INFRASTRUCTURE INDICES
A COMPARISON OF PERFORMANCE

Within the listed infrastructure space, there is no universally agreed definition of infrastructure. This is apparent in the multitude of global listed infrastructure indices, all of which have nuances in construction methodology and classification of 'infrastructure'.

In this paper, we examine the compositional and construction differences of the five main global infrastructure indices and our proprietary infrastructure universe, the RARE 200. Specifically, we analyse how these differences explain the observed performance and risk variances. Lastly, we explain our unique view on listed infrastructure investing.

Different Definitions of Infrastructure

Infrastructure is the physical assets that provide an essential service to society. Within the investment community, there are various definitions and views on infrastructure, reflected in the various global infrastructure indices.

The set of global infrastructure indices saw a significant change in 2015 when UBS discontinued its family of indices, including the Global Infrastructure & Utilities Index, and the Global Infrastructure & Utilities 50:50. Following this event, new families of indices have been launched by MSCI, there have been revisions to the FTSE indices, and in 2016 RARE launched its own smart beta global infrastructure index.

Alongside RARE's proprietary infrastructure universe, 'the RARE 200', there are currently five main global indices used to assess the performance of listed infrastructure:

1. S&P Global Infrastructure Index (referenced as 'S&P')

This is an index of 75 companies chosen to ensure a mix of different types of infrastructure, with a weight of 40% to utilities, 40% to transport and 20% to energy. This index is intended to provide exposure to the global infrastructure industry, and its definition of infrastructure is relatively broadly based.

2. Dow Jones Brookfield Global Infrastructure Index (referenced as 'DJ Brookfield')

This is an index of more than 100 companies. The index was constructed based on Brookfield Asset Management's definition of infrastructure which is typically characterised as long-life assets that generate stable and growing cash flows, with high barriers to entry and low-maintenance capital requirements. Similar to the RARE 200 universe, this index tends to focus on characteristics that investors expect from infrastructure investments but exhibits potentially unwanted sector/regional skews.

3. FTSE Global Core Infrastructure 50:50 Index (referenced as 'FTSE')

This index comprises over 200 companies and has been developed using Industry Classification Benchmark (ICB) classifications, including companies with 65% of revenues in specific ICB subsectors which FTSE considers to be core infrastructure. Weights are capped to utilities 50%, transport 30% and other 20%. The

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index was launched in 2015 with backdated data only provided to 2010. As such, there is limited scope to make comparisons to other indices during eventful time periods such as the Global Financial Crisis (GFC).

4. MSCI World Core Infrastructure Index (referenced as 'MSCI')

This index comprises around 100 companies. The constituents are selected from specific Global Industry Classification Standard (GICS) sub-industries in developed markets. The aggregate weight of 'Infrastructure' companies is capped at 40% and that of 'Utilities' at 60%. Within these two aggregate sectors, the weights of sub-industries are capped at 15%, and individual stocks at 5%.

5. RARE Global Infrastructure Index (referenced as 'RGII')

This smart beta index seeks to provide focused exposure to infrastructure companies by analysing the actual sources of corporate cash flows. The index selects companies from specific GICS sub-industries, which are then filtered by liquidity, yield and exposure to infrastructure. Weighting is determined by market capitalisation, free float, infrastructure exposure, price volatility and region. On a quarterly basis, leading economic indicators are used to establish weight between economically sensitive sectors and more regulated / defensive sectors. Exposure caps and minimums are also put in place.

The RARE 200 – RARE's Proprietary Infrastructure Universe

At RARE, relative to most infrastructure indices, we have a narrower view of what constitutes infrastructure. Based on what we see as the key characteristics of infrastructure, we have created proprietary infrastructure universes. Our proprietary infrastructure universes are clearly defined and comprise of companies where regulatory or contractual structure provides visibility over future cash flows. This framework has remained unchanged since RARE's inception in 2006.

The 'RARE 200' is RARE's proprietary infrastructure universe used to analyse securities. The RARE 200 is not a commercial index, nor is it a performance benchmark we aim to outperform. Rather, the RARE 200 is an equally-weighted, universe that comprises 200 of the largest and most liquid companies globally that meet our definition of infrastructure.

The companies included in the RARE 200 universe are typically focused on the 'network' element of the value chain of the industry that they serve. For instance, within the electricity and gas industry, the RARE 200 is focused on the transmission and distribution networks, rather than the generation and retail segments. Within the communications industry, we focus on towers and satellite communications infrastructure, rather than providers of telecoms services to customers.

Given our strict definition of infrastructure, the RARE 200 has low exposure to generation assets where there is linkage to wholesale market prices, or to other infrastructure businesses with significant commodity market exposure.

RARE 200 is the most appropriate for this comparative analysis.

Compositional Differences between Infrastructure Indices and the RARE 200

Weighting Methodology

The global infrastructure indices and the RARE 200 have different stock weighting methodologies. The S&P, DJ Brookfield, FTSE and MSCI are market capitalisation weighted, and some have scaled weightings to ensure a specific contribution from particular sectors. The RARE 200, in contrast, is an equally-weighted, proprietary infrastructure universe used to analyse securities.

Regional and Sector Exposure

Figures 1 and 2 show the weighting of the indices and the RARE 200 by region and sectors as at 31 March 2017.

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Figure 1. Regional weights for global infrastructure indices and the RARE 200
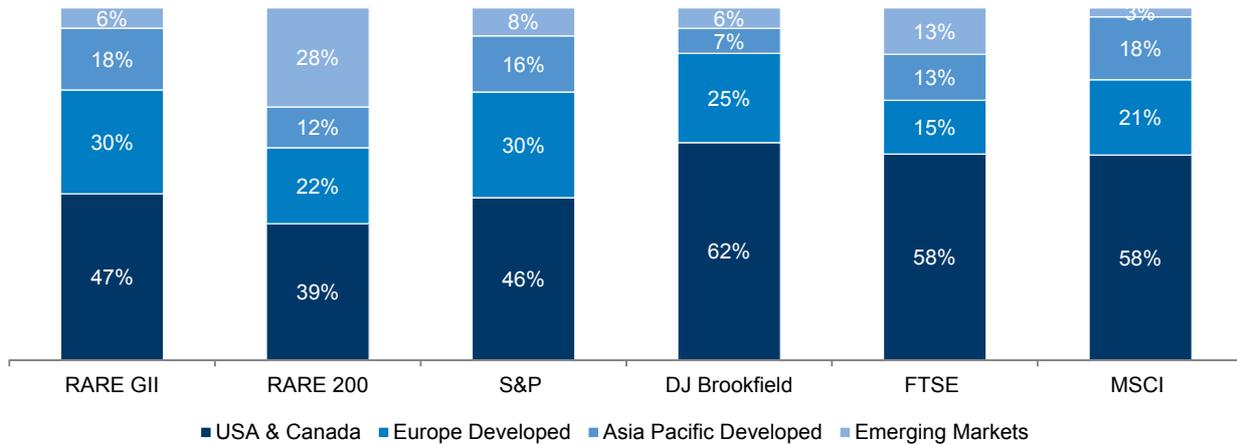
■ USA & Canada ■ Europe Developed ■ Asia Pacific Developed ■ Emerging Markets
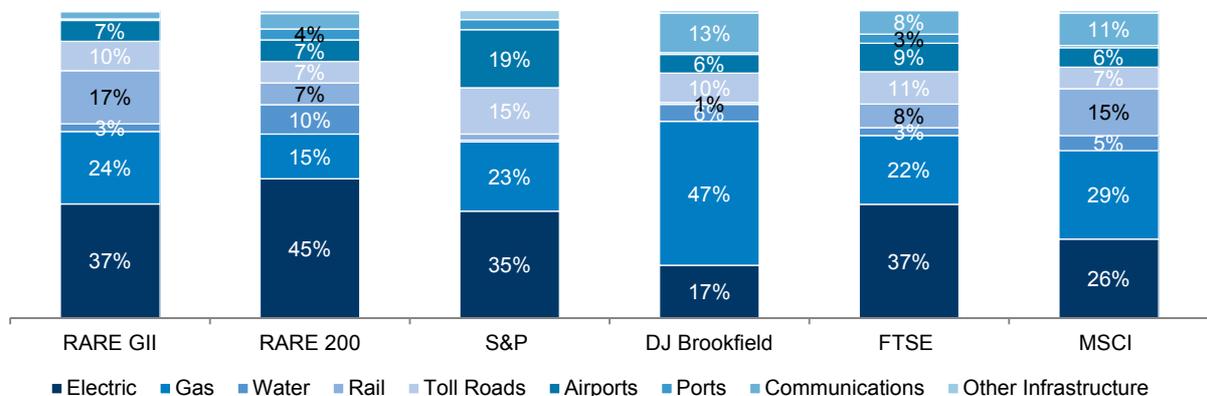
Source: As at 31 March 2017. Amounts less than 2% not identified. RARE analysis of FactSet data. See References at end for index codes.

