

# Infrastructure Debt Markets Performance Review: what drives the risk and returns of private infra debt? (and what it means for your portfolio)



**EDHEC***infra*

building benchmarks  
for infrastructure investors

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*Hong Kong, 14 November 2019*

# Agenda

- 1. Where is the data?**
- 2. Recent progress: EDHECinfra and TICCS**
- 3. What drives the spreads?**
- 4. Market indices and investor benchmarks**



building benchmarks  
for infrastructure investors

25 countries

600+ companies

2700+ credit instruments

20 years of track record

6 million datapoints



Pillar I: Business Risk
Contracted
Merchant
Regulated

Pillar II: Industrial Activity
Power x-Renewables
Environmental Services
Social Infrastructure
Energy & Water Resources
Data Infrastructure
Transport
Renewable Power
Network Utilities

Pillar III: Geo-Economic Exposure
Global Infrastructure companies
Regional Infrastructure companies
National Infrastructure companies
Subnational Infrastructure companies

Pillar IV: Corporate Governance
Project Companies
'Corporates'

# TICCS<sup>v</sup>

## The Infrastructure Company Classification Standard

# 2019 TICCS Annual Consultation: ended on Sep 30

## TICCS Review Committee

RICS - <i>Chair</i>	SOURCE	Office
Landmark Partners	Global Infrastructure Hub	CALSTRS
OTPP	ADB	LGIM
BlackRock	Swiss Life	Clifford Capital
Natixis	Aviva Investors	GRESB
OPTrust	New York City Comptroller's	

# TICCS<sup>v</sup>

## The Infrastructure Company Classification Standard

# Measuring performance: we need spread data...

- We **lack good comparators** (same problem than for unlisted infra equity but worse with almost zero secondaries..)
- **Current spreads?** (they are driven and biased by the current deal flow)
- How can we price instruments originated ten years ago when the market was very different?

# A solution: a multi-factor model of credit spreads

1

**BIASED**

Observable market spreads  $i$  at time  $t$

2

Factor model of spreads at time  $t$

$$y_i = \sum_k \beta_{k,i} \lambda_k + \omega_i$$

3

**UNBIASED** factor prices (premiums)  $\lambda_k$  at time  $t$

4

**Universe** of private instruments to be priced

Each instrument  $j$  has  $K$  factor loadings  $(\beta_{k,j})$  at time  $t$

5

**Market-implied** credit spreads for all instruments

# Which factors explain infrastructure credit spreads?

1. Liquidity (instrument size)
2. Credit risk (modelled distance to default)
3. Int. rate risk (approx. instrument duration)
4. Inflation risk (short-term rates)
5. + sector and business model control variables



