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Scientific Infra & Private Assets

SIPA PRODUCT CERTIFICATION · REQUIRED READING

infraMetrics Debt — Product Factsheet

Private Infrastructure Debt: Coverage, Indices, Yield & Credit Metrics, Segments & Use Cases

PRODUCT	MARKET	PREREQUISITE	PRIMARY AUDIENCE
infraMetrics Debt	**Unlisted infrastructure (private) debt**	**None**	**Client-facing and analytical staff**

How to use this factsheet

This is the required reading for the infraMetrics Debt product certificate. It is a precise, granular specification of the product: coverage, index family, the full set of yield, valuation and credit-risk data points, segmentation, the credit-risk model, and the key use cases — with particular weight on risk reporting and valuation. Figures are stated as at SIPA's 2024–2025 debt product and index factsheets.

SECTION 1

What the product is

infraMetrics Debt provides market valuations, yields, credit spreads, durations and credit-risk analytics for senior private (unlisted) infrastructure debt. As with the equity line, prices are computed by a transaction-calibrated model rather than collected from lenders, so a mark-to-market value, yield-to-maturity, spread and duration are available monthly for every instrument in the universe. A separate credit-risk model, built on survival analysis, produces probability of default, loss given default and expected loss. For a private infrastructure debt exposure the product answers three questions — its value, its yield and spread, and its credit risk.

SECTION 2

Coverage at a glance

Characteristic	infraMetrics Debt (as at 2024–2025 factsheets)
Market capitalisation	~USD 565bn of senior infrastructure debt (~USD 440bn face value, YE2022)
Instruments	1,500+ infrastructure debt instruments
Countries	23 countries
Activity sectors	32 activity sectors
Prices computed	350,000+
Accessible data points	700,000+
Metrics per segment	50+
Segment combinations	300+ TICCS segment combinations
Update frequency	Monthly (mark-to-market)
Debt indices	11 debt indices (part of 23 ESMA-registered infra indices)

SECTION 3

Principal debt indices

Each infraMetrics equity index has a corresponding debt index tracking the debt of the same companies or borrowers.

Index	Definition
infra300 Debt (infraDebt 300)	The debt of the companies in the infra300 equity index — the flagship representative index of the private infrastructure credit market (300 assets, 20+ countries)
infraDebt 100 Global	100 debt instruments of some of the largest infrastructure borrowers globally
Mega Infra 30 (debt)	The largest infrastructure debt exposures
infraGreen (debt)	Debt of renewable-energy infrastructure companies

As with equity, debt indices are available equal- and capped-weighted and in multiple currencies.

SECTION 4

Market segments

The debt universe is segmented with TICCS and by credit and maturity characteristics:

- **Geography** — 9 regions and 7 countries at instrument level; advanced vs emerging markets.
- **Business model** — 3 classes (Contracted, Merchant, Regulated).
- **Industrial Activity (TICCS)** — 8 industrial super-classes.
- **Corporate Structure** — 2 classes (Corporates vs Project Finance / SPV).
- **Credit risk** — by 4 maturity buckets (e.g. 0–5, 5–10, 10–15, 15+ years); 2 currencies.

Each metric can be customised within its segment to a chosen quintile or user-defined interval matching the risk-factor profile of the instrument of interest.

SECTION 5

Data points available

5.1 Valuation and yield metrics

- Income method (DCF) valuation; index price.
- Yield-to-maturity; credit spread.
- Duration — reported as “discount-rate sensitivity”, the average duration of an index’s constituents.
- Outstanding face value (size).

5.2 Credit-risk metrics

- Probability of default (PD); loss given default (LGD); expected loss (EL).
- Credit score / shadow risk bucket: Low (0–1% PD), Mid (1–10% PD), High (>10% PD).
- Credit-risk transition (migration of instruments across risk buckets over a horizon).

5.3 Market-risk and rate metrics

- Return volatility; Value-at-Risk.
- Interest-rate factors: term spread, slope and level.

How credit risk is modelled. SIPA uses a Cox proportional-hazards survival model to estimate the time to default from credit factors — accounting ratios (interest-coverage, debt-to-assets, cash ratio, size, age for corporate debt; leverage, cash flow available for debt service, quick ratio, return on assets for project debt), TICCS variables and macroeconomic indicators. Default is defined as hard or soft default, bankruptcy, or a Debt Service Coverage Ratio (DSCR) below 1. Because project-finance lenders hold step-in rights, DSCRs seldom cross 1 outright; low DSCRs typically trigger restructurings (soft defaults).