There are striking features of the regional breakdown, including some stark differences in the composition of the indices:

◊ **USA and Canada:** All indices have a significant exposure to the USA and Canada. However, for the Dow Jones Brookfield, FTSE and MSCI Index the weight is near 60%. This is much larger than the 39-50% of the RARE 200, the RARE GII and S&P indices.

◊ **Western Europe:** With the exception of the FTSE index, the weight of the Western European exposure is consistent across the indices. The FTSE index weight is 15% compared to the other indices weight of between 21-30%.

◊ The combined weight of North America and Europe is almost 90% for Dow Jones Brookfield index but is only around 80% for the other indices. Comparatively, within these regions, the opportunity set of the RARE 200 is approximately 60%.

◊ **Emerging Markets:** The large weight of emerging markets in the RARE 200, which is capped at 30%, is also notable in contrast to 3-13% range for all of the other indices. This reflects the purpose of the RARE 200 – an opportunity set for a benchmark unaware strategy. When looking at the number of emerging market companies within each index, the variance is more dispersed. As at 31 March, the RARE 200 has 60 companies, the FTSE index 83, while the other indices only have between 3-17 companies.

Figure 2. Sector weights for global infrastructure indices and the RARE 200

■ Electric ■ Gas ■ Water ■ Rail ■ Toll Roads ■ Airports ■ Ports ■ Communications ■ Other Infrastructure

Source: As at 31 March 2017. Amounts less than 2% not identified. RARE analysis of FactSet data. See References at end for index codes.

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Important features of the sector breakdown are:

◈ **Utilities:** Utilities along with oil and gas infrastructure are important contributors to all the indices and the RARE 200. The combined weight range is 60-70%. The critical difference is that the RARE 200 is an equal weighted opportunity set.

◈ **Water:** Water has a low weight in all indices, reflecting the size of this sector and relatively limited number of listed utilities. For each of the indices, the weight is around 3%, whereas for the RARE 200 it is 10%. The number of water companies ranges from 3-18% for the indices while for the RARE 200 it is 20.

◈ **Communications:** The S&P has no weight in communications infrastructure, and the RARE GII index has only a 2% weight. These companies have a higher weight of between 5% and 13% in the DJ Brookfield, FTSE and MSCI indices.

◈ **Rail:** The MSCI and RARE GII have a relatively high exposure of around 15% to rail companies, with 2% or less for the S&P and DJ Brookfield indices. There are 7% and 8% in the RARE 200 and FTSE indices respectively.

◈ **Toll Roads and Airports:** The S&P has a relatively high exposure of 34% in Toll Roads and Airports. For the other indices, this ranges from 13-20%.

Security Differences

At the constituent level, there are significant differences in the securities that comprise each index. Similarly, there are several companies that are included in the RARE 200 but are not constituents of at least one of the indices. Notable exceptions include:

◈ A range of Emerging Market companies. For instance, the RARE 200 includes:

 ◈ IENova, a leading electricity and gas pipeline company, operating in Mexico.

 ◈ DP World, a leading global ports business based in Dubai

 ◈ Aguas Andinas, one of Chile's leading water companies which operates within a stable regulatory framework.

◈ Communications businesses have solid infrastructure characteristics, but towers companies such as American Tower, Crown Castle and SBA Communications are excluded from the S&P index while satellite companies SES and Eutelsat are excluded from both the S&P and MSCI indices.

◈ Utility companies dominated by regulated activities. This includes Iberdrola and CMS Energy. Iberdrola is a Spanish electric company with some wholesale market exposure but valuation dominated by regulated activities and contracted renewable generation. CMS Energy is a US Integrated Utility based in Michigan, US.

◈ Railway companies in Japan, the US, and Australia are each excluded from the S&P and DJ Brookfield indices.

The global infrastructure indices also have significant weights to companies that do not meet RARE's definition of infrastructure. Each of the main global indices have weights in commodity exposed utilities that are excluded from the RARE 200, like Centrica (UK electricity and gas supply business with some generation), OneOK (US midstream gas business), and Exelon (a US utility with high generation wholesale price exposure).

Note: only 17 companies appear in all five indices and the RARE 200.

Explaining Differential Performance

The differences between the five main infrastructure indices and the RARE 200 have a strong impact on both performance and risk (discussed in the next section). In the subsequent analysis, we have used

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unhedged US Dollar denominated data to facilitate an equitable comparison amongst index providers. Note; not all indices provide hedged versions of their indices or performance data on a local basis.

Figure 3 illustrates the performance of the indices and the RARE 200 since 2001. Data is not available for the full period for all of the indices; as such, each index is incorporated into the analysis once 36 months of returns are available. The lines have been dashed when returns have been backdated.