# Debt model metrics



2,780 INSTRUMENTS  
IN THE UNIVERSE  
OVER 20 YEARS



5,000+ OBSERVED  
CREDIT SPREADS

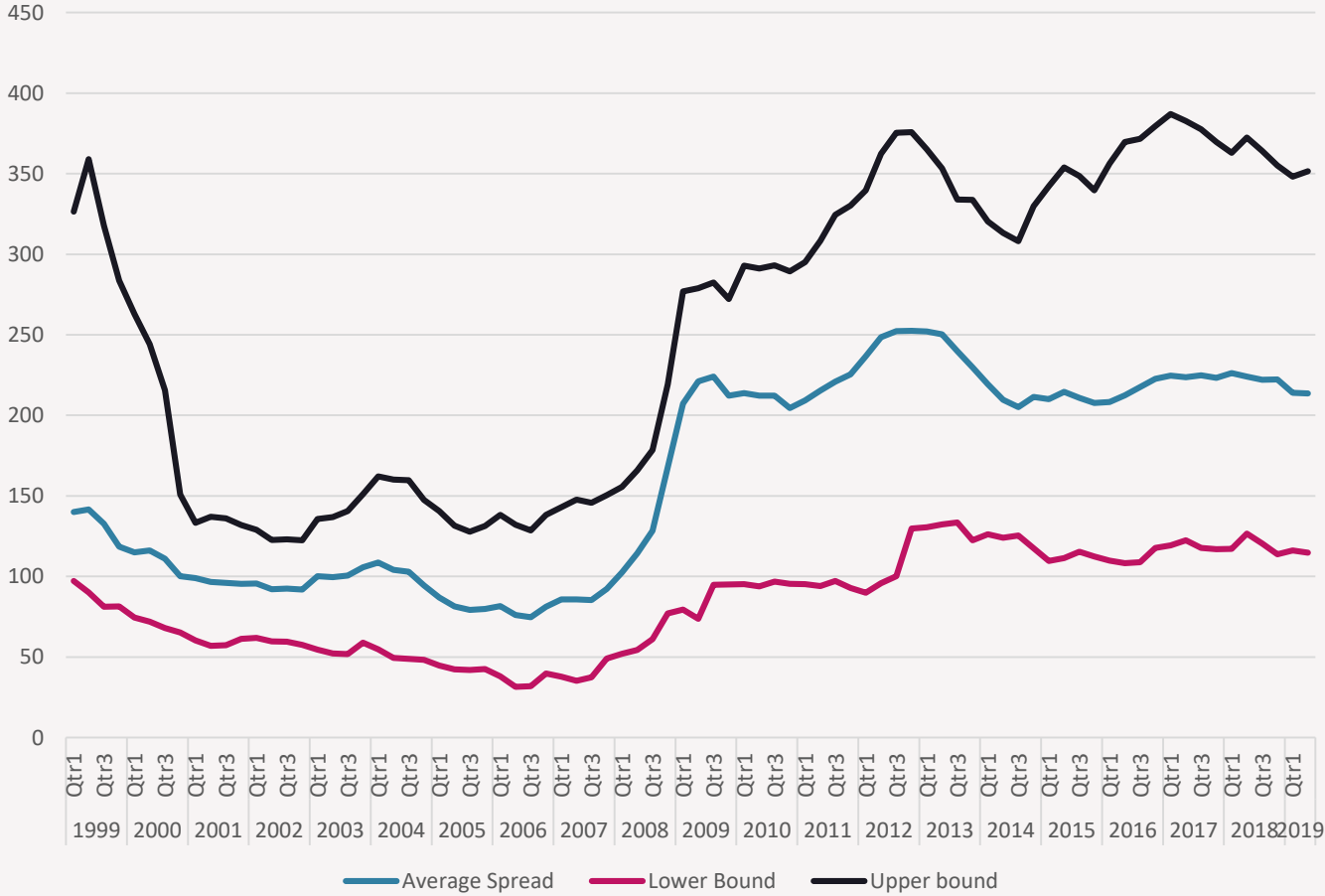


BACK-TEST: MODEL  
VS. ACTUAL SPREAD:  
+/-1%



MODEL RESIDUALS  
ARE UNCORRELATED  
AND SYMMETRICAL

# Average market-implied spreads in the EDHECinfra private debt universe 1999Q1-2019Q3



# A market index

EDHECinfra Index

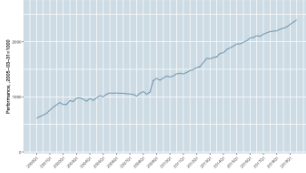
## Global private infrastructure debt (local returns)



Data as at 2019-09-30

The Global private infrastructure debt, value-weighted (local) index is a(n) market value-weighted representation of the Global Private Infrastructure Debt Market. It covers all investable infrastructure sectors (see definition). Index constituents include all business models. They include both infrastructure projects (PPAs) and corporate, multiple maturities, credit risk levels and currencies. As of 2019-09-30 the index had a total market capitalisation of USD321.59bn, representing 393 borrowers and 2,579 individual senior debt instruments. Since inception, a total of 3,008 individual instruments issued by 548 borrowers have been included in this index.

Total Return Index: 06/04/2000  
Global private infrastructure debt index family (LCL returns)  
(Index code: 06050140)



### Index Performance and Risk

	2000-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019
Total Returns	1.6%	6.2%	6.6%	4.2%	4.8%	12.2%
Excess Returns	1.3%	6.1%	5.8%	3.4%	3.8%	12.7%
Volatility	1.00%	2.07%	1.98%	2.18%	2.45%	3.88%
Sharpe Ratio	1.1	1.08	1.21	1.09	1.14	1.82
Value-at-Risk	0.93%	0%	0%	1.24%	1.41%	4.28%

Model volatility is estimated based on the price sensitivity and factors uncertainty. Sharpe ratio and Value-at-Risk are computed using the model volatility.

### Key Index Metrics

	2000-2009	2010-2011	2012-2013	2014-2015	2016-2017	2018-2019
Index Size	2,091	2,251	2,018	1,888	1,511	2,206
Yield-to-maturity	2.4%	3.8%	3.7%	4.4%	5.2%	3.6%
Duration	4.9 years	5.1 years	6 years	6.8 years	8.1 years	8.8 years
Expected loss	0.20%	0.23%	0.68%	0.20%	0.49%	0.72%
P/L Inv. Grade	91.6%	92.3%	9%	89.8%	88.7%	91.7%

Index value is set to 100 in 2000; 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 99.9% quartile.

### 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 investable.

#### Transparency

EDHECinfra universe construction and index computation rules, constituents and downloadable index data are freely available at [indices.edhecinfra.com](http://indices.edhecinfra.com).

#### Availability

EDHECinfra broad market indices and sub-indices are presented in USD. They are also available in local currency, GBP and EUR.

#### Classifications

EDHECinfra indices and sub-indices are categorised according to the taxonomy and rationale described in Annex and Blanc-Benon (2018).

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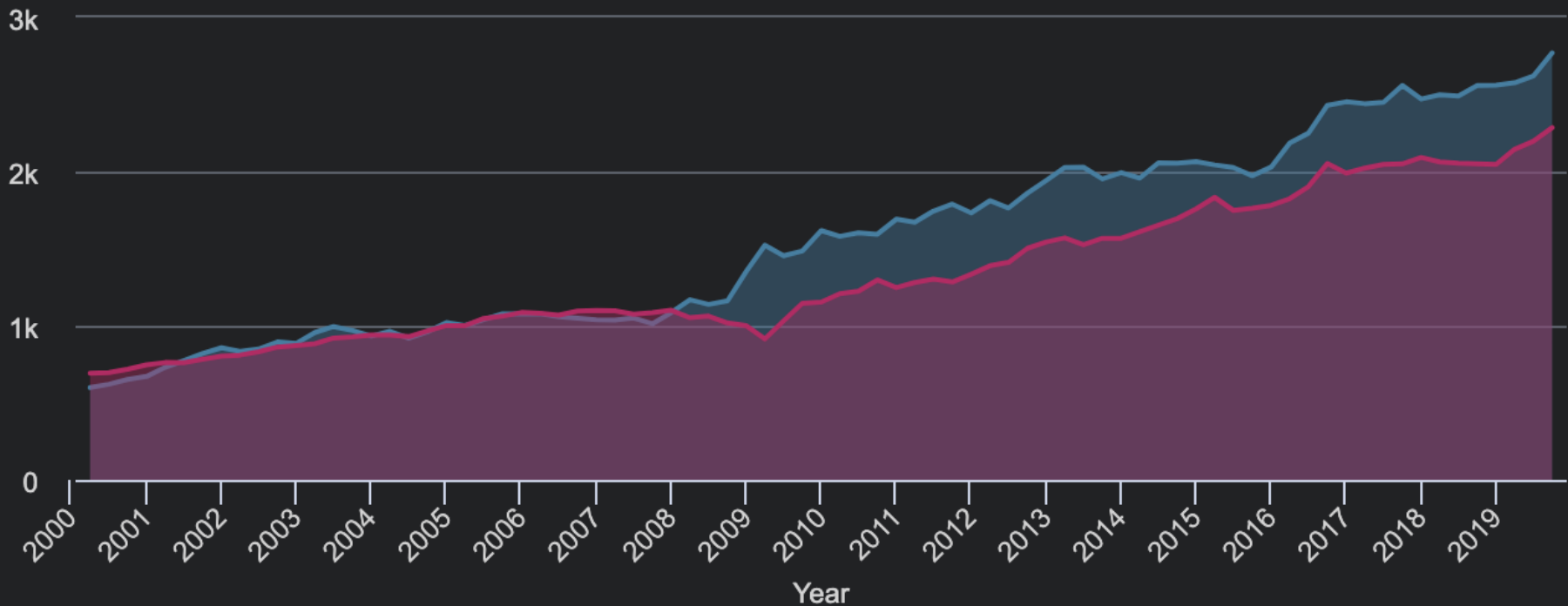
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- Quarterly publication
- USD321bn capitalisation
- 393 borrowers and 2,579 individual senior debt instruments
- Since inception: 3,008 individual instruments issued by 548 borrowers
- Available at [indices.edhecinfra.com](http://indices.edhecinfra.com) in multiple reporting currencies

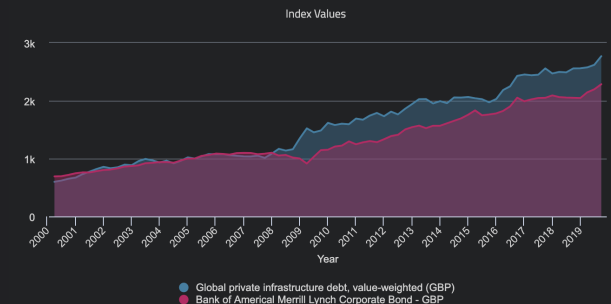
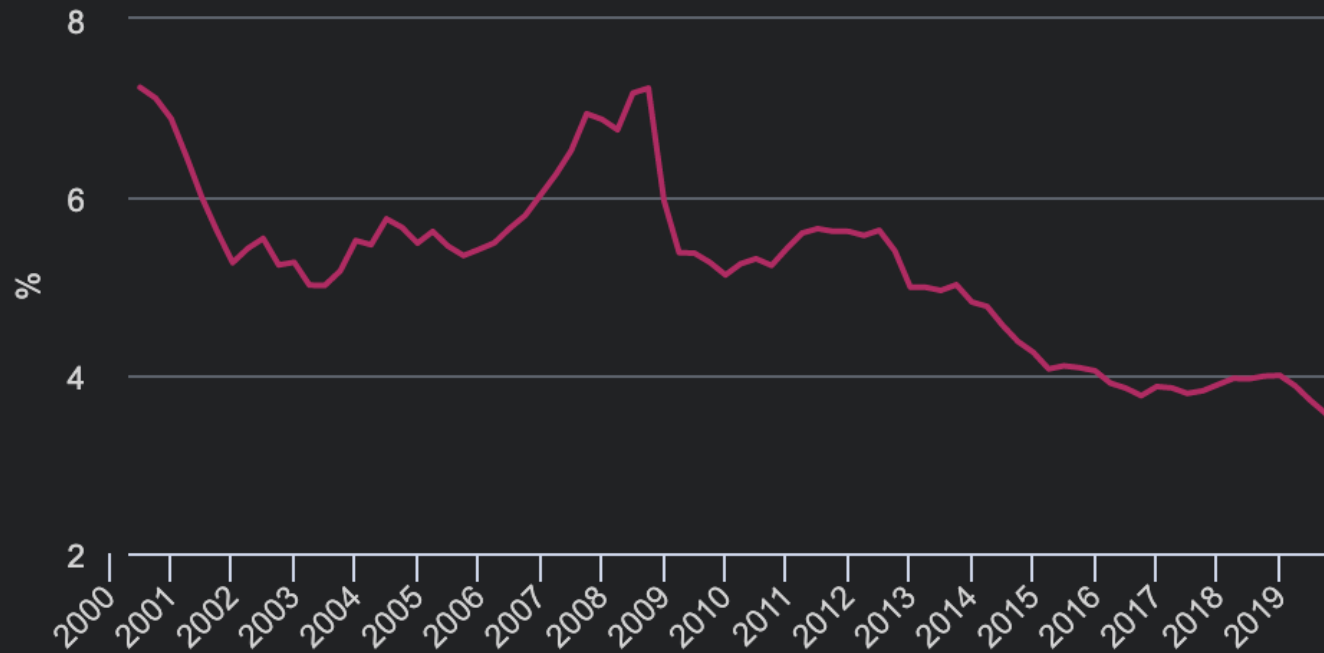
# Broadmarket private infra debt index performance vs IG corporate bonds

Index Values



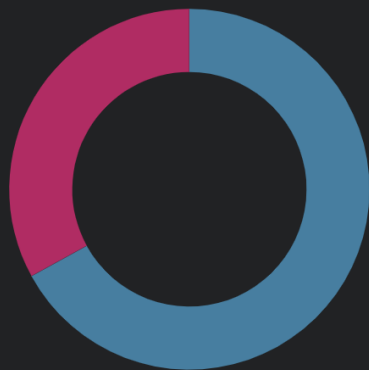
- Global private infrastructure debt, value-weighted (GBP)
- Bank of America Merrill Lynch Corporate Bond - GBP

# Broadmarket private infra debt index yield to maturity ~3.5% (2019Q3)



# You need a benchmark: is this your portfolio?

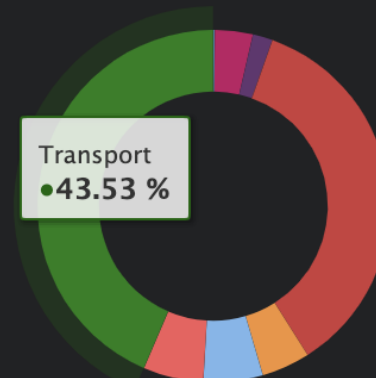
Corporate Governance, Business Risk and Industrial activity breakdown of the EDHECinfra broad market private debt index.



● Corporate ● Project Company



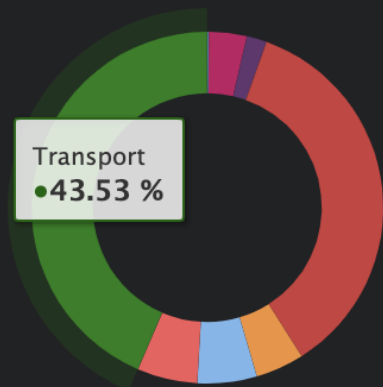
● Contracted ● Regulated ● Merchant



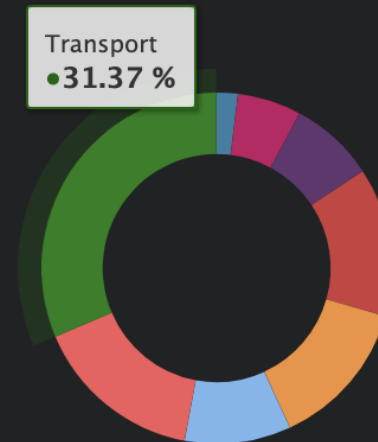
● Data Infrastructure  
● Energy and Water Resources  
● Environmental Services  
● Network Utilities  
● Power Generation x-Renewables  
● Renewable Power  
● Social Infrastructure  
● Transport

# A custom benchmark: re-weight the market index to match your assets

Market Index



Investor A



Custom  
Portfolio  
Benchmark

- Data Infrastructure
- Energy and Water Resources
- Environmental Services
- Network Utilities
- Power Generation x-Renewables
- Renewable Power
- Social Infrastructure
- Transport

# A new online platform to access Infra debt market indices

1. We can explain the **drivers of credit spreads** in infra debt with a robust four-factor model.
2. With enough data, we can price hundreds of instruments in each quarter and produce a **representative market index**.
3. Thanks to TICCS, a universal taxonomy/classification system, investors can also access a customized benchmark that matches their exposures or strategy in terms of TICCS pillars.
4. All available at [indices.edhecinfra.com](https://indices.edhecinfra.com)

