



**Scientific Infra
& Private Assets**

WHITE PAPER · INFRASTRUCTURE DEBT

The Performance of Infrastructure Debt

Accessing private infrastructure debt transparently with infraMetrics®

Private infrastructure debt is more than a niche extension of corporate or real-estate credit. Using infraMetrics® data across a full 2014–2025 market cycle, this paper shows how it differs in credit stability, sector composition and performance behaviour — and why purpose-built benchmarks, not listed proxies, are required to measure and manage it.

Executive Summary

Private infrastructure debt is emerging as a distinct segment within institutional fixed-income portfolios. It is more than a niche extension of corporate or real-estate credit, offering a combination of resilience, stability and favourable risk-adjusted returns. These characteristics are underpinned by the essential services provided by the underlying assets and the structural protections built into their contracts.

This white paper uses *infraMetrics®* to examine how private infrastructure debt differs from standard corporate and real-estate credit indices, highlighting key differences in credit stability, sector composition, performance behaviour and benchmark alignment. The analysis compares infrastructure debt indices – both investment-grade (IG) and high-yield (non-investment-grade, NIG) – with commonly used public benchmarks such as Bloomberg Corporate (IG and HY), Markit iBoxx (IG and HY), Dow Jones Real Estate (IG and HY) and the Markit iBoxx "Infrastructure" HY index, over a full market cycle from 2014 to 2025.

Key findings include:

1 Robust credit performance.

- Infrastructure debt consistently exhibits lower default probabilities and higher recovery rates than public corporate bonds or real-estate credit.
- Even non-investment-grade infrastructure loans show strong capital-preservation characteristics. Default risk is highest during early construction phases but drops significantly once projects become operational – the lifecycle de-risking unique to this asset class.

2 Distinct sector allocation and cash-flow dynamics.

- Portfolios concentrate in essential-service sectors (transport, energy, power, utilities), unlike corporate and real-estate benchmarks dominated by cyclical sectors (financials, industrials, consumer).
- Regulated or long-term contracted revenues with low cyclical support more predictable cash-flow profiles and materially different risk transmission.

3 Superior risk-return profile.

- *infraMetrics* indices show higher risk-adjusted returns over long horizons in both IG and NIG segments. The *infra100* Project NIG index records the highest risk-return ratio among the indices evaluated, while maintaining shorter duration and moderate yield.
- Non-investment-grade infrastructure debt achieved lower volatility than traditional high-yield benchmarks, with comparable or better total returns over the period.

4 Resilience during market stress.

- Through the 2015 and 2018 credit sell-offs and the 2022 rate-driven correction, corporate and real-estate credit indices suffered sharp, prolonged drawdowns.
- *infraMetrics* indices showed smaller, shorter-lived declines and quicker recoveries – supporting the case for infrastructure debt as a reliable anchor in credit portfolios.

The benchmarking inadequacy of listed indices.

- Sector misalignment, the absence of project-finance instruments and divergent performance behaviour render corporate-bond and real-estate indices unsuitable proxies for LPs and GPs managing infrastructure credit.
- infraMetrics provides a purpose-built framework calibrated to the actual characteristics of the asset class, enabling better strategy design, performance attribution and investment decisions.

Given its distinct risk-return profile, sector composition, cash-flow dynamics and response to economic shocks, infrastructure debt cannot be appropriately measured or managed using traditional credit benchmarks. The infraMetrics indices provide a fit-for-purpose alternative — a dedicated benchmarking framework built from real-world, asset-level infrastructure transactions.

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Introduction

In a period of heightened macroeconomic uncertainty, inflationary pressure and structural shifts in capital markets, infrastructure debt has gained attention as a significant component of institutional fixed-income portfolios. It combines capital preservation, stable income and downside protection — attributes increasingly sought after as traditional fixed-income strategies struggle to deliver yield with resilience. Despite these strengths, infrastructure debt remains underrepresented in mainstream benchmarks and asset-allocation models, and is often mischaracterised as a niche sub-segment of corporate or real-estate credit.

Infrastructure debt is backed by essential, long-lived physical assets such as transport networks, utilities, digital infrastructure and clean-energy projects. These assets produce steady, long-term revenues through regulated tariffs, offtake contracts or usage-based payments. Most instruments are senior, secured loans governed by strict covenants, which contributes to robust credit performance across cycles. Because these instruments are private and relatively illiquid, they carry an illiquidity premium — an extra return earned not by taking on more credit risk, but by accepting lower liquidity and greater complexity.

Traditional public-market benchmarks fail to capture these fundamentals. Mainstream bond indices (Bloomberg Corporate IG/HY, Markit iBoxx high-yield and broad real-estate composites) are dominated by cyclical, market-sensitive sectors and do not mirror the cash-flow mechanics or credit behaviour of infrastructure assets. Using such indices as proxies can distort relative-value assessments, reduce benchmarking accuracy, mislead performance attribution and complicate strategic allocation.

infraMetrics was developed to address this gap, providing a dedicated dataset and benchmarking framework based on observed infrastructure-debt transactions. The platform delivers market-implied credit spreads, probability of default (PD), loss given default (LGD), expected loss (EL) and risk-adjusted return measures — all calculated using a consistent valuation and credit-risk methodology grounded in a bottom-up, instrument-level data architecture. These indices also support compliance with regulatory frameworks such as Solvency II and PRIIPs, which allow or require the use of asset-specific internal models.