Worked example — reading a debt segment (Q1 2022 illustration)

By TICCS Business Risk, contracted senior debt showed a credit spread near 149 bps, yield-to-maturity around 3.4% and duration near 2.8; merchant debt a wider spread (~171 bps); regulated debt in between (~153 bps). By corporate structure, project-finance (SPV) debt carried a wider spread (~166 bps) and longer duration than corporate debt (~153 bps).

On credit risk, investment-grade infrastructure debt showed probabilities of default below ~1% across maturity buckets, with expected losses well under 1%, against far higher speculative-grade figures — the PD / LGD / expected-loss grid (by grade and maturity bucket) that feeds insurers’ capital calculations.

SECTION 6

How the product is modelled

Like the equity line, infraMetrics Debt is a calculated dataset: every instrument is valued monthly by the same discounted-cash-flow method, in line with IFRS 13. Three models are involved — a cash-flow/valuation model, a credit-spread (factor) model that sets the discount margin, and a separate credit-risk model that produces default and loss estimates.

6.1 Valuation (cash-flow) model. An instrument's price is the present value of its expected cash flows to maturity, discounted with a term structure of discount factors built from (1) the risk-free term structure to maturity and (2) an instrument-specific, mark-to-market credit spread. For each instrument SIPA records outstanding face value, currency, the interest rate (if fixed) or credit spread and benchmark rate (if floating), the amortisation profile and the maturity date; debt service is forecast to maturity (for inflation-linked debt, adjusted for expected inflation). The risk-free term structure is interpolated from market interest-rate data, and expected inflation from index-linked government bonds, on each valuation date.

6.2 Credit-spread (factor) model. The mark-to-market credit spread applied to each instrument is estimated by decomposing observed private-infrastructure-debt spreads (mostly at origination) into priced risk factors — instrument size, maturity (duration), and TICCS sector and business-model controls — that predict spreads well statistically. Once each factor's premium is documented over time, a mark-to-market spread can be derived for any instrument from its characteristics, whether or not it has recently traded.

6.3 Credit-risk model. Default and loss estimates come from a survival model. A Cox proportional-hazards specification estimates the hazard rate — the instantaneous likelihood of default — as a function of credit factors, and delivers a multi-period probability of default via the conditional probability of survival given those factors, with time-varying coefficients that adapt to changing conditions. Covariates differ by debt type: for corporate debt, interest-coverage ratio, debt-to-assets, cash ratio, size and age; for project debt, leverage, cash flow available for debt service, quick ratio and return on assets; plus macroeconomic and TICCS variables. Default is defined as hard or soft default, bankruptcy, or a Debt Service Coverage Ratio below 1. Loss given default and expected loss are derived from the same framework, and instruments are bucketed by probability of default into Low (0–1%), Mid (1–10%) and High (>10%).

SECTION 7

Key use cases

Risk reporting (primary). Credit spread, yield-to-maturity, duration (discount-rate sensitivity), PD, LGD and expected loss support insurers' Solvency II reporting — in particular the Spread Risk Sub-Module of the market-risk module, where a widening spread lowers a debt holding's value and raises the capital charge. The platform supplies index price, credit spread, yield-to-maturity and discount-rate sensitivity directly for each debt index.

Valuation. Mark-to-market prices, yields and spreads give an independent valuation and a defensible set of credit comparables by TICCS segment, maturity bucket and currency — essential where a lender or holder must value an instrument that has not recently traded.

Strategic asset allocation. Yields (expected returns), volatilities and correlations for infrastructure-debt segments feed private-debt and fixed-income allocation studies and capital-market assumptions, alongside the equity and private-equity lines.

Fund selection. For private infrastructure-debt funds, the debt indices and segment benchmarks provide the market reference against which fund performance is assessed, complementing the equity-fund analytics delivered through privateAlpha.

SECTION 8

Access

Debt metrics and indices are available through the platform, the Excel add-in and Python/R via the API — for example, index-level credit spread and discount-rate sensitivity are retrievable as single function calls.

References

Sources

Scientific Infra & Private Assets. infraMetrics debt market index and comparables factsheets (infra300 Debt, infraDebt 100 Global, infraGreen debt; yields, spreads, credit risk). 2024–2025. https://docs.sipametrics.com/docs

Scientific Infra & Private Assets. infra300 Debt Index report; Credit Risk Model methodology (Cox proportional-hazards survival model; PD/LGD/EL). 2024–2025.

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