As evident in Figure 3, returns from the indices have been correlated – all performed strongly over the period 2003-07, pulling back over the GFC period and delivering strong growth subsequently with the market recovery. However, even though the pattern of returns overall was similar over the whole period, the DJ Brookfield and the RARE 200 have performed the best out of these indices.
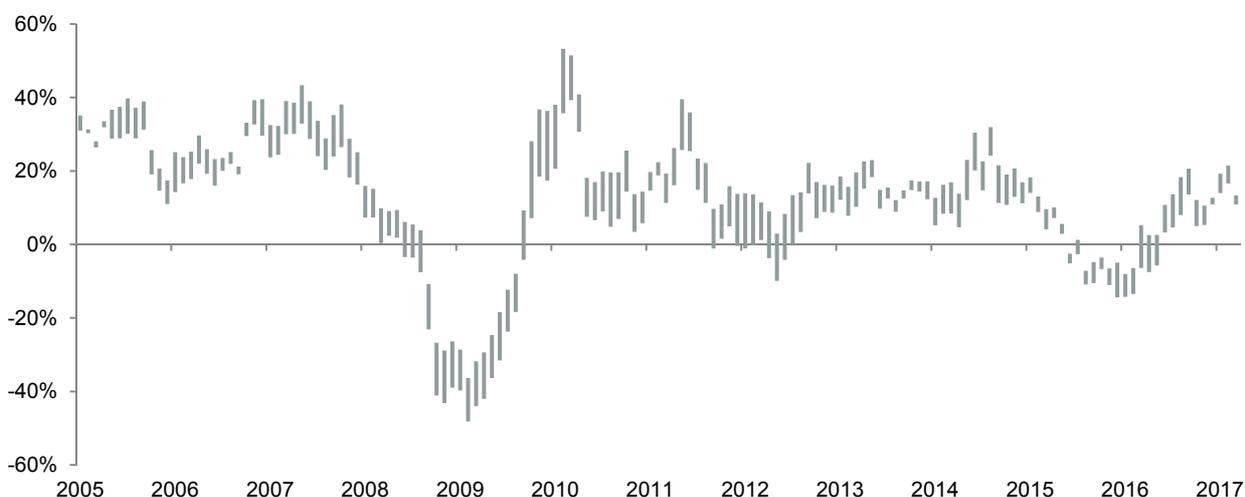
Figure 3. Infrastructure index performance (Rolling 3 year returns)
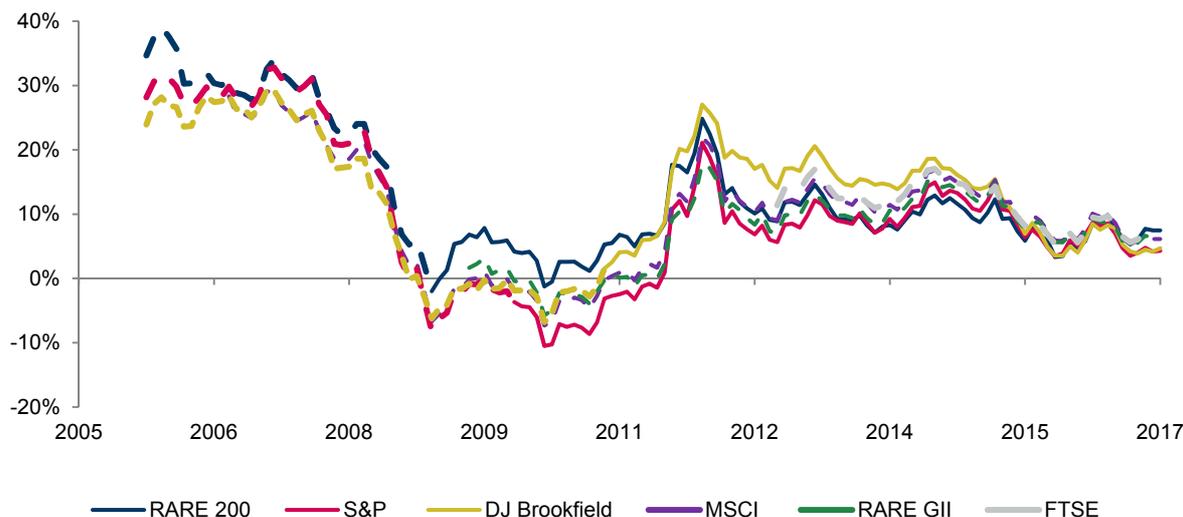
Source: As at 31 March 2017. RARE analysis of FactSet data. See References at end for index codes.

The importance of differential returns between the indices and the RARE 200 can be seen clearly in Figure 4. This graph shows the 12-month rolling returns over the same period, but with the bars showing the range of those rolling returns.

**Figure 4. Range of rolling 12-month returns from global infrastructure indices and the RARE 200**

Source: As at 31 March 2017. RARE analysis of FactSet data. See References for index codes.

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For most of the period, until 2012, the range of returns has been very large, typically 10% but exceeding 20% in some periods. Over the period 2013-17, markets have generally been less volatile, resulting in the range of returns becoming narrower. Most indices were incepted during this period, so there is also an evident bias towards creating an index with constituents suitable for the operating environment at the time of launch.

The best and worst performing indices change over this period. In order to understand which index performed better under which condition, it is helpful to examine returns in sub-periods. Figures 5-7 break down performance with best and worst performing indices for three sub-periods:

✧ **January 2005 to June 2008,** which may be considered to be the tail end of 'The Great Moderation' – a period of economic stability characterised by low inflation, positive economic growth and decreased macroeconomic volatility.

✧ **July 2008 to December 2009,** which covers the heightened risk period of the GFC, the collapse of Lehman Brothers as well as the sharp equity market recovery from March 2009.

✧ **2010 onwards,** which includes the European debt crisis, calmer recovery periods, and 2016 – which saw bond yields decline significantly at the beginning of the year but rise sharply in the latter half following Donald Trump's election victory.

Figure 5. Range of rolling 12-month returns from selected global infrastructure indices and the RARE 200
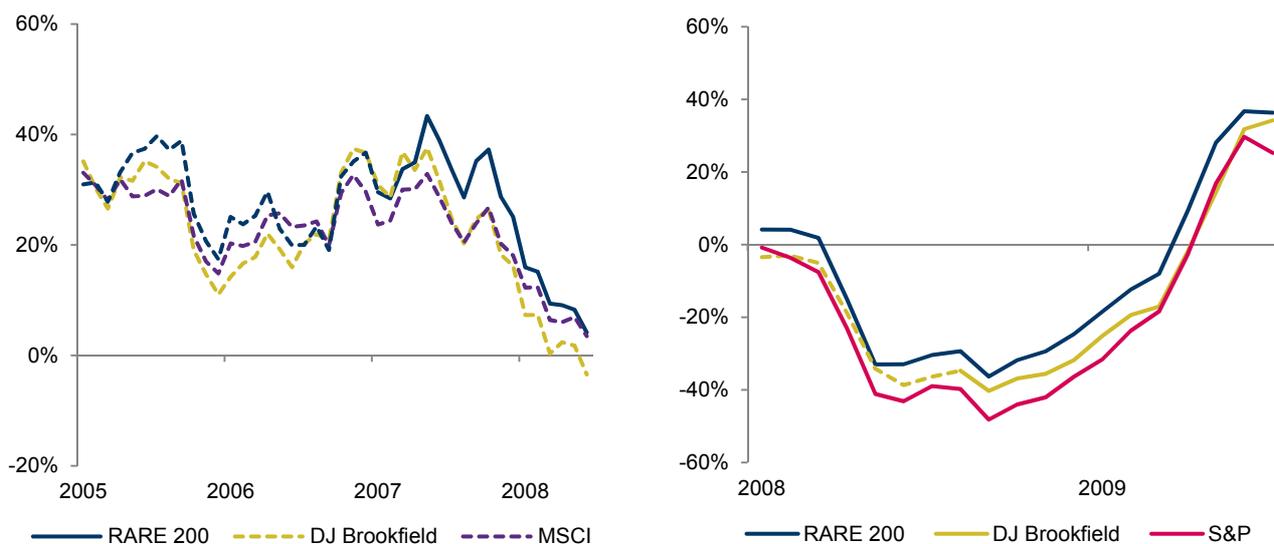
Source: RARE analysis of FactSet data. From Jan 05-Jun 08. See References at end for index codes.

Source: RARE analysis of FactSet data. From Jun 08-Dec 09. See References at end for index codes.

For most of 2005 to mid-2008 (see Figure 5, LHS), the RARE 200 was at the top of the performance range. For the first half of the period, the DJ Brookfield Index was the bottom performer, while the MSCI index was bottom performer for the second period. This was a time period when interest rates were falling progressively, benefitting more defensive companies. During this period, the RARE 200 performance benefitted considerably from its exposure to Latin America, which the DJ Brookfield Index has low exposure to, contributing 1,340bps of the RARE 200's outperformance.

The main differences in contributions of the RARE 200 compared to the MSCI index was in the electric sector. While the MSCI has a higher weight than the RARE 200 to the sector, stocks in the RARE 200 on average performed better, many of these being emerging market companies. In addition, the performance of the MSCI index was negatively affected by its higher exposure to Japanese electricity and rail companies which underperformed over the period.

For the period encompassing the GFC (Figure 5, RHS), the S&P index was the worst performer in the period when the indices all fell, but the best performer in the period when they rose. The RARE 200 index was the

most resilient to the equity market fall. During this period, the S&P's poor performance compared to both the RARE 200 and DJ Brookfield indices was due to its lower weight in North America, and the higher weight in Europe. The strengthening of the USD further compounded the larger share declines in the Euro area. The DJ Brookfield also performed poorly over this period due to its large exposure to commodity sensitive gas companies. Additionally, the DJ Brookfield's larger weight in USD denominated companies meant it fared slightly better than the S&P over the period.

Figure 6 shows the range of rolling 12-month returns of DJ Brookfield, RARE GII and the RARE 200 over the period 2010-15.

Figure 6. Range of rolling 12-month returns from selected global infrastructure indices and the RARE 200
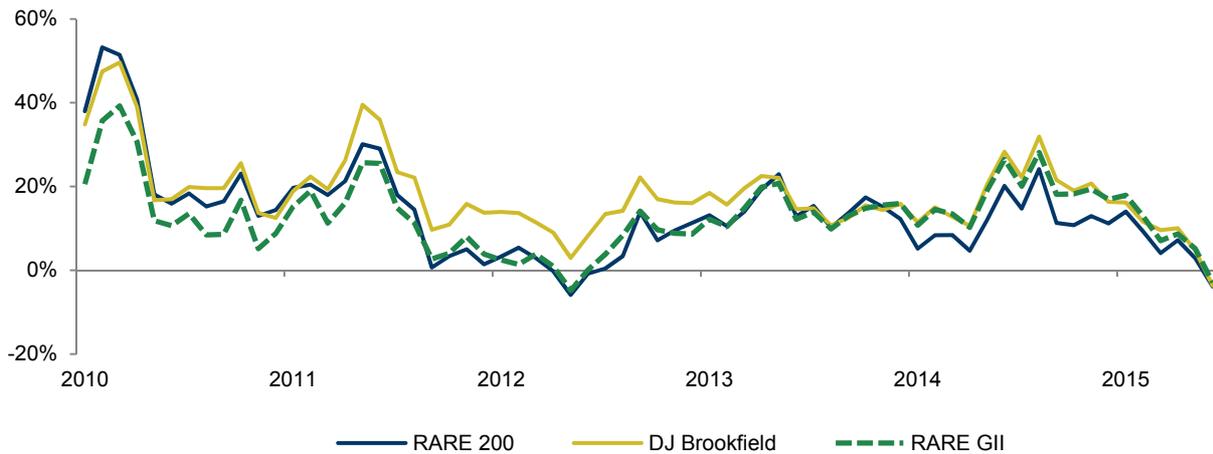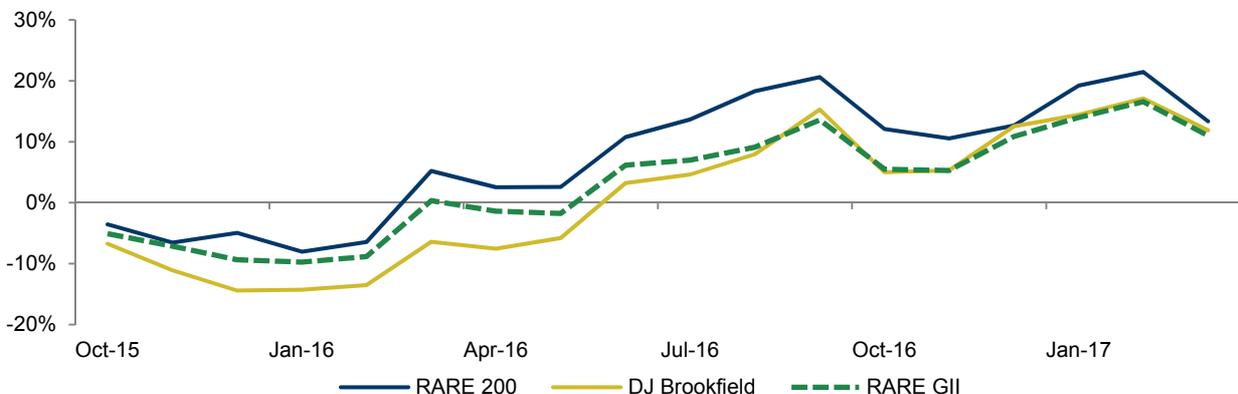

Source: From Jan 10-Jun 15. RARE analysis of FactSet data. See References at end for index codes.

The RARE 200 performed relatively well for the first 15 months. From mid-2011 onward, 12-month returns were positive but at the lower end of the index returns. The RARE GII had the lowest returns for the period from January 2010 to June 2012, due to its larger weights in Europe and Japan. The DJ Brookfield performed relatively well throughout the period with US electricity and gas sectors being the main contributors. On a stock level, companies that performed well within the period for the DJ Brookfield Index included those with more commodity focus such as Williams and OneOK.

Figure 7 shows the range of rolling 12-month returns of DJ Brookfield, RARE GII and the RARE 200 over the period October 2015 to March 2017.

Figure 7. Range of rolling 12-month returns from selected global infrastructure indices and the RARE 200

Source: From Sept 15-March 17. RARE analysis of FactSet data. See References at end for index codes.

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Over this period of analysis, the RARE 200 was the top performer due to its larger exposure to US electric utilities and emerging markets, particularly Brazil. The DJ Brookfield had the lowest returns at the beginning of the period due to its larger weight in oil and gas companies. The RARE GII performance was mixed; it performed strongly at the beginning of the period due to its larger weight in Australia and Japan but underperformed compared to the RARE 200 later in the period due to its smaller exposure to Brazil.

The above analysis indicates that:

1) The **S&P Index** performed poorly in weak markets, and better when equities rise. It is a higher beta index. In addition, as it has limited exposure to communications infrastructure, it won't perform as strongly in periods when those companies do well.

2) The **FTSE index** appears to be more defensive and may outperform other indices in more volatile market conditions. However, there is insufficient backtested data to compare to peers over a full investment cycle.

3) The **Dow Jones Brookfield** is also relatively defensive. However, it has a much greater exposure to USD denominated assets, and it has commodity exposure with a high contribution from gas assets, including companies with midstream exposure. This means that this index tends to perform well when the USD is strengthening and during periods of rising and strong oil prices. However, the inverse is also true, and the index may underperform during periods of oil price weakness.

4) The **MSCI** is a broadly based and balanced index and has tended to perform around the average of the global infrastructure indices.

5) The **RARE 200** does well at times when defensive companies do well, as well as at times when emerging markets perform well.

6) The **RARE GII**, with its dynamic sector weighting, has over the analysed period been a broadly balanced index. It has tended to outperform the other indices when defensive companies and Australia and Japan have done well.

A summary of the factors that may affect index performance in the future is set out in the table below. Historical times when those factors have affected performance are set out in the Appendix C.

Factors leading to likely relative outperformance of main global infrastructure indices

	RARE 200	S&P	DJ Brookfield	FTSE	MSCI	RARE GII
Emerging Markets	✓	✓				
US Dollar			✓			
Europe		✓				
Japan				✓	✓	✓
Commodities			✓			
Defensive	✓			✓	✓	✓
General Equities		✓				
Communications	✓		✓		✓	
Rail				✓		✓

Source: RARE analysis of FactSet data. See References at end for index codes.

Explaining Differential Risk

Volatility, as measured by the annualised standard deviation of returns, is one of the primary measures of risk used in financial markets. Using rolling 24-month period monthly returns, we examined the standard deviation of the five infrastructure indices, the RARE 200 and general equities (using MSCI World Index as a proxy). This analysis is presented in Figure 8.

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Figure 8. Standard Deviation of global infrastructure indices and the RARE 200
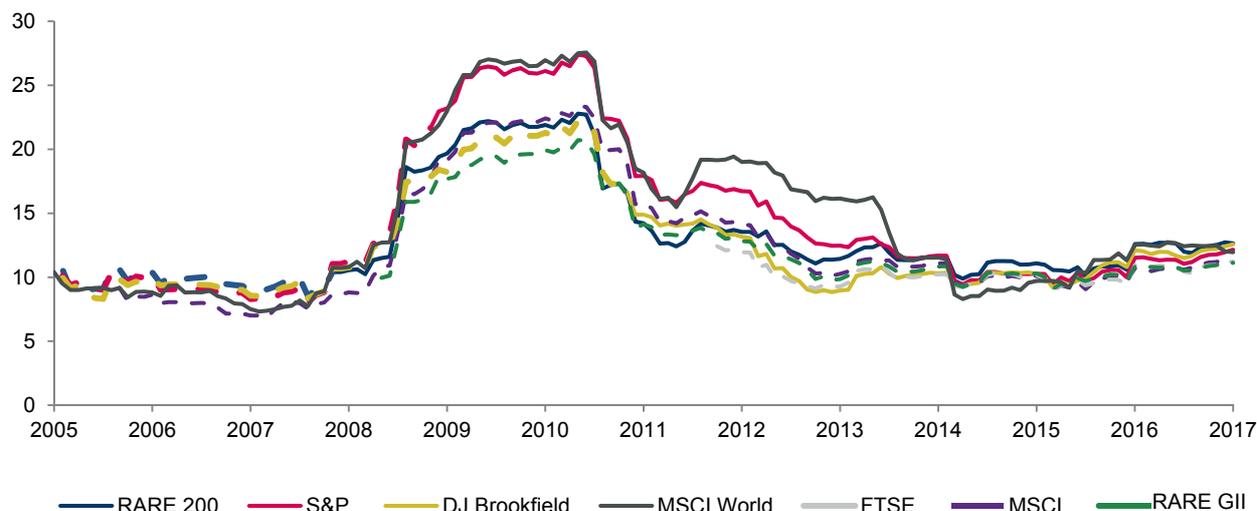
Source: RARE analysis of FactSet data. See References at end for index codes.

As seen in Figure 8, from mid-2013 to mid-2015 the measured volatility of each of the indices has converged to between 9% and 13%. Interestingly, general equities have also shown volatility within that range during the same period. At the end of the 'Great Moderation', before the onset of the GFC, volatility was at similar levels.

The volatility of the global infrastructure indices, however, is not constant, and over the last ten years has shown considerable variation. This is particularly evident during the height of the GFC between mid-2008 and mid-2010 where the range in volatility is almost 10%. The volatility of the S&P Global Infrastructure Index increased similarly to general equities, while the other infrastructure indices also rose but not to the same extent.

The dispersion in volatility is primarily attributable to three factors:

1) The amount of exposure to the more defensive utility sectors compared to more economically sensitive transport and communications infrastructure

2) The exposure to infrastructure-related companies which have similar characteristics to industrial companies rather than asset-focused infrastructure companies

3) The amount of non-USD denominated securities included in the index.

The volatility of the S&P Global Infrastructure Index is higher than the other indices due to its exposure to European airports and toll roads as well as greater exposure to infrastructure-related companies such as logistics. In 2008-10, this index had a similar volatility to that of the MSCI World Index. Additionally, in 2010-13, volatility was noticeably higher than that of other global infrastructure indices.

The FTSE index had lower volatility over the period, reflecting the more defensive nature of its utility constituents and large weighting to USD denominated securities.

The RARE 200 shows volatility that is similar to the other three main infrastructure indices, even though, on average, this universe comprises of lower risk utilities. This is due to the higher weight of emerging market companies in the RARE 200 which on average have higher volatility.

The RARE GII has the lowest volatility over the entire period because of its dynamic weighting methodology allocating larger weights to companies with low volatility in sectors determined by the economic indicators. During the GFC, the dynamic weighting mechanism allocated a large weight to USD denominated utilities.

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RARE's View on Infrastructure

As a firm, RARE has a distinct view on what is classified as infrastructure. Broadly, we view infrastructure companies as businesses that own the hard assets which provide an essential service and, through regulation or concession contracts, have some degree of certainty in payment for the services provided. This framework has remained unchanged since RARE's inception in 2006.

Consistent with our belief that the commercially available infrastructure indices all exhibit regional and sector skews which limit their effectiveness as a full cycle investment solution, while recognising the desire by some investors to implement lower cost portfolio, in 2016, RARE launched our own smart beta global infrastructure index, the RARE Global Infrastructure Index (RGII). The construction methodology of this index is markedly different to the other commercial indices outlined in this paper. Filters identify infrastructure companies by analysing the actual sources of corporate cash flows rather than high-level industry classifications and a proprietary stock weighting methodology and dynamic sector allocations ensures the index provides a "through the cycle" exposure to infrastructure. The result is a rules based index which aims to provide an investor with the right type of infrastructure in the right weight at the right time.

Conclusion

As the analysis presented in this paper highlights, differences exist between the RARE 200 universe and the main global infrastructure indices. For investors, it is important to realise that no infrastructure index is a perfect representation of the listed infrastructure universe. There are strengths and weaknesses of each option. Investors must understand the type of listed infrastructure exposure they require, and what means and measures are best placed to achieve and evaluate their required goals and outcomes.

References

Index Codes

RARE 200: RARE 200, FactSet Research Systems (Index Code – BENCH_RARE_200)
S&P Global: S&P Global Infrastructure, FactSet Research Systems (Index Code – STRGLIFX)
DJ Brookfield: DJ Brookfield World Infrastructure, FactSet Research Systems (Index Code – DJBIW1ISX)
FTSE: FTSE Global Core Infrastructure, FactSet Research Systems (Index Code – FGCII000)
FTSE 50/50: FTSE Global Core Infrastructure 50/50, FactSet Research Systems (Index Code – FGCIICU0)
MSCI: MSCI World Core Infrastructure, FactSet Research Systems (Index Code – MS706146)
MSCI AC World: MSCI AC World Index, FactSet Research Systems (Index Code – 892400)
RARE GII: RARE Global Infrastructure Index, Bloomberg (Index Code – INFR INDEX)

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Appendix A. Summary of index construction

	RARE 200	S&P Global Infrastructure Index	Dow Jones Brookfield Global Infrastructure Index	FTSE Core Infrastructure Index 50/50	MSCI Core Infrastructure Index	RARE Global Infrastructure Index
Purpose	Provide a suitable universe for stock analysis with typical infrastructure characteristics and inflation protection	General benchmark on the largest infrastructure companies globally	Provide a suitable universe for measuring stock performance of pure-play infrastructure companies	Provide a suitable index for measuring listed infrastructure performance	Provide a suitable index for measuring listed infrastructure performance	Provide an index of securities that RARE believe to be of investable quality
Launch	⬦ 2006 (methodology updated in 2012) ⬦ Backdated to 1997	⬦ 2007 ⬦ Backdated to 2002	⬦ 2008 ⬦ Backdated to 2002	⬦ 2015 ⬦ Backdated to 2010	⬦ 2015 ⬦ Backdated to 2005	⬦ 2016 ⬦ Backdated to 2006
Scope – Size	⬦ 200 stocks ⬦ Equal weighted	⬦ 75 stocks ⬦ Market cap weighted ⬦ 5% max security weight	⬦ Variable > 100 stocks ⬦ Market cap weighted ⬦ 10% max security weight	⬦ Variable > 200 stocks ⬦ Market cap weighted ⬦ 5% max security weight	⬦ Variable > 100 stocks ⬦ Market cap weighted ⬦ 5% max security weight	⬦ Currently 121 stocks ⬦ Market cap weighted with adjustments for volatility, infrastructure focus & free float
Scope – Geographical	Developed and developing markets	Developed and developing markets	Developed and developing markets	Developed and emerging markets	Developed markets only	Developed and emerging markets
Scope – Industry Sector	By asset ⬦ Airports ⬦ Toll Roads ⬦ Rail ⬦ Ports ⬦ Communications ⬦ Regulated electric generation, transmission and distribution ⬦ Gas transmission and distribution ⬦ Oil and Gas storage and transportation	By GICS sector ⬦ Oil & Gas storage and transportation ⬦ Airport Services ⬦ Highways & Rail Tracks ⬦ Marine Ports ⬦ Electric Utilities ⬦ Gas Utilities ⬦ Multi-Utilities ⬦ Water Utilities ⬦ IPPs & Energy Traders ⬦ This index excludes all communications infrastructure	By asset ⬦ Airports ⬦ Toll Roads ⬦ Ports ⬦ Communications ⬦ Electricity transmission and distribution ⬦ Oil and Gas storage and transportation ⬦ Midstream Energy Services ⬦ Water	By ICB classifications ⬦ Airports ⬦ Toll Roads ⬦ Ports ⬦ Rail ⬦ Communications ⬦ Electricity generation transmission and distribution ⬦ Pipelines ⬦ The core index excludes 'infrastructure related activities' ⬦ Construction of infrastructure is eligible for inclusion	By GICS sector ⬦ Airports ⬦ Toll Roads ⬦ Ports ⬦ Rail ⬦ Communications companies classified as specialist REITs ⬦ Electricity generation, transmission and distribution ⬦ Oil and Gas storage and transportation	By GICS Sub-Industry ⬦ Electric Utilities ⬦ Gas Utilities ⬦ Multi-Utilities ⬦ Water Utilities ⬦ Independent Power Producers & Energy Traders ⬦ Renewable Electricity ⬦ Airport Services ⬦ Cable and Satellite ⬦ Highways and Rail Tracks ⬦ Marine Ports & Services ⬦ Oil & Gas storage and transportation ⬦ Railroads

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	RARE 200	S&P Global Infrastructure Index	Dow Jones Brookfield Global Infrastructure Index	FTSE Core Infrastructure Index 50/50	MSCI Core Infrastructure Index	RARE Global Infrastructure Index
						⬦ Specialised REIT's

Index Construction – Methodology	⬦ Investment characteristic based
	⬦ Each company must meet investment characteristics of infrastructure
	  ⬦ Long asset life
	  ⬦ Predictable cash flows (e.g. regulated assets, concessionaires)
	  ⬦ Inflation hedge
	  ⬦ Monopolistic characteristics
	  ⬦ Low volatility
	⬦ This screens for companies based on what investors expect from infrastructure
		⬦ Size and industry classification based
		⬦ Largest stocks in specified sectors based on market capitalisation
			⬦ Size and activity based
			⬦ Largest stocks that have majority of its business infrastructure assets
			⬦ Stocks ranked by indicated annual dividend yield, with top 70% of the universe included in the index
				⬦ Inclusion determined by classification	⬦ Inclusion determined by classification, with sector weights based on free float market capitalisation and aggregate sector weight limits	⬦ Rules based methodology to find companies of Investable quality
						⬦ Companies filtered from MSCI ACWI Index Selection is determined by:
						  ⬦ GICS Classification
						  ⬦ Liquidity
						  ⬦ RARE Exposure Score
						  ⬦ Dividend Yield
						  ⬦ Operating Cash Flow Yield

Index Construction – Size and liquidity	⬦ Min market value USD 500m (float-adjusted) ⬦ Average Daily Volume of USD 2m	⬦ Min market value USD 250m (float-adjusted) ⬦ Average Daily Volume of USD 1m	⬦ Min market value USD 500m (float-adjusted) ⬦ Average Daily Volume of USD 1m	⬦ Min market value USD 500m (float-adjusted)	⬦ Min market value USD 500 m (float-adjusted)	⬦ Min market value USD 500m (float-adjusted) ⬦ Average Daily Volume of USD 2m
Index Construction – Restrictions/ differences	Minimum 70% of cash flows that exhibit infrastructure characteristics (i.e. IPPs and midstream are excluded) Emerging Markets capped at 30%	Sector weight restrictions (20% energy, 40% utilities, 40% transportation)	Minimum 70% of cash flows from infrastructure assets	65% of revenues attributable to relevant industries	40% infrastructure, 60% utilities, with 15% sub-industry weight limits	Dynamic Sector weight ranges 40-60% utilities 40-60% economically sensitive Maximum 50% in one region

Appendix B. Largest weights in global indices excluded from RARE 200

S&P Global Infrastructure

Name	Region	Sector	Weight	Reason for Exclusion
Macquarie Infrastructure	USA & Canada	Multi	2.13%	Managed Fund
Enel	Western Europe	Electric	1.98%	Generation wholesale market exposure
Exelon	USA & Canada	Electric	1.80%	Generation wholesale market exposure
Engie	Western Europe	Electric	1.24%	Generation wholesale market exposure
Public Service Enterprise	USA & Canada	Electric	1.22%	Merchant generation exposure
BBA Aviation	Western Europe	Airports	1.20%	Flight support services rather than asset owner
OneOK	USA & Canada	Gas	0.97%	Midstream commodity exposure
E.ON	Western Europe	Electric	0.86%	Generation wholesale market exposure
Qube	Asia Pacific Developed	Ports	0.84%	Primarily Logistics
Japan Airport Terminal	Asia Pacific Developed	Airports	0.84%	Airport terminal operator rather than asset owner

Source: RARE Infrastructure analysis, index providers.

DJ Brookfield Global Infrastructure

Name	Region	Sector	Weight	Reason for Exclusion
Hong Kong & China Gas	Asia Pacific Developing	Gas	1.60%	Commodity and upstream exposure
CenterPoint Energy	USA & Canada	Electric	1.29%	Significant competitive midstream exposure
OneOK	USA & Canada	Gas	1.27%	Midstream commodity exposure
Targa Resources	USA & Canada	Gas	1.26%	Commodity exposure
Inter Pipeline	USA & Canada	Gas	0.84%	Commodity exposure
Keyera	USA & Canada	Gas	0.59%	Midstream commodity exposure
ENN Energy	Asia Pacific Developing	Gas	0.46%	Commodity exposure
China Gas	Asia Pacific Developing	Gas	0.41%	Commodity exposure
HICL Infrastructure	Western Europe	Multi	0.36%	Managed Fund
China Resources Gas	Asia Pacific Developing	Gas	0.32%	Commodity exposure

Source: RARE Infrastructure analysis, index providers.

MSCI World Core Infrastructure

Name	Region	Sector	Weight	Reason for Exclusion
Hong Kong & China Gas	Asia Pacific Developing	Gas	2.22%	Commodity and upstream exposure
UGI	USA & Canada	Gas	1.25%	Significant competitive midstream exposure
Macquarie Infrastructure	USA & Canada	Multi	1.12%	Managed Fund
Osaka Gas	Asia Pacific Developed	Gas	1.04%	Commodity and upstream exposure
Engie	Western Europe	Electric	0.94%	Generation wholesale market exposure
Public Service Enterprise	USA & Canada	Electric	0.93%	Merchant generation exposure
Enel	Western Europe	Electric	0.83%	Generation wholesale market exposure
Exelon	USA & Canada	Electric	0.76%	Generation wholesale market exposure
E.ON	Western Europe	Electric	0.73%	Generation wholesale market exposure
OneOK	USA & Canada	Gas	0.66%	Midstream commodity exposure

Source: RARE Infrastructure analysis, index providers.

Please refer to the important information on the final page.

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FTSE Global Core Infrastructure 50/50

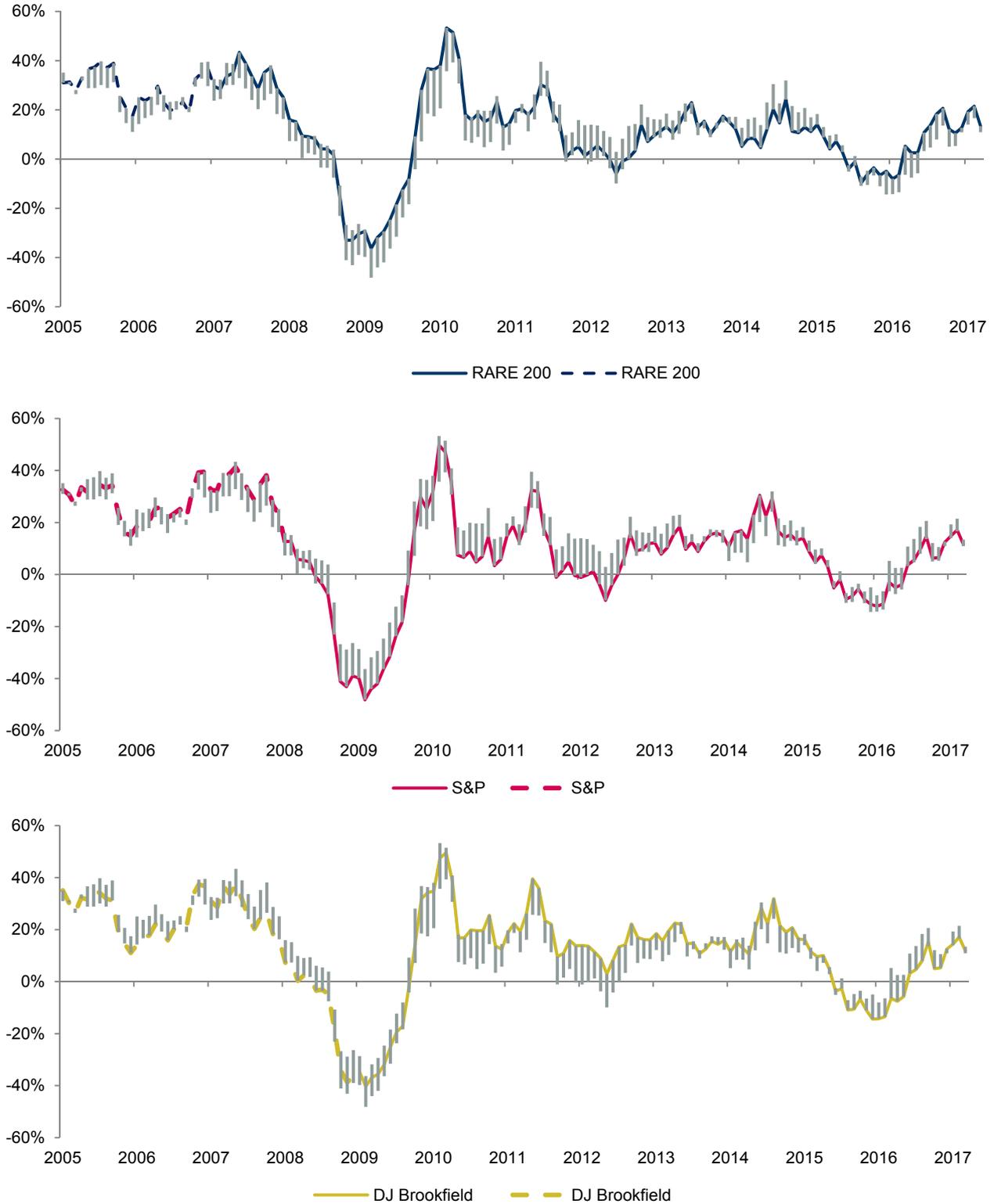| Name	Region	Sector	Weight	Reason for Exclusion
Public Service Enterprise	USA & Canada	Electric	1.08%	Merchant generation exposure
Macquarie Infrastructure	USA & Canada	Multi	1.06%	Managed Fund
Hong Kong & China Gas	Asia Pacific Developing	Gas	0.72%	Commodity and upstream exposure
Centrica	Western Europe	Gas	0.71%	Electricity generation and supply market exposure
CenterPoint Energy	USA & Canada	Electric	0.56%	Significant competitive midstream exposure
OneOK	USA & Canada	Gas	0.56%	Midstream commodity exposure
Chubu Electric	Asia Pacific Developed	Electric	0.45%	Electricity generation and supply market exposure
Inter Pipeline	USA & Canada	Gas	0.45%	Commodity exposure
Kansai Electric	Asia Pacific Developed	Electric	0.43%	Electricity generation and supply market exposure
Osaka Gas	Asia Pacific Developed	Gas	0.36%	Commodity and upstream exposure

Source: RARE Infrastructure analysis, index providers.
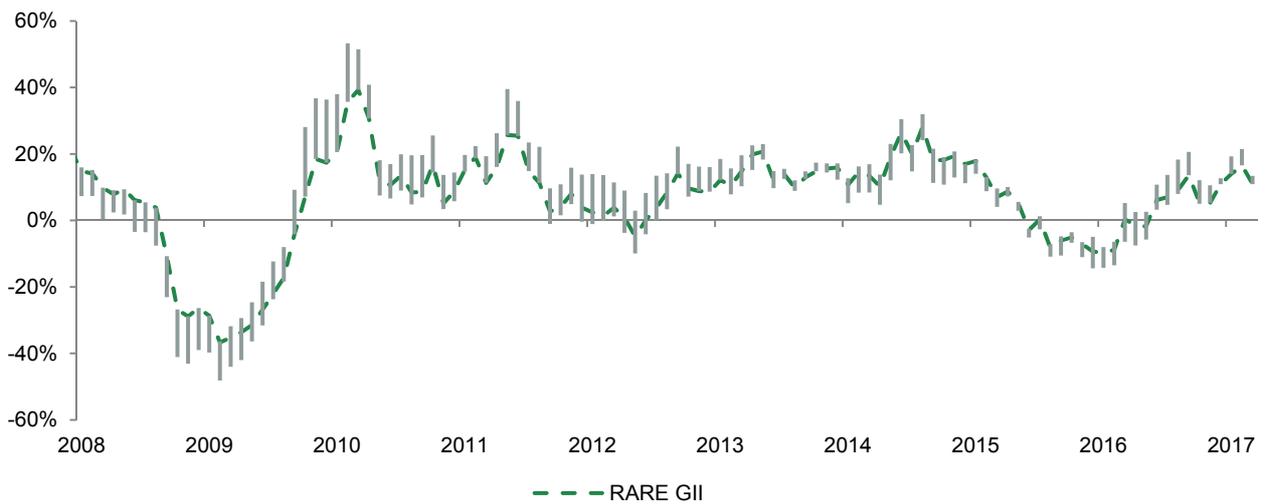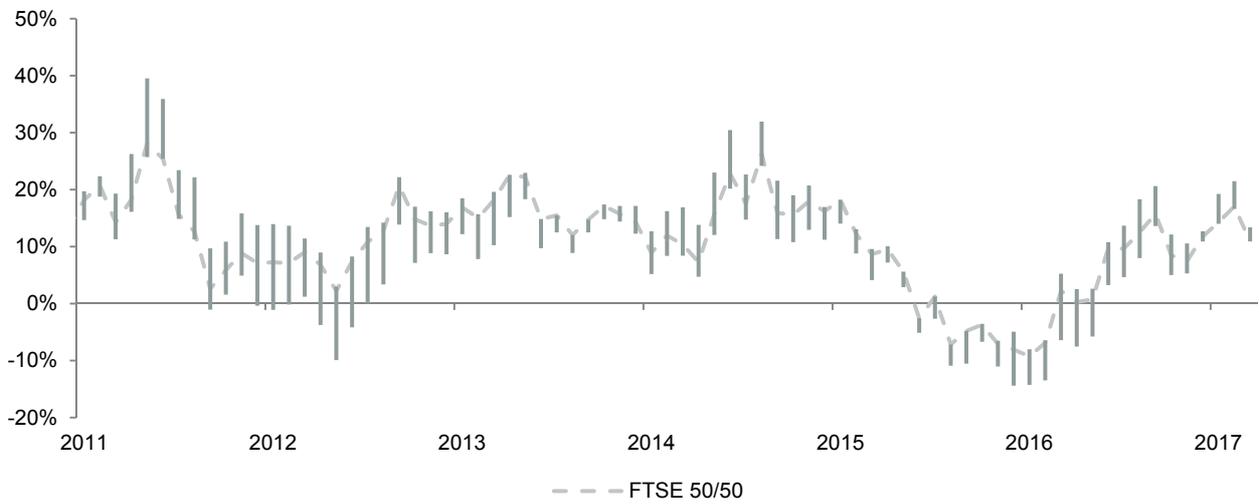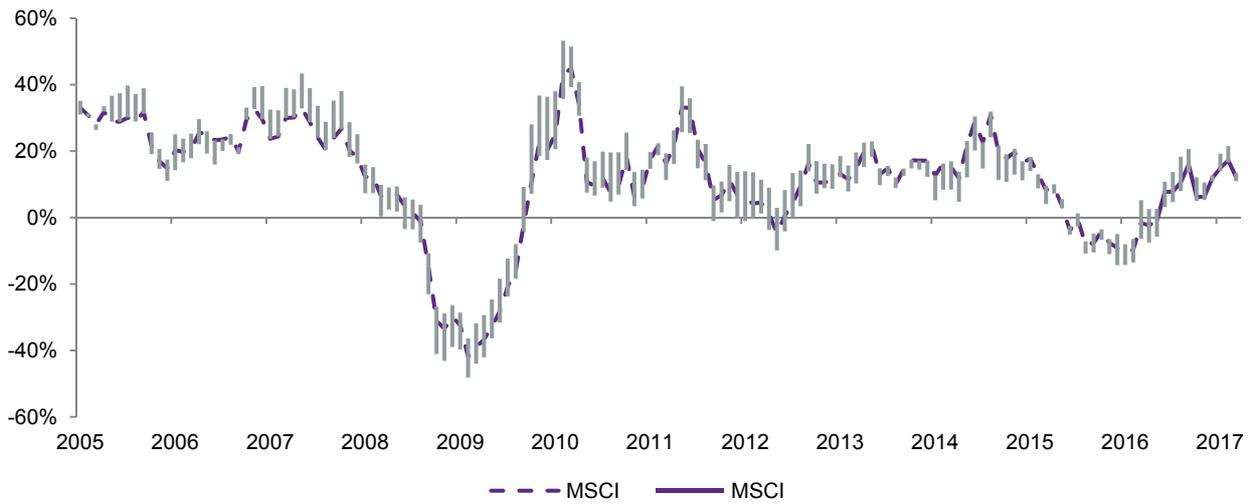
RARE Global Infrastructure Index

Name	Region	Sector	Weight	Reason for Exclusion
Enel	Western Europe	Electric	1.56%	Generation wholesale market exposure
Exelon	USA & Canada	Electric	1.05%	Generation wholesale market exposure
Engie	Western Europe	Electric	0.87%	Generation wholesale market exposure
Centrica	Western Europe	Gas	0.66%	Electricity generation and supply market exposure
Public Service Enterprise	USA & Canada	Electric	0.57%	Merchant generation exposure
Inter Pipeline	USA & Canada	Gas	0.48%	Commodity exposure
AltaGas	USA & Canada	Gas	0.39%	Commodity exposure
OneOK	USA & Canada	Gas	0.36%	Midstream commodity exposure
CenterPoint Energy	USA & Canada	Electric	0.32%	Significant competitive midstream exposure
Chubu Electric	Asia Pacific Developed	Electric	0.30%	Electricity generation and supply market exposure

Source: RARE Infrastructure analysis, index providers.

Please refer to the important information on the final page.

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Appendix C. Performance of global infrastructure indices

Figure 9. Rolling 12-month performance of global infrastructure indices

Please refer to the important information on the final page.

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Source: As at 31 March 2017. RARE analysis of FactSet data. See references for index codes.

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Factors leading to likely relative outperformance of main global infrastructure indices, with examples

	RARE 200	S&P	DJ Brookfield	FTSE	MSCI	RARE GII
Emerging Markets	2006-08, 2016	2006-08, 2016				
US Dollar			2014-15			
Europe		2014				
Japan				2013-14	2013-14	2013-14
Commodities			2012-13			
Defensive	2008-09, 2016			2016	2008-09, 2016	2008-09, 2016
General Equities		2010, 2014				
Communications	2012-13		2012-13		2012-13	
Rail				2013-14		2013-14

Source: RARE Infrastructure analysis.

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