This paper presents a descriptive analysis of private infrastructure debt based on infraMetrics data. Its objectives are to:

- Describe how the credit and duration characteristics of infrastructure debt differ from public corporate and real-estate credit benchmarks.
- Summarise performance patterns across investment-grade and non-investment-grade infrastructure debt indices and other fixed-income indices.
- Assess observed outcomes during selected market-drawdown periods (2015, 2018, 2022).
- Discuss the limitations of traditional benchmark proxies and outline the use of dedicated indices as a measurement tool.

Overall, the findings indicate that infrastructure debt is not a niche sub-sector or a mere high-yield substitute, but a distinct pillar of the fixed-income universe. For pension funds, insurers and sovereign wealth funds, it offers a scalable option that aligns with long-term capital deployment and regulatory requirements – enhancing portfolio stability, assisting liability-duration matching and providing inflation-linked income with relatively lower drawdown risk.

Recent Private Infrastructure Credit Trend

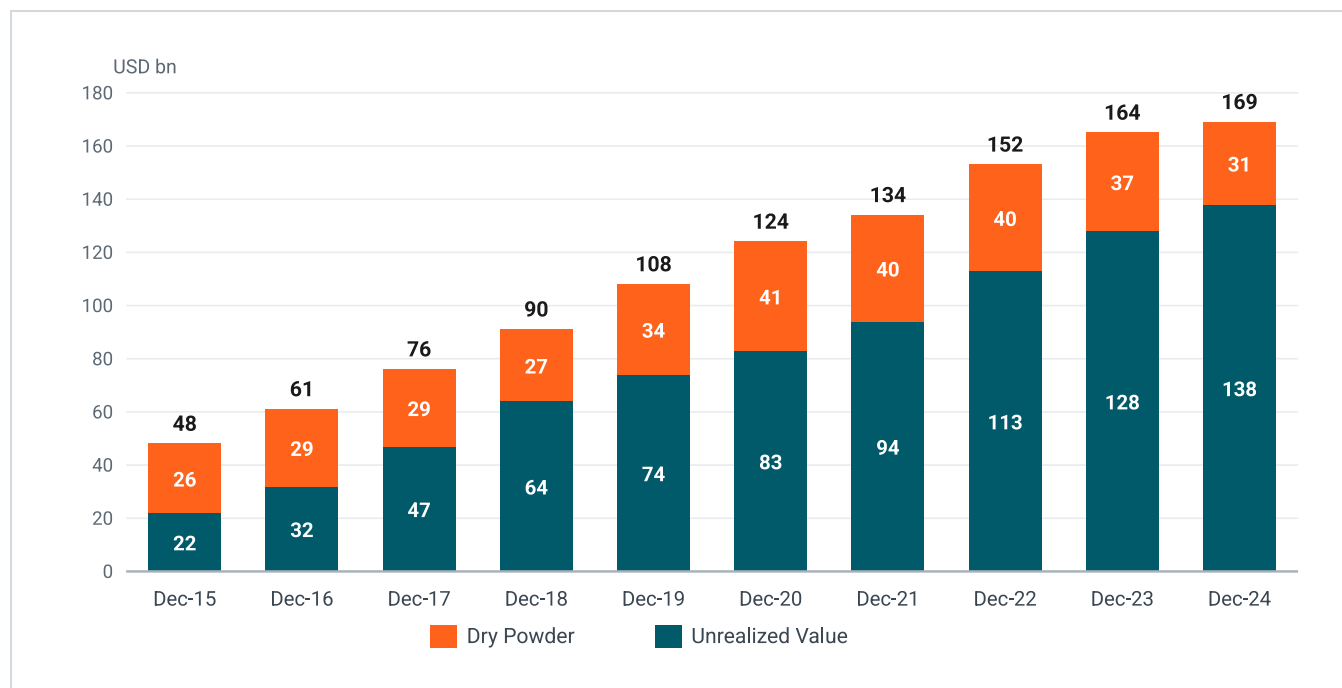
Private infrastructure credit has emerged as a significant segment of institutional credit portfolios. Its rapid growth reflects structural shifts in the global lending landscape alongside a search for stable, long-term income amid rising macroeconomic volatility.

Between 2009 and 2023, the global private-credit market expanded nearly tenfold, reaching close to \$2 trillion in assets under management (McKinsey & Company, 2024). While direct lending still dominates, infrastructure debt is one of the fastest-growing segments – driven in part by the retreat of traditional bank lenders under Basel III/IV, combined with persistent demand for long-duration, asset-backed financing with inflation-linked cash flows. According to PGIM (2024), asset-backed lending, real-estate debt and infrastructure debt together account for roughly 40% of the private-credit market.

The growth of infrastructure credit marks a realignment in institutional lending strategies. Insurers and pension funds have allocated more to infrastructure debt to match long-term liabilities and manage volatility. UBS Asset Management (2024) reported that fundraising for infrastructure debt remained robust, accounting for roughly 20% of total infrastructure capital raised in recent periods. Regulatory change has broadened access further: in Europe, the updated ELTIF 2.0 regime (effective January 2024) removed minimum investment thresholds and allowed open-ended structures with periodic redemptions, opening the asset class to private wealth and retail investors.

McKinsey & Company (2024) projects that up to \$6 trillion of infrastructure, asset-backed and other nonbank-eligible credit could migrate off bank balance sheets in the United States alone over the next decade. Infrastructure debt is expected to capture a significant portion of this reallocated capital, given its long-duration, capital-intensive profile and its alignment with insurers' asset-liability management needs – often reinforced by favourable regulatory capital treatment under solvency frameworks.

■ **FIGURE 1 — GROWTH OF GLOBAL INFRASTRUCTURE DEBT AUM (2015–2024) — DRY POWDER VS. UNREALIZED VALUE**



Source: Preqin.

Industry data underscore the growing scale of infrastructure credit. According to Preqin, total assets in infrastructure-debt funds — combining deployed capital and undeployed "dry powder" — rose from roughly \$48 billion in 2015 to about \$169 billion by the end of 2024. This steady growth, underpinned by historically stable cash flows and predictable income even during broader market volatility, indicates that infrastructure debt has become an established component of private-credit portfolios.

The evolving role of infrastructure credit is also evident in new operating models. As outlined by McKinsey & Company (2024), a private-credit "ecosystem" is taking shape that brings together asset managers, insurers and banks to originate, syndicate and distribute infrastructure loans at scale. A prominent example is Apollo Global Management's acquisition of Credit Suisse's securitized-products group (now Atlas SP), establishing a dedicated platform for asset-backed credit. Meanwhile, banks increasingly adopt an originate-to-distribute approach, partnering with non-bank lenders rather than holding infrastructure loans on balance sheet. Together, these developments confirm that infrastructure debt is now an enduring part of the global private-credit landscape.

Measuring the Market

Understanding the infrastructure-debt market requires robust, comprehensive and representative data — something historically lacking given the opaque nature of private markets. The infraMetrics platform addresses this gap with a transparent, model-driven and empirically anchored framework, offering standardised metrics to measure and analyse the performance of private infrastructure debt.

9,100+ Infrastructure companies covered across 25 countries	USD5T+ Aggregate enterprise value of the universe	2,000+ Senior debt instruments in the constituent dataset	USD565bn Outstanding debt represented
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The constituent dataset includes more than 800 firms and over 2,000 senior debt instruments, representing approximately USD 975 billion in enterprise value, of which around USD 565 billion is outstanding debt. Coverage spans transport, data, utilities and social infrastructure, mapped using the TICCS® classification standard, which accounts for each company's industrial activity, business model, corporate structure and geo-economic exposure. The data is updated monthly and free of survivorship bias — capturing defaults, exits and terminations as well as successful deals — with history extending back to 2005 for most segments.

The infraMetrics Debt Universe

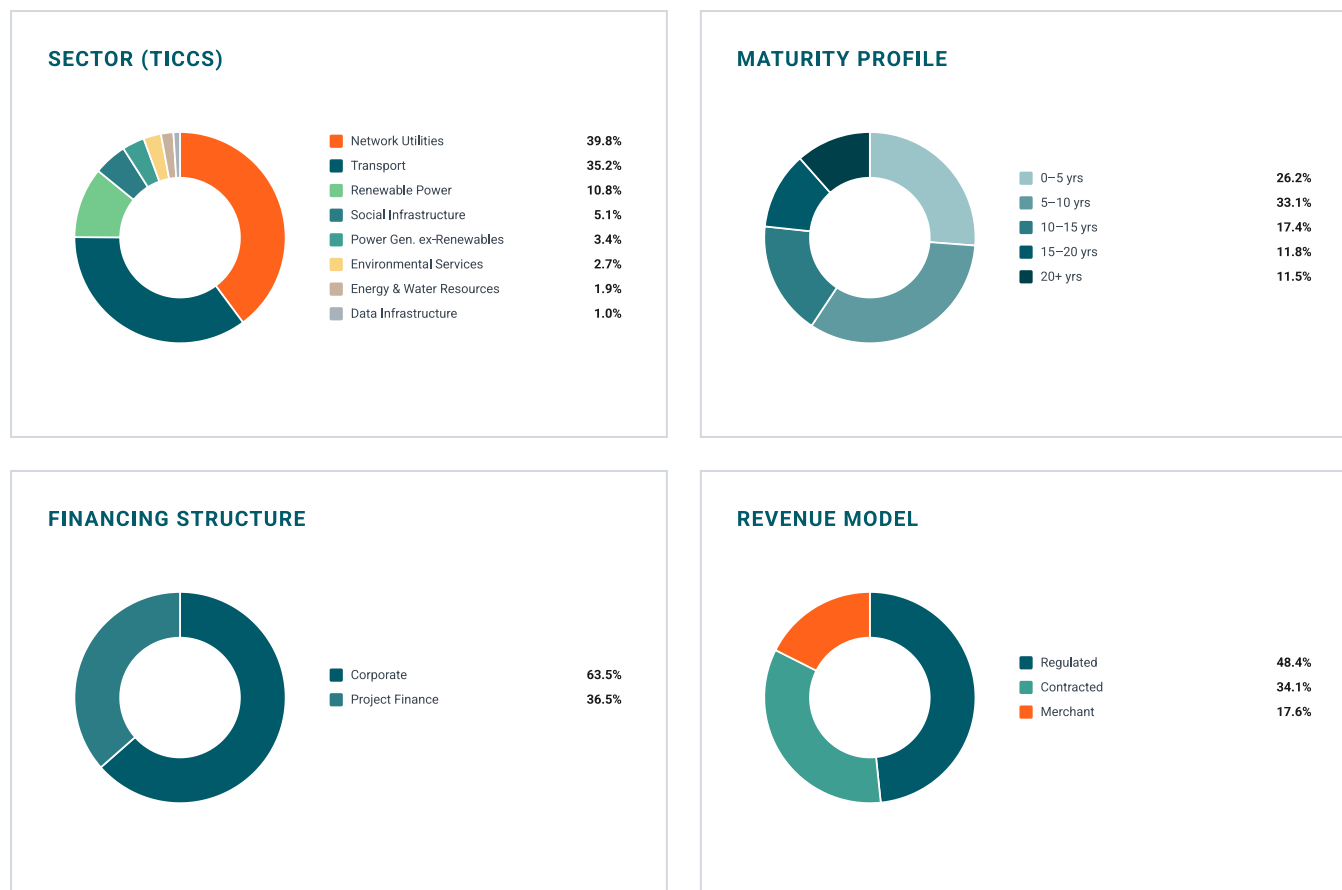
The Scientific Infra & Private Assets data team compiles information on a wide range of infrastructure companies from the investable universe. To qualify for inclusion, companies must meet minimum data requirements, ensuring analyses rest on comprehensive, reliable inputs. Sources include audited financial statements of companies meeting the TICCS taxonomy standards; investor-contributed data such as financial statements, debt forecasts and transaction prices; and publicly available information including annual reports, press releases and other publications relevant to infrastructure finance.

All prices and returns are calculated using a dynamic credit-spread model recalibrated monthly with the latest transaction data. This process incorporates a growing sample of historical debt transactions — over 5,687 deals as of early 2024 — improving accuracy as new data is added each month. Through this calibration, the model provides "shadow pricing" estimates across a broad universe of instruments, reflecting each instrument's exposure to relevant risk factors. Indices are constructed bottom-up: a representative subset is selected by an index committee that reviews constituents regularly and adjusts them as companies exit the universe through bankruptcy, merger or public listing.

Universe Landscape

As of June 2025, Network Utilities (39.8%) and Transportation (35.2%) together account for roughly three-quarters of the universe by value. Renewable Power (10.8%), Social Infrastructure (5.1%) and Power Generation ex-Renewables (3.4%) also contribute meaningfully, reflecting exposure to the energy transition and essential services. Infrastructure debt tends to have extended tenors: around a third of instruments mature in 5–10 years and over 40% beyond 10 years. About 64% of instruments are corporate debt and 36% project finance, while more than 80% operate under regulated (48.4%) or contracted (34.1%) revenue frameworks, with the remaining 17.6% exposed to merchant revenue risk.

FIGURE 2 – TICCS & STRUCTURAL PROFILE OF THE INFRAMETRICS PRIVATE INFRASTRUCTURE DEBT UNIVERSE (JUN 2025)



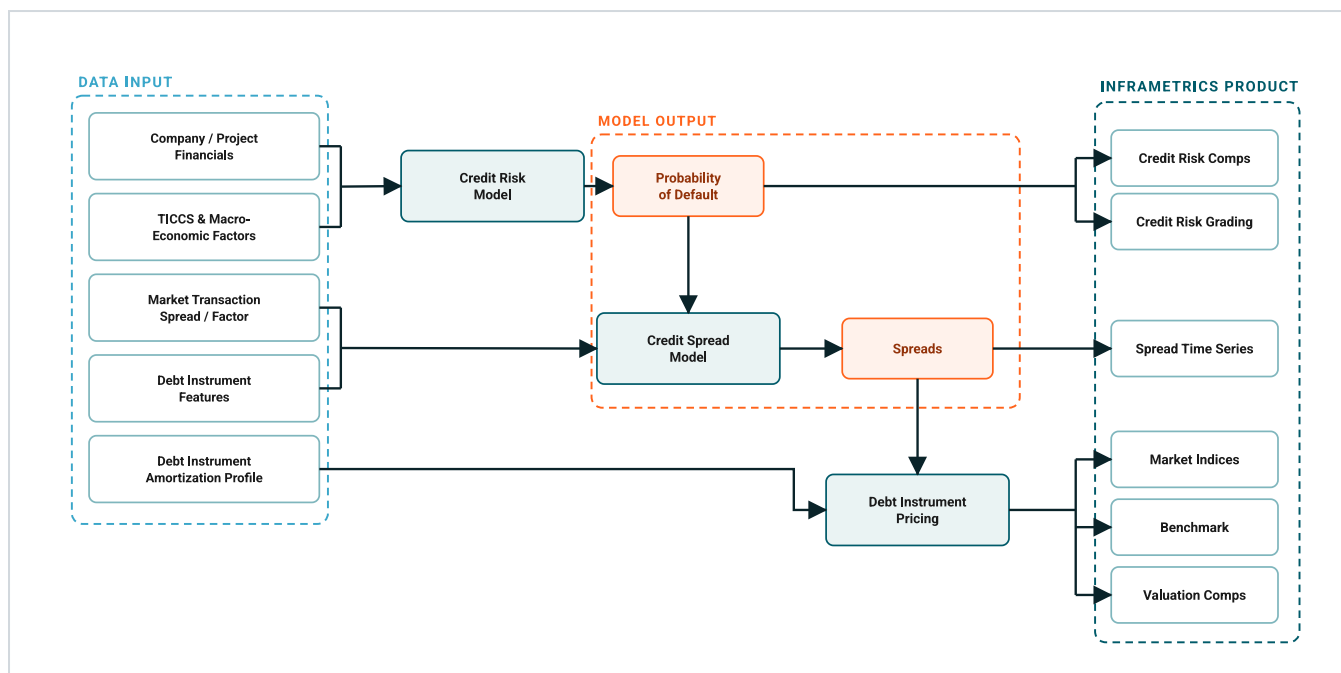
Source: infraMetrics.

Valuing Infrastructure Debt

The infraMetrics valuation model offers a rigorous, market-based framework for assessing the fair value and credit risk of private infrastructure-debt instruments. Built on actual deal-level pricing data, it uses advanced quantitative methods to extract systematic credit signals, estimate spreads and generate consistent valuations even in segments with limited market transparency. This model underpins infraMetrics indices and credit analytics, enabling investors to benchmark, monitor risk and allocate capital across the infrastructure-debt universe.

The process begins by collecting detailed input data at both the company/project level and the instrument level – audited financial statements, debt amortisation profiles, instrument features (tenor, seniority, currency) and TICCS sector classification, alongside macroeconomic indicators and observed market spreads.

■ FIGURE 3 — INFRAMETRICS PRIVATE DEBT CREDIT-RISK AND VALUATION FRAMEWORK



Source: *infraMetrics*.

Company or project financials, sector classifications (TICCS) and macroeconomic indicators serve as core inputs to the credit-risk model, which estimates the Probability of Default (PD) for each instrument – the likelihood that the issuer fails to meet its obligations over a defined horizon, typically the next 12 months. The estimated PD then feeds the credit-spread model, which also incorporates observed transaction spreads, macroeconomic variables and instrument-specific characteristics such as face value and maturity. TICCS segment-level risk factors capture systematic differences across sectors and business models, producing a risk-adjusted credit spread even for instruments without recent market pricing.

The calculated spread is used to price each instrument through a discounted-cash-flow method that accounts for the debt's amortisation profile and contractual features, generating fair-value estimates. The credit-risk, spread and pricing outputs feed a suite of analytics – time series for PD, credit spreads and yields – that form the foundation for constructing *infraMetrics* indices, valuation comparables and custom benchmarks, all segmented by credit grade, sector, maturity bucket and region.

infraMetrics Indices: A New Standard for Private Infrastructure Credit

Effective benchmarking is critical to assessing the true performance of private infrastructure-debt investments. Traditional benchmarks such as listed bond indices or appraisal-based estimates fall short: they fail to capture the illiquidity, long durations and project-specific risk features of the asset class. Listed proxies tend to misrepresent the risk–return profile of infrastructure assets, being dominated by liquid, cyclical sectors, while appraisal-based benchmarks smooth out volatility through infrequent revaluations, obscuring the evolution of credit risk.

infraMetrics fills this gap with a purpose-built suite of indices calibrated to actual private-debt market conditions. Constructed from live market transactions and segment-specific parameters — credit spread, yield, default and recovery metrics, and duration — they enable asset owners and managers to build tailored benchmarks aligned with their portfolios' credit quality, maturity profile and sectoral exposure. The indices are derived from a curated universe of over 2,500 private infrastructure-debt instruments and updated monthly using transaction-level data.

The benchmark family includes:

- **infra300 Debt** — a broad-market composite covering the full private infrastructure-debt universe.
- **infra100 IG / NIG Debt** — investment-grade and non-investment-grade debt across both corporate and project instruments.
- **infra100 Project IG / NIG** — credit-rated debt specific to infrastructure project financings.
- **Sector indices** — covering Renewables, Transport, Utilities, Data Infrastructure and more.
- **Maturity indices** — short-term (0–5 yrs), medium-term (5–15 yrs) and long-term (15+ yrs) composites.

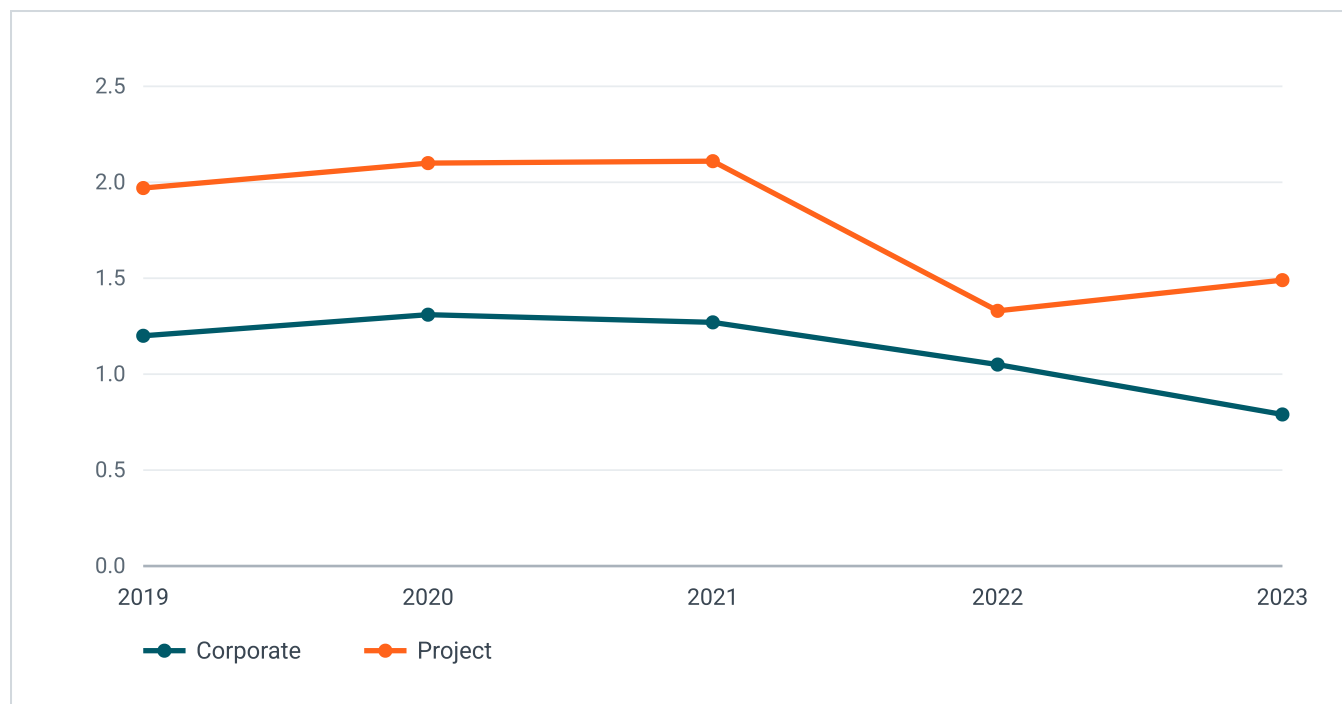
Each index reflects real asset-backed private-debt exposures and is updated monthly, enabling transparent benchmarking of credit spreads, yield, expected loss and credit transitions. These benchmarks form the foundation for performance analysis, peer comparison and strategic allocation in infrastructure private-credit portfolios. The remainder of this paper compares them with listed proxies and other fixed-income indices to assess relative performance and risk-return characteristics.

Quantifying Credit Risk in Unrated Private Infrastructure Markets

Infrastructure debt exhibits a distinct credit-risk profile compared with traditional corporate or sovereign bonds. This arises from the nature of the underlying assets: essential, capital-intensive projects in energy, transport, digital connectivity and social infrastructure. These assets operate under inelastic demand and often benefit from long-term concessions or regulatory frameworks that ensure predictable cash flows — historically contributing to lower default frequencies and high recovery rates. By contrast, traditional corporate bonds, especially high-yield issues, lack these protections and are more sensitive to macroeconomic cycles and refinancing pressure.

Empirical data from the infraMetrics database indicate that from 2019 to 2023, both infrastructure corporate debt and project-finance debt maintained very low one-year probabilities of default. Project-financed loans showed slightly higher PDs than corporate debt, but both improved after 2021 to reach historically low levels.

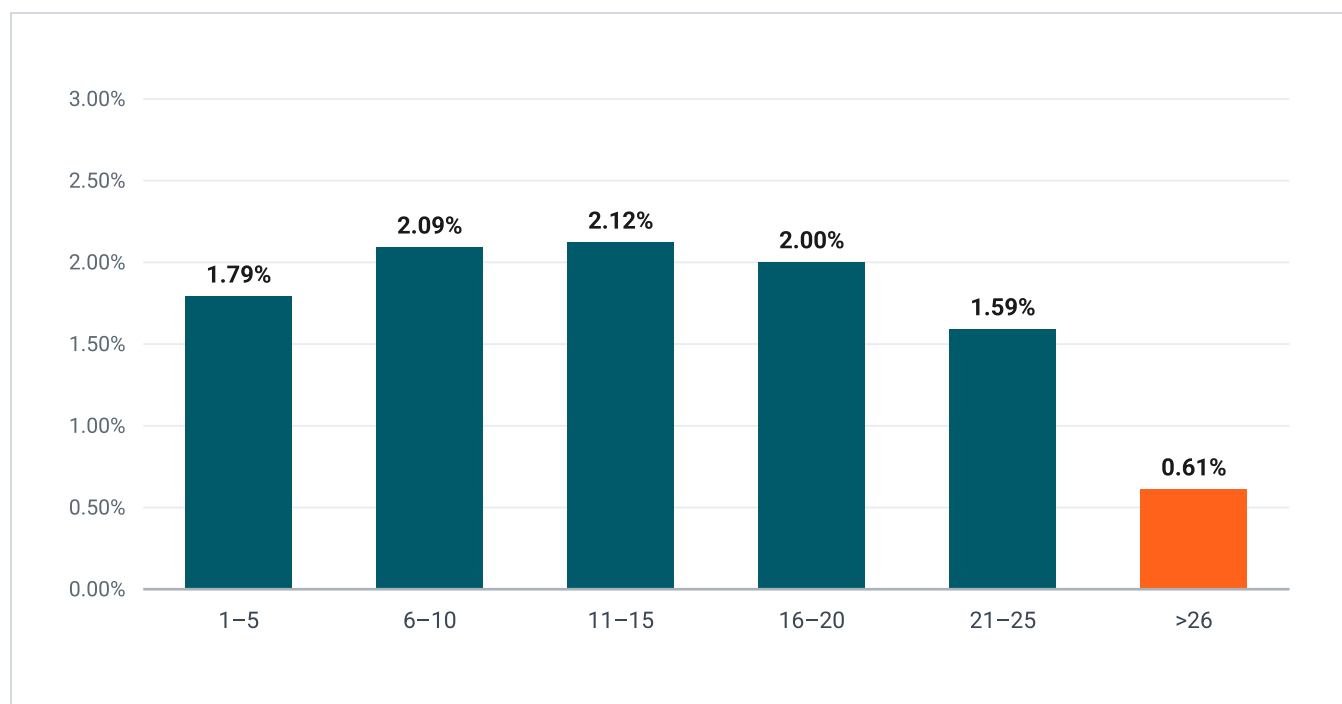
■ **FIGURE 4 — AVERAGE ONE-YEAR PROBABILITY OF DEFAULT (%): CORPORATE VS. PROJECT INFRASTRUCTURE DEBT**



Source: *infraMetrics*.

Firm age is a further driver of credit risk. Younger firms (1–5 years) exhibit an average PD of 1.79%, reflecting the vulnerabilities of early-stage entities. Default risk rises modestly in the 6–10-year (2.09%) and 11–15-year (2.12%) brackets, where refinancing pressure and growth-related leverage can weigh on credit quality. Beyond this mid-life phase, risk declines steadily: firms aged 16–20 years record 2.00%, those 21–25 years drop to 1.59%, and the most seasoned firms (26+ years) show the lowest risk at just 0.61%. Operating maturity, established cash flows and proven resilience significantly enhance credit stability over time.

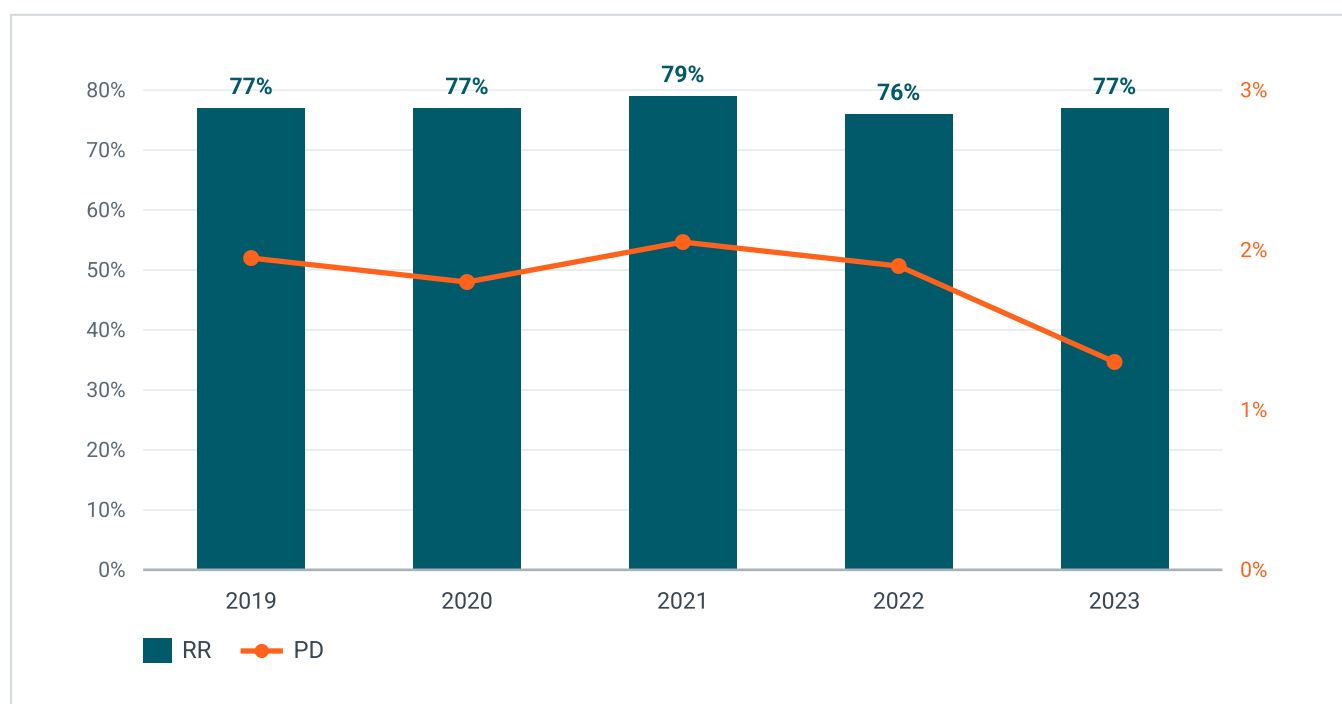
■ **FIGURE 5 — AVERAGE PROBABILITY OF DEFAULT ACROSS FIRM AGE**



Source: *infraMetrics*.

Recovery expectations reinforce the picture. Between 2019 and 2023, recovery rates (RR) remained consistently above 75%, peaking in 2021 and holding robust levels thereafter — highlighting the asset class's ability to preserve capital even in distressed scenarios. Meanwhile the PD trend declined to nearly 1.3% by 2023, reflecting improving credit conditions and portfolio quality. This dual dynamic — low and declining default risk paired with high recovery — is underpinned by essential-service delivery, long-term contracted cash flows, regulatory oversight and collateral-backed lending.

■ **FIGURE 6 — PROBABILITY OF DEFAULT AND RECOVERY RATE — GLOBAL INFRASTRUCTURE DEBT**



Source: *infraMetrics*.

What Sets Infrastructure Debt Apart

Infrastructure debt has characteristics that distinguish it from investment-grade corporate bonds, high-yield debt, real-estate credit and government securities: structural protections, long maturities, backing by tangible assets and stable contractual cash flows. Because the underlying projects deliver essential services, demand remains relatively steady even during downturns, making cash flows less sensitive to economic cycles and contributing to more stable performance under stress.

For example, as of September 2025, sector-level differences in credit spreads are observable even among instruments with similar maturities (2–10 years) and investment-grade profiles. The average spread for global investment-grade infrastructure debt is approximately 90 basis points; Social Infrastructure and Renewables within the same rating and tenor range exhibit higher average spreads of around 109 and 101 basis points respectively – a 10–20 basis-point differential reflecting sector-specific dynamics captured within the infraMetrics dataset.

Key differentiating factors

- **Essential services.** Infrastructure assets provide critical services (electricity, transport, digital connectivity); demand remains inelastic even during stress, supporting consistent cash generation.
- **Barriers to entry.** High upfront capital costs, regulatory and contractual protections, and strategic positioning create natural monopolies or oligopolies that stabilise cash flows.
- **Stability and predictability.** Concession agreements, regulatory frameworks and multi-decade contracts (often over 30 years) support predictable cash flows; lean operations and regular maintenance sustain reliable debt servicing.
- **Inflation protection.** Many revenue models include indexed escalators or cost pass-through, helping revenues keep pace with inflation and providing resilience in real terms.

Transactions are typically secured by liens on the underlying assets and include covenants that restrict additional borrowing, asset sales, new investments or ownership changes. Protective covenants such as maximum leverage ratios, distribution limits and early-warning triggers help identify credit stress early, while step-in rights allow lenders to assume control of a project in distress to preserve asset value and improve recovery. Combined with the essential-service nature of the assets, these features support the view that infrastructure debt warrants dedicated analysis rather than treatment as a subset of broader private credit or corporate bond markets.

Beyond Bonds: A Comparative Analