falling Interest Rate	Increasing Credit Spreads	Decreasing Credit Spreads	Above Average Inflation	Below Average Inflation
Global infrastructure returns								
Annualized return	14.3%	-8.6%	6.2%	11.1%	-15.4%	28.1%	-13.5%	16.3%
P-value	0.058		0.641		0.00002		0.011	
Global infrastructure returns relative to global equities								
Annualized return	2.5%	-0.3%	-6.4%	9.7%	11.4%	-5.9%	13.5%	-2.2%
P-value	0.701		0.008		0.00480		0.026	
Global infrastructure returns relative to global bonds								
Annualized return	11.1%	-11.5%	10.0%	1.3%	-10.9%	18.8%	-14.2%	12.3%
P-value	0.022		0.314		0.00039		0.006	

Source: Bloomberg, Oxford Economics, Thomson Reuters, Dow Jones and Deutsche Asset Management as of 30 June, 2016. Performance is historical and does not guarantee future results. This information is for illustrative purposes only and does not represent any Deutsche Asset Management product. Asset-class representation is as follows: Global Equities, MSCI World Index and Global Infrastructure, Dow Jones Brookfield Global Infrastructure Index. Sectors are those of the Dow Jones Brookfield Global Infrastructure Index. GDP refers to world real GDP, yields refer to G7 weighted sovereign ten year yields and G7 weighted Baa corporate yields; inflation refers to IMF world CPI index. P-values are from a standard student t-test for differences in means. All returns are in U.S dollars. Index returns assume reinvestment of all distributions and do not reflect fees or expenses. It is not possible to invest directly in an index. See back page for index definitions.

Table 1 Summary regression statistics for nominal and real yield changes (8/1/2008 through 7/1/2016)

		S&P 500	U.S. Infrastructure	Spread
Nominal Yield	Beta	4.9%	0.1%	-4.7%
	R2	7.8%	0.0%	14.5%
	T-val	2.796	0.084	3.970
	p-value	0.0063	0.9335	0.0001

	S&P 500	U.S. Infrastructure	Spread
Real Yield	-2.9%	-6.2%	-3.3%
	2.3%	15.7%	5.5%
	1.47	4.16	2.32
	0.1450	0.0001	0.0223

*green indicates significant at the 99% level

Sources: MSCI, Bloomberg, Dow Jones and Deutsche Asset Management as of 30 June, 2016. Performance is historical and does not guarantee future results. This information is for illustrative purposes only. Asset-class representation is as follows: U.S. infrastructure, U.S. infrastructure securities in the Dow Jones Brookfield Global Infrastructure Index; S&P 500, S&P 500 equity index. Nominal yields refer to the yield on tenyear U.S. Treasury bonds, real yields refer to the yield on ten year U.S. government TIPS. Regression results are from a standard linear regression using the least squares method. All returns are in U.S. dollars.

Table 2: Student t-test of performance differences for inflation scenarios (8/1/2008 through 7/1/2016)

	Global		US		Canada		UK	
	Above Average Inflation	Below Average Inflation	Above Average Inflation	Below Average Inflation	Above Average Inflation	Below Average Inflation	Above Average Inflation	Below Average Inflation
Annualized return vs equities	13.5%	-2.2%	18.5%	1.2%	23.6%	-1.3%	15.2%	2.5%
P-value	0.026		0.050		0.023		0.296	

Sources: Bloomberg, FactSet, Dow Jones and Deutsche Asset Management as of 30 June, 2016. Performance is historical and does not guarantee future results. This information is for illustrative purposes only. Asset-class representation is as follows: each set of country returns was created using individual infrastructure security returns from the Dow Jones Brookfield Global index that are domiciled in the country of interest and weighted by market cap. The country level infrastructure indices were then compared against that country's benchmark equity index, S&P 500 equity index for the U.S., S&P/TSX equity index for Canada, and FTSE 100 index for the United Kingdom. The inflation indices we chose followed the same logic, a global CPI index created by the IMF for a global comparison and individual
country CPI figures for each country level analysis. P-values are from a standard student t-test for difference in means. All returns are in U.S. dollars.

