

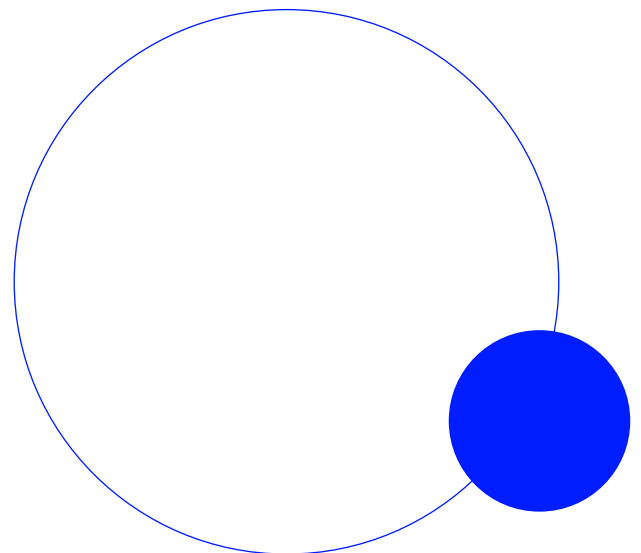
Potential Enhancements to the FTSE Global Core Infrastructure 50/50 Index

October 2023



Overview

FTSE Russell is consulting index users on potential enhancements to the FTSE Global Core Infrastructure 50/50 Index, and confirmation that the proposed changes do not conflict with investor views such that the FTSE Global Core Infrastructure 50/50 Index remains consistent with the aims of the investment objectives.



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Introduction

FTSE Russell is consulting index users on potential enhancements to the FTSE Global Core Infrastructure 50/50 Index, and confirmation that the proposed changes do not conflict with investor views such that the FTSE Global Core Infrastructure 50/50 Index remains consistent with the aims of the investment objectives.

Infrastructure, as an asset class, has several key characteristics:

- **More stable returns** – companies operate in highly regulated industries that provide essential services to the community. Often the companies have pricing power that tends to be more resilient and stable than the broader equities market.
- **Diversification benefits** – often infrastructure asset have different characteristics to mainstream asset classes enabling the investments to diversify some of the risks in a multi-asset portfolio.
- **Better protection from inflation** – the price of products and services are often determined by regulators, governments or written into long-term contracts. The usage rates are typically linked to inflation, allowing regular increases commensurate with increases in the cost of living.

As an index provider, FTSE Russell aims to offer a transparent rule set that upholds the purity of a global infrastructure investment with low stock concentration, geographic and sector diversification, low beta and relatively low correlation to global equities.

Mindful of the characteristics of the asset class, the index objectives and the recent compositional changes described below, FTSE Russell would like the view of index users on whether the following methodology changes are necessary and appropriate:

- Adjusting the capping methodology with a view to improving index diversification across the opportunity set of infrastructure sectors,
- Modifying the liquidity thresholds, and
- Addressing any perceived concentration risk between Developed and Emerging Markets.

Responding to the consultation

The proposals set out in this consultation document are included in order to gather feedback and may or may not result in changes to our indexes or data solutions.

Index users and other stakeholders are invited to respond by Tuesday 31 October 2023. The responses will be reviewed by the FTSE Russell Product Governance Board and an update on FTSE Russell's proposed approach will be communicated by via a client notice.

Please submit your response to the questions included in this consultation online at <https://www.surveymonkey.co.uk/r/Z2XVZ2P>

All responses will be treated as confidential. FTSE Russell may publish a summary of the consultation results, but no individual responses will be published and no respondents will be named.

If you have any questions about this survey, or if you encounter any technical issues, please contact committeesecretary@ftserussell.com.

Simulated Results

To assist in answering the consultation questions below, some of the simulated results, assuming adoption of the potential methodology enhancements, have been included as Appendix I, II and III.

