Global unlisted infrastructure equity (Local returns)

The Global unlisted infrastructure equity, value-weighted (local) is a value-weighted representation of the Global unlisted infrastructure equity market. It covers all investable infrastructure sectors. Index constituents include all business models. They include both infrastructure projects (SPVs) and corporates. As of 2019-12-31 the index had a total market capitalisation of USD 348.37 bn, representing 512 firms. Since inception, a total of 623 firms have been included in this index.

FEATURES

Coverage
Constituents are selected to create a representative sample of the private investable infrastructure market in most major markets globally.

Objective
The index and subindices are designed to capture the dynamics of the global private infrastructure market: they measure payout and interest rate risk and reflect the evolution of investors’ risk preferences (required risk premia) over time.

Investability
EDHECinfra broad market indices are not directly investible.

Transparency
EDHECinfra universe construction and index computation rules, constituents and downloadable index data are freely available at indices.edhecinfra.com.

Availability
EDHECinfra broad market indices and subindices are presented in USD. They are also available in local currency, GBP, EUR, JPY, CAD and AUD.

Classifications
EDHECinfra indices and sub-indices are categorised according to the taxonomy and rationale described in Amenc and Blanc-Brude (2018).

Key Index Metrics

<table>
<thead>
<tr>
<th>This Quarter</th>
<th>1Y ago</th>
<th>3Y ago</th>
<th>5Y ago</th>
<th>10Y ago</th>
<th>4Q high</th>
<th>4Q low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index Value</td>
<td>5228</td>
<td>4684</td>
<td>4202</td>
<td>3656</td>
<td>1602</td>
<td>5367</td>
</tr>
<tr>
<td>Yield-to-maturity</td>
<td>5.36%</td>
<td>5.83%</td>
<td>6.35%</td>
<td>7.14%</td>
<td>11.48%</td>
<td>5.77%</td>
</tr>
<tr>
<td>Duration</td>
<td>16.3 years</td>
<td>16.2 years</td>
<td>15.8 years</td>
<td>13.8 years</td>
<td>9.3 years</td>
<td>16.3 years</td>
</tr>
<tr>
<td>P/Book</td>
<td>1.461</td>
<td>1.564</td>
<td>1.588</td>
<td>1.397</td>
<td>1.273</td>
<td>1.532</td>
</tr>
<tr>
<td>P/Sales</td>
<td>2.646</td>
<td>2.836</td>
<td>2.964</td>
<td>2.387</td>
<td>2.022</td>
<td>2.769</td>
</tr>
</tbody>
</table>

Index value is set to 1000 in 2005; reported yield-to-maturity is duration-weighted; reported duration is the modified duration; reported expected loss is given as a proportion of market value; ‘investment grade’ is defined as having a probability of default below 0.5%; reported value-at-risk is the 99.5% quantile.

Source: EDHECinfra 2019. Past performance is no guarantee of future results. Please see disclaimer for important legal information.

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Abhishek Gupta
Global unlisted infrastructure equity - Basic information

Index Name
Global unlisted infrastructure equity, value-weighted (local)

Bloomberg Ticker
- 

EDHECinfra Index Code
7b2b5605-6141914a

Current constituents
512

Index Universe
Equity

Currency
LCL

Asset Selection
All sectors; all business models; all corporate structures;

Weights
Market Weights

Index Launch
31 June 2019

Review Dates
31 December, 30 March, 30 June, 31 September

Base Value
1000 in 2005

Current Index Value
5227.79

Current USD Capitalisation
USD348.37bn

12-month Turnover
New entrants: 7
Exits: 4

Fundamental Research
EDHEC Infrastructure Institute
### Top 10 Weights

<table>
<thead>
<tr>
<th>Constituent Code</th>
<th>Name</th>
<th>Country</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1724549011211</td>
<td>FGP TOPCO LIMITED</td>
<td>United Kingdom</td>
<td>8.009%</td>
</tr>
<tr>
<td>1430639000049</td>
<td>SÖHERTZ TRANSMISSION GMBH</td>
<td>Germany</td>
<td>5.385%</td>
</tr>
<tr>
<td>1636339003469</td>
<td>AEROPORTS DE PARIS (GROUPE ADP)</td>
<td>France</td>
<td>5.1%</td>
</tr>
<tr>
<td>1636339002665</td>
<td>AUTOROUTES DU SU DÉ LA FRANCE</td>
<td>France</td>
<td>4.086%</td>
</tr>
<tr>
<td>1724549010927</td>
<td>UNITED UTILITIES LIMITED</td>
<td>United Kingdom</td>
<td>3.08%</td>
</tr>
<tr>
<td>1724549010937</td>
<td>SEVERN TRENT WATER LIMITED</td>
<td>United Kingdom</td>
<td>3.041%</td>
</tr>
<tr>
<td>1636609000026</td>
<td>ANA - AEROPORTOS DE PORTUGAL S.A.</td>
<td>Portugal</td>
<td>2.763%</td>
</tr>
<tr>
<td>1724549000274</td>
<td>THAMES WATER UTILITIES LIMITED</td>
<td>United Kingdom</td>
<td>2.703%</td>
</tr>
<tr>
<td>1724549001136</td>
<td>GATWICK AIRPORT LIMITED</td>
<td>United Kingdom</td>
<td>2.638%</td>
</tr>
<tr>
<td>1724549009578</td>
<td>YORKSHIRE WATER SERVICES LIMITED</td>
<td>United Kingdom</td>
<td>2.206%</td>
</tr>
</tbody>
</table>

This table lists the constituents with the ten largest weights in the index.

### New Constituents

<table>
<thead>
<tr>
<th>Constituent Code</th>
<th>Name</th>
<th>Country</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1430639001332</td>
<td>WALSUM 10 IPP SCHEME</td>
<td>Germany</td>
<td>0.1078%</td>
</tr>
<tr>
<td>1724549001135</td>
<td>SEMLOGISTICS MILFORD HAVEN</td>
<td>United Kingdom</td>
<td>0.0117%</td>
</tr>
<tr>
<td>1724549003025</td>
<td>NEW CARRINGTON POWER STATION</td>
<td>United Kingdom</td>
<td>0.1087%</td>
</tr>
<tr>
<td>1946459000094</td>
<td>SJISUKA WIND FARM</td>
<td>Sweden</td>
<td>0.0208%</td>
</tr>
<tr>
<td>1946459000102</td>
<td>YTTERBERG WIND FARM</td>
<td>Sweden</td>
<td>0.0059%</td>
</tr>
<tr>
<td>1946459000112</td>
<td>AMULIDEN WIND FARM</td>
<td>Sweden</td>
<td>0.0084%</td>
</tr>
<tr>
<td>2138339009383</td>
<td>SH 288 TOLL LANES EXPANSION</td>
<td>United States</td>
<td>0.0259%</td>
</tr>
</tbody>
</table>

This table lists constituents included in the index in the 3-months prior to this report's compilation date.

### Outgoing Constituents

<table>
<thead>
<tr>
<th>Constituent Code</th>
<th>Name</th>
<th>Country</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1336369000546</td>
<td>RUTA 5 TRAMO SANTIAGO - LOS VILOS</td>
<td>Chile</td>
<td>0.0022%</td>
</tr>
<tr>
<td>1430639000089</td>
<td>NETRA PIPELINE</td>
<td>Germany</td>
<td>0.0161%</td>
</tr>
<tr>
<td>172454900332</td>
<td>FIRST HYDRO COMPANY</td>
<td>United Kingdom</td>
<td>0.0061%</td>
</tr>
<tr>
<td>1724549010212</td>
<td>GLANFORD BRIGG CGGT POWER STATION</td>
<td>United Kingdom</td>
<td>0%</td>
</tr>
</tbody>
</table>

This table lists constituents removed from the index in the 3-months prior to this report’s compilation date.

### Share of Contribution (TICCS pillar 2) to 2019Q4 returns

[Graph showing contributions of various sectors to 2019Q4 returns]

Source: EDHECinfra 2019. Past performance is no guarantee of future results. Please see disclaimer for important legal information.
EDHECinfra indices and benchmarks aim to provide a representative, risk-adjusted view of the performance of investments in unlisted infrastructure equity and private debt. These indices respond to a clear demand on the part of asset owners and managers to have access to better measures of value and risk when defining and comparing infrastructure investment strategies, monitoring performance and setting risk budgets. In the 2019 EDHEC/GIH survey of infrastructure investors, 90% of respondents declared that their current choice of absolute or relative benchmarks were not representative and did not adequately measure risk and performance.

EDHECinfra produces calculated (as opposed to contributed) indices: our data and technology allows re-pricing hundreds of individual assets through time, using actual transaction prices to recalibrate expected returns (and discount rates). This approach uses market inputs, thus avoiding the smoothing of returns caused by appraisal valuations and providing a genuine fair value assessment of performance.

Unlike other private indices, which only report an average performance, EDHECinfra indices include the effect of diversification and provide advanced risk metrics such as volatility, value-at-risk and risk factor prices. The index calculation method is summarised below in four key steps.

Further details can be found in a series of in-depth documents available at edhec.infrastructure.institute.

**Step 1: A Representative Universe**

Universe construction uses systematic rules to identify principal markets (IFRS-13) and select individual companies. As of early 2019, the EDHECinfra Universe includes 25 countries and more than 5,000 firms.

- Minimum secondary/primary market activity ratio: 20%
- Minimum market size: 0.5% of the global deal flow
- Minimum data availability (Company name, size, dates)

**Step 2: A Standardised Database**

EDHECinfra collects company level data from public and private sources for all firms in the Sampled Universe according to the Global Infrastructure Investment Data Standard. The hundreds of firms included in the Sampled Universe represent millions of data points.

- Qualifying infrastructure companies (TICCS™)
- Events, attributes and physical data
- Financial structure
- Detailed financials
- Primary and secondary transactions

EDHECinfra data contributors follow a Data Contributor Code of Conduct, which also defines the minimum data required for contributions to be included in the database.
Step 3: Fair Value Asset Pricing

EDHECinfra produces fair value estimates for equity and senior debt instruments in each infrastructure firm in its Sampled Universe. The IFRS-13 fair value is the average price of a financial asset based on what buyers and sellers in any principal market are willing to pay at the time of evaluation.

In each period, excess returns are implied from the combination of actual transaction prices and dividend or senior debt payment forecasts. These expected returns represent the aggregate market price of risk for a cross-section of equity or debt investments at that point in time. They are then decomposed into multiple risk factor premia (e.g. the size or leverage risk premia) using a cross-sectional regression.

Each risk premia in a given period can then be applied to all relevant investments at that time, whether they are traded or not, using each company's 'factor loadings' (e.g. its actual size or leverage) to derive a market-implied discount rate for each investment.

Step 4: Risk-Adjusted Performance Indices

Individual constituents returns are computed in both local or major currencies and aggregated using different weighting schemes to compute quarterly index values. EDHECinfra indices use three weighting schemes.

We compute the return covariance of each pair of constituents in the Sampled Universe. This allows us to compute index risk metrics such as volatility, drawdown and value-at-risk. Filters are applied to the Sample Universe such as geography, sector or business model to create sub-index families.

Find out more at edhec.infrastructure.institute
About EDHECinfra

EDHECinfra is an independent research organisation delivering unique index data and analytics measuring the risk-adjusted performance of unlisted infrastructure investments.

The lack of risk-adjusted benchmarks Today, most investors have to use ad hoc benchmarks for their unlisted infrastructure investments. Some investors use an inflation rate plus a spread, others a measure of the average returns of an equally ad hoc selection of infrastructure projects. These benchmarks, whether they refer to absolute or relative returns, all have the same flaw: they take no account of risk.

Without robust measures of risk-adjusted performance, it is impossible to justify a choice of spread. Without a clear understanding of the representativeness of reported returns and of their covariance, existing ‘benchmarks’ fail to answer the most important question about the asset class: What is the risk-adjusted performance of private infrastructure debt or equity?

EDHECinfra exists to answer this question and build the market indices and benchmarks that investors need.

Building the largest database in the world We collect, clean and analyse private infrastructure investment data and have created the largest database of infrastructure investment data in the world today: a global repository of financial knowledge built to be representative of the investable market each year, going back 20 years.

Measuring risk in illiquid investments EDHECinfra has developed a series of models to estimate realised and future volatility, and measure risk and returns at the index constituent level.

For example, for a given unlisted equity infrastructure investment and its expected dividends, discount rates can be estimated to match the term structure of interest rates and dividend volatility and the aggregate price of risk, which can be implied from the value invested in this project and all other primary or secondary market transactions for assets with similar dividend volatility and maturity at that time. The range of expected returns at one point in time, which results from the range of observable transactions, thus measures the risk of this investment at that point in time.

About EDHEC Business School

EDHEC Business School, founded in 1906 and among the select few institutions to have garnered international recognition through the triple crown of EQUIS, AACSB and Association of MBAs accreditations, offers management education at under-graduate, graduate, post-graduate and executive levels designed to meet the needs of companies.

Its large range of international graduate programmes draws students from the world over. With its five campuses in Lille, Nice, Paris, London and Singapore, its 6,000 students, and its 134 full-time faculty and researchers, EDHEC has been ranked among the top international business schools for several years.

The Research for Business strategy is a key component of the school’s identity. Due to its not-for-profit aim, its financial independence and the time devoted to conducting research, the Research and Development Department contributes, as do other entities within the school, to the group’s strategic objectives of growing our resources, aiming to have a visible impact on business, and forging close ties with business wherever they may be located.

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