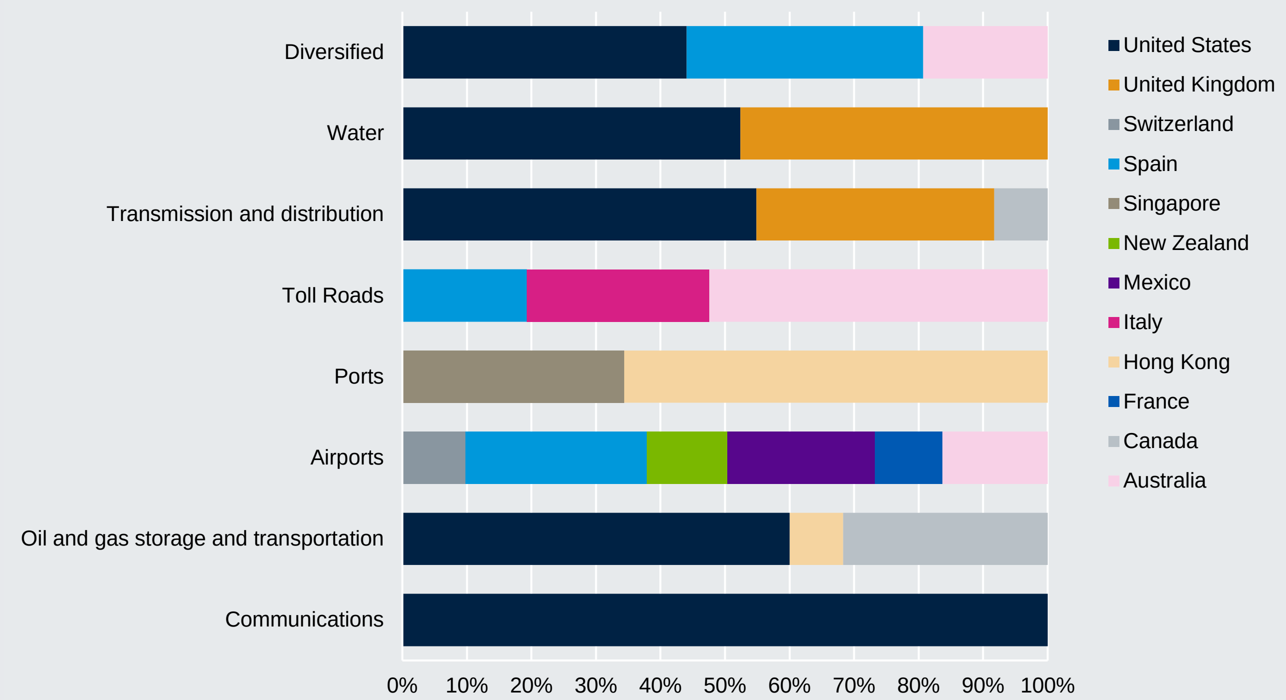
Figure 12: Dow Jones Brookfield infrastructure indices

Sector	No. of Constituents	Market Captalization (in $Billion)	Top five Components
Oil & Gas Storage and Transportation	40	$360.2	Enbridge Inc., Kinder Morgan Inc Class P, TransCanada Corporation, Sempra Energy and Spectra Energy Corp
Transmission and distribution	14	$180.4	National Grid plc, PG&E Corporation, Consolidated Edison, Inc., Eversource Energy and Red Electrica Corp. SA
Communications	8	$110.8	American Tower Corporation, Crown Castle International Corp, SBA Communications Corporation, SES SA FDR (Class A) and Eutelsat Communications SA
Water	9	$53.0	American Water Works Company, Inc., United Utilities Group PLC, Severn Trent Plc, Aqua America, Inc. and Pennon Group Plc
Toll Roads	9	$47.1	Transurban Group Ltd., Atlantia S.p.A, Abertis Infraestructuras SA, Groupe Eurotunnel SE and Jiangsu Expressway Co. Ltd. Class H
Airports	11	$40.5	Aena SA, Sydney Airport, Auckland International Airport Limited, Aeroports de Paris SA and Flughafen Zurich AG
Diversified	6	$27.9	CenterPoint Energy, Inc., Ferrovial, S.A., DUET Group, HICL Infrastructure Company Ltd GBP and 3i Infrastructure PLC

Ports	3	$8.0	China Merchants Holdings (International) Co., Ltd., Hutchison Port Holdings Trust and Westshore Terminals Investment Corporation
Dow Jones Brookfield infrastructure Index	100	$827.9	National Grid plc, American Tower Corporation, Enbridge Inc., Kinder Morgan Inc Class P and Crown Castle International Corp

Sources: FactSet, Dow Jones and Deutsche Asset Management as of 30 June, 2016.

Figure 13: Country exposure represented by 90% of market capitalization



Sources: FactSet, Dow Jones and Deutsche Asset Management as of 30 June, 2016.

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