Primary areas considered for index methodology enhancement

The FTSE Global Core Infrastructure 50/50 Index was launched March 2015 and applies sector weight targets to the uncapped FTSE Global Core Infrastructure Index, which was launched March 2011. Market cap weighted or the uncapped weighting is effective in most cases for representing the overall opportunity set of an asset class, for global infrastructure it resulted in distortions for a balanced allocation. This included a high regional weight of North America and low weighting of transportation sector. The 50/50 index addressed these distortions through capping and is the main distinction compared to the FTSE Global Core Infrastructure Index. It should be noted that the proposed changes will result in further deviation through capping of emerging market weight and a higher liquidity threshold.

The aim of the FTSE Global Core Infrastructure 50/50 Index is to give participants an industry-defined interpretation of infrastructure, but to adjust the exposure to certain infrastructure sub-sectors. The constituent weights for these indices are adjusted as part of the semi-annual review according to three broad industry sectors – 50% Utilities, 30% Transportation including 7.5% for Railroads/Railways and a 20% mix of other sectors including Pipelines, Satellites, and Telecommunication towers. Company weights within each group are adjusted in proportion to their investable market capitalisation.

The FTSE Global Core Infrastructure 50/50 Index market composition has evolved, especially in recent years, with the reclassification of Russia from an Emerging Market to Unclassified. This has resulted in an increase in the weights of other emerging countries such as India, China, and Mexico. Additionally, due to the cap on certain sectors pushing down the weights of developed countries like Canada, Australia, Japan, and the UK, Railroads has been notably impacted. In addition to addressing emerging countries and sector concentration, FTSE Russell also proposes the implementation of an additional liquidity screen to promote investability across the index.

Potential index methodology enhancements and consultation questions

1. Increase Railroads and Travel & Tourism subsector weight target from 7.5% to 12.5%.

Rational: The sector targets on two, rather than more, sectors, emanates from the original index design. The proposal is to retain the limit to these two sectors only, and to suggest an increase from 7.5% to 12.5%, based on two primary considerations:

- Client feedback to date has been supportive of limiting the capping to as few ICB subsectors as possible, but with general agreement that the capping of Railroads and Travel & Tourism is reasonable, and
- Changes to the methodology should be minimized to preserve the relevance of the historical performance and minimize turnover.

Due to the weight target/capping of the Industry Classification Benchmark (ICB) subsectors Railroads and Travel & Tourism at 7.5% - the Railroads sector is reduced significantly to 7.30% compared to an exposure of 18.29% in the FTSE Global Core Infrastructure Index. Consequently, the Transportation Services sector has been upweighted to 22.76% compared to 5.67% in the FTSE Global Core Infrastructure Index. The tables below provide further details of the high-level weight target approach and the comparative weights of all qualifying ICB infrastructure subsectors.

ICB SUBSECTOR	CODE	Current Weight Target	Proposed Weight Target
Utilities			
Alternative Electricity*	65101010	50%	50%
Conventional Electricity	65101015		
Gas Distribution	65102020		
Multi-utilities	65102000		
Water	65102030		
Transportation		30%	30%
Construction	50101010	22.5%	17.5%
Transportation Services	50206060		
Railroads	50206020		
Travel & Tourism	40501015		
Others			
Infrastructure REITs	35102025	20%	20%
Pipelines	60101035		
Telecommunications Equipment	15101010		
Telecommunications Services	15102015		

*Eligible from the September 2023 index review: [getnotice \(ftserussell.com\)](https://www.ftserussell.com/getnotice)

ICB Subsector Breakdown – FTSE Global Core Infrastructure 50/50

ICB Code	ICB Subsector	FTSE Global Core Infrastructure 50/50		FTSE Global Core Infrastructure		Diff %
		No. of Cons	Wgt %	No. of Cons	Wgt %	
15101010	Telecommunications Equipment	7	0.35	7	0.41	-0.06
15102015	Telecommunications Services	13	1.72	13	2.02	-0.30
35102025	Infrastructure REITs	5	5.87	5	6.88	-1.02
40501015	Travel and Tourism	1	0.02	1	0.05	-0.03
50101010	Construction	1	0.36	1	0.09	0.27
50206020	Railroads	15	7.57	15	18.87	-11.29
50206060	Transportation Services	57	22.62	57	5.60	17.02
60101035	Pipelines	11	10.97	11	12.88	-1.90
65101015	Conventional Electricity	68	33.31	68	35.39	-2.08
65102000	Multi-utilities	13	10.12	13	10.47	-0.35
65102020	Gas Distribution	30	3.99	30	4.14	-0.14
65102030	Water	22	3.09	22	3.19	-0.11
Totals		243	100.00	243	100.00	

Source: FTSE Russell, data as of June 30, 2023.

Questions

- Are you supportive of limiting the capping to as few ICB subsectors as possible, thus enabling the index to reflect more dynamically the make-up of the infrastructure opportunity set?

Yes

No

Please enter your comments here:

2. Given the mismatch between the ICB subsector exposures for Railroads and Travel & Tourism depicted above, do you have any objections to increasing the weight target from 7.5% to 12.5%?

Yes

No

Please enter your comments here:

3. Do you have any other comments/concerns about the sector make-up of FTSE Global Core Infrastructure 50/50 Index?

Please enter your comments here:

2. Require a US\$ 5 million Average Daily Trading Volume (ADTV) minimum for eligible constituents

Rational: The required replicability and tradability of the index is established through the application of an appropriate liquidity threshold at the stock level. Recent constituent evolution is seen to have reduced the overall liquidity of the index. FTSE Russell has run simulations to determine whether the current threshold should be increased to improve the liquidity of the index.

The 50/50 capping limitations inherent in the index design triggers the upweighting of several less-liquid constituents. Feedback has suggested that this has made the index increasing difficult to replicate.

Initial testing was based on an ADTV of US\$1mn, measured over 252 days. The aim of keeping the threshold relatively low was to maximize the investment opportunity set and minimizing tracking error against the current benchmark. However, a US\$1mn threshold did not sufficiently limit the inclusion of low liquidity stocks. Other thresholds were investigated, with an ADTV of US\$5mn appearing the best compromise level, with testing showing the resulting universe had a lower tracking error against the current benchmark, over most periods.

Potential Enhancements to the FTSE Global Core Infrastructure 50/50 Index

	FTSE Global Core Infrastructure Index %	FTSE Global Core Infrastructure 50/50	FTSE Global Core Infrastructure 50/50 Index (1 million USD minimum 252-days ADTV and 10% Emerging cap)	FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV and 10% Emerging cap)	FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV, 10% Emerging cap, Railroads and Travel & Tourism 12.5%)
Constituents	237	237	214	174	174

Source: FTSE Russell, data as of July 29, 2022.

Impact Analysis of the Potential Methodology Enhancement – Simulation Results

Index	1Y	*3Y	**5Y	**10Y	Since 16/03/2012
FTSE Global Infrastructure 50/50 Index (1 mn 252-d ADTV)	2.9	2.8	2.5	2.2	2.5
FTSE Global Core Infrastructure 50/50 Index (5mn 252-d ADTV, 10% EM cap, Railroads and Travel & Tourism 12.5%)	2.0	2.1	1.8	1.6	1.8
FTSE Global Infrastructure 50/50 Index (10% EM cap)	2.9	2.9	2.5	2.2	2.5
FTSE Global Infrastructure 50/50 Index	3.0	2.8	2.5	2.2	2.5

Questions

4. Are you supportive of increasing the liquidity threshold to ensure the replicability and tradability of the index is maintained?

- Yes
- No

Please enter your comments here:

5. Do you agree that that US\$ 5 million Average Daily Trading Volume (ADTV) minimum is reasonable to assess the eligibility of constituents, or do you believe that another threshold is more reasonably justified?

- Yes
 No

Please enter your comments here:

6. Do you have any other comments/concerns about applying a revised liquidity threshold to the FTSE Global Core Infrastructure 50/50 Index?

Please enter your comments here:

3. Apply a 10% cap on Emerging Markets weight

Rational: Since the inception of the **FTSE Global Core Infrastructure 50/50 Index**, the exposure to Emerging Market stocks within the index has typically been more than twice the weight of that in the FTSE Global Core Infrastructure Index, as shown in the table below. This has resulted in comparatively higher volatility, due to greater exposure to Emerging Market stocks as well as Emerging Market currencies versus the base currency of benchmark.

Emerging weight comparison – FTSE Global Core Infrastructure 50/50 Index vs. FTSE Global Core Infrastructure (uncapped) Index – as of end of October 2015 vs. end of July 2023.

July 2023	Sum of %Wt FTSE Global Core Infrastructure 50/50 Index	Sum of %Wt FTSE Global Core Infrastructure Index
Developed	83%	92%
Emerging	17%	8%

October 2015	Sum of %Wt FTSE Global Core Infrastructure 50/50 Index	Sum of %Wt FTSE Global Core Infrastructure Index
Developed	89%	95%
Emerging	11%	5%

FTSE Russell has received recent feedback that the continued growth in Emerging Market exposure, as a proportion of the index, is concerning, and that a cap should be set that results in the index having a more representative weight for these developing economies.

It should be noted that the potential rule changes suggested in sections 1 and 2 above, do not act to materially reduce the deviation between the Emerging Market weights of FGCIICU versus FGCII.

Several prospective caps were investigated, including a 10%, 12% and 14% cap applied to the Emerging Market component. When running historic simulations, the 10% cap, which is closest to the underlying Emerging Markets weight, in conjunction with US\$5m liquidity threshold and 12.5% capping on the Railroads and Travel & Tourism ICB subsectors, is seen to have the lowest tracking error.

[Questions](#)

7. Are you supportive of applying a cap to ensure the Emerging Market exposure within FGCIICU, more appropriately reflects the underlying exposure of these developing economies?

Yes

No

Please enter your comments here:

8. Do you agree that 10% is an appropriate cap or do you believe that another cap value is more reasonably justified?

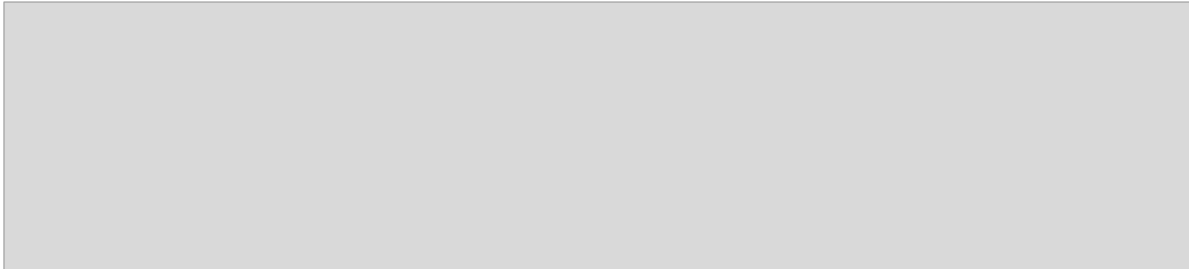
Yes

No

Please enter your comments here:

9. Do you have any other comments/concerns about the Developed/Emerging Market mix within the FTSE Global Core Infrastructure 50/50 Index?

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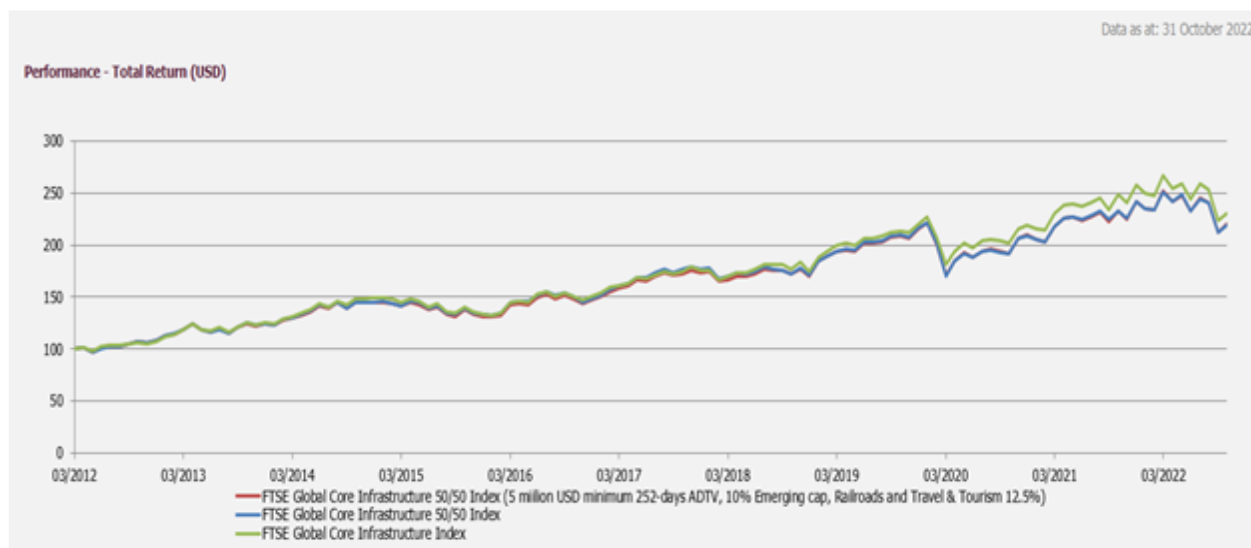


Appendix I

Impact Analysis of the Potential Methodology Enhancement

Simulation Results

	Sum of %Wt FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV, 10% Emerging cap, Railroads and Travel & Tourism 12.5%)	Sum of %Wt FTSE Global Core Infrastructure 50/50 Index	Sum of %Wt FTSE Global Core Infrastructure Index
Developed	90%	84%	93%
Emerging	10%	16%	7%



Cumulative Performance – Total Return (USD)

Data as at: 31 October 2022

Index	Cumulative Return (%)								
	1M	3M	6M	YTD	1Y	3Y	5Y	10Y	Since 16/03/2012
FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV,	3.5	-10.1	-9.1	-9.0	-5.5	5.2	27.4	106.0	119.4
FTSE Global Core Infrastructure 50/50 Index	3.4	-10.0	-9.4	-9.3	-5.8	4.5	24.6	105.7	119.0
FTSE Global Core Infrastructure Index	3.0	-10.9	-9.4	-10.7	-7.3	7.9	31.7	116.9	129.6

Potential Enhancements to the FTSE Global Core Infrastructure 50/50 Index

Year-on-Year Performance – Total Return (USD)

Index	Year-on-Year Return (%)								
	2021	2020	2019	2018	2017	2016	2015	2014	2013
FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV,	15.5	-3.0	26.9	-2.1	18.1	12.4	-9.2	16.1	14.6
FTSE Global Core Infrastructure 50/50 Index	15.7	-3.3	26.1	-3.2	19.3	11.8	-8.0	16.2	14.3
FTSE Global Core Infrastructure Index	17.8	-0.7	26.3	-0.9	16.9	13.1	-10.6	18.9	17.1

Annualised Performance and Volatility – Total Return (USD) Data as at: 31 October 2022

Index	Annualised Return (%)					Volatility (%pa)				
	1Y	3Y	5Y	10Y	Since 16/03/2012	1Y	*3Y	**5Y	**10Y	Since 16/03/2012
FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV,	-5.5	1.7	5.0	7.5	7.4	14.9	19.6	15.3	12.8	13.4
FTSE Global Core Infrastructure 50/50 Index	-5.8	1.5	4.5	7.5	7.4	14.4	19.3	15.1	12.8	13.1
FTSE Global Core Infrastructure Index	-7.3	2.6	5.7	8.0	7.9	15.6	19.3	14.9	12.5	13.5

* Based on weekly data ** Based on monthly data

Return/Risk Ratio and Drawdown – Total Return (USD)

Index	Return/Risk Ratio					Drawdown (%)				
	1Y	*3Y	**5Y	**10Y	Since 16/03/2012	1Y	3Y	5Y	10Y	Since 16/03/2012
FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV,	-0.4	0.1	0.3	0.6	0.6	-20.4	-36.7	-36.7	-36.7	-36.7
FTSE Global Core Infrastructure 50/50 Index	-0.4	0.1	0.3	0.6	0.6	-20.4	-36.8	-36.8	-36.8	-36.8
FTSE Global Core Infrastructure Index	-0.5	0.1	0.4	0.6	0.6	-20.6	-35.3	-35.3	-35.3	-35.3

* Based on weekly data ** Based on monthly data

Potential Enhancements to the FTSE Global Core Infrastructure 50/50 Index

Relative Return Characteristics – Total Return (USD) Data as at: 31 October 2022

Index	Tracking Error (%pa)					Information Ratio				
	1Y	*3Y	**5Y	**10Y	Since 16/03/2012	1Y	*3Y	**5Y	**10Y	Since 16/03/2012
FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV,	2.0	2.1	1.8	1.6	1.8	1.0	-0.4	-0.4	-0.3	-0.2
FTSE Global Core Infrastructure 50/50 Index	3.2	2.8	2.5	2.2	2.5	0.5	-0.4	-0.4	-0.2	-0.2

* Based on weekly data ** Based on monthly data

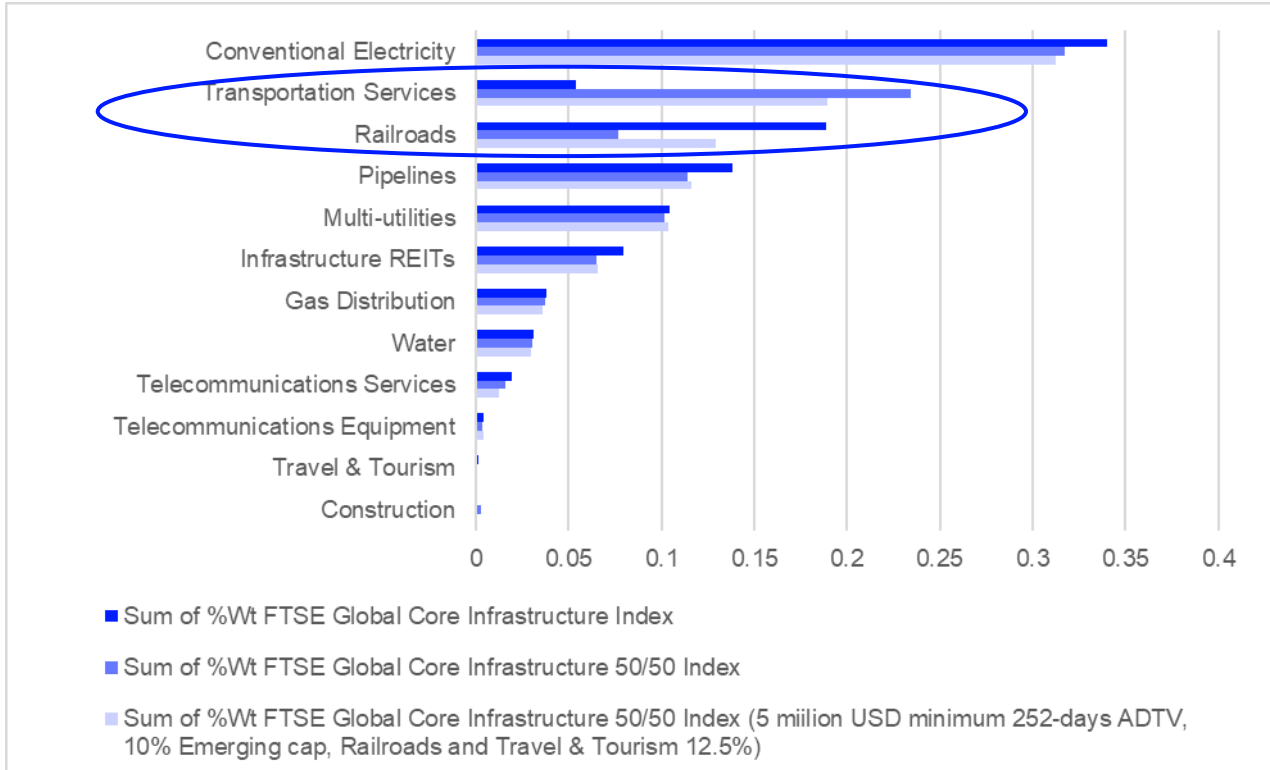
Index	Beta					Correlation				
	1Y	*3Y	**5Y	**10Y	Since 16/03/2012	1Y	*3Y	**5Y	**10Y	Since 16/03/2012
FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV,	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
FTSE Global Core Infrastructure 50/50 Index	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

* Based on weekly data ** Based on monthly data

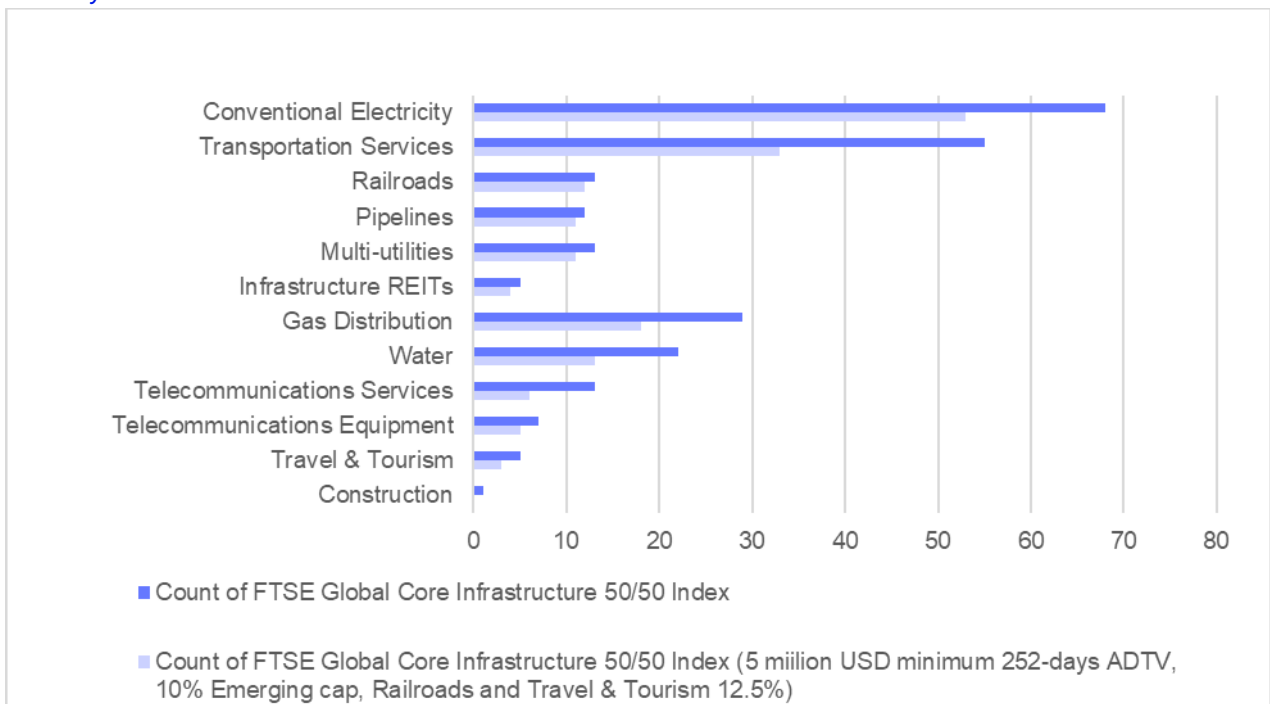
FTSE Global Core Infrastructure Index is used as the benchmark for relative return analysis

Appendix II

Weight by ICB Subsector



Count by ICB Subsector



Appendix III

Constituent Analysis

10. The application of the additional proposed rules deletes 74 holdings, leaving 169 constituents (from 243 constituents) based on analysis as of October 2022.

Snapshot of largest 20 constituents in the simulated index

SEDOL	Constituent Name	Country	Difference	Weight in FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV, 10% Emerging cap, Railroads and Travel & Tourism 12.5%) %	Weight in FTSE Global Core Infrastructure 50/50 Index %	Weight in FTSE Global Core Infrastructure Index %
2328915	NextEra Energy Inc	USA	-0.08	4.90	4.97	6.48
6200882	Transurban Group	Australia	-0.25	4.55	4.81	1.11
2914734	Union Pacific Corp	USA	1.48	3.62	2.15	5.27
B7FBFL2	American Tower Corp	USA	0.07	3.44	3.36	4.09
B7VD3F2	Duke Energy Corp	USA	0.07	3.04	2.97	3.05
2829601	Southern Co	USA	0.07	2.95	2.88	2.96
2466149	Enbridge	Canada	0.06	2.82	2.76	3.35
2542049	Dominion Energy	USA	0.06	2.47	2.41	2.48
2180632	Canadian National Railway	Canada	0.87	2.13	1.26	3.09
7667163	Atlantia	Italy	-0.12	2.09	2.21	0.51
BTGQCX1	Crown Castle Inc	USA	0.04	2.05	2.01	2.45
2793115	Canadian Pacific Railway	Canada	0.83	2.02	1.20	2.94
2138158	Sempra	USA	0.05	2.01	1.97	2.02
2026242	American Elec Power Com	USA	0.04	1.92	1.87	1.92
2160753	CSX Corp	USA	0.74	1.82	1.08	2.65
BDFLHW9	Airports of Thailand	Thailand	0.20	1.74	1.54	0.35
BDR05C0	National Grid	United Kingdom	0.04	1.69	1.65	1.69
BJMY6G0	TC Energy	Canada	0.03	1.58	1.55	1.89
2654364	Cheniere Energy	USA	0.03	1.57	1.53	1.87
2641894	Norfolk Sthn Corp	USA	0.64	1.56	0.93	2.27

Two-way Turnover (%)

11. One time two-way turnover equal is estimated at 15.75% for the aggregate impact of the proposed enhancement.
12. Two-way turnover increases on average 1.89% at semi-annual reviews in March and September over the full period examined, since September 2012 through September 2022.

Date	FTSE Global Core Infrastructure 50/50 Index (5 million USD minimum 252-days ADTV, 10% Emerging cap, Railroads and Travel & Tourism 12.5%)	FTSE Global Core Infrastructure 50/50 Index	FTSE Global Core Infrastructure Index
24/09/2012	11.91	0.40	0.36
18/03/2013	12.38	10.85	8.68
23/09/2013	5.84	0.34	0.41
24/03/2014	15.83	14.69	10.20
22/09/2014	9.62	7.25	2.30
23/03/2015	13.91	16.34	4.60
21/09/2015	9.81	8.97	2.77
21/03/2016	26.01	22.78	17.23
19/09/2016	12.86	10.23	4.87
20/03/2017	6.27	4.07	1.35
18/09/2017	6.60	5.54	0.41
19/03/2018	5.59	7.61	0.77
24/09/2018	11.00	10.89	2.59
18/03/2019	3.86	1.92	0.90
23/09/2019	4.81	4.03	1.51
23/03/2020	9.29	10.39	2.34
21/09/2020	10.23	6.33	1.94
22/03/2021	4.95	4.98	0.88
20/09/2021	10.10	8.93	2.15
21/03/2022	4.36	5.66	2.13
19/09/2022	9.89	3.13	0.82
Average	9.77	7.87	3.30

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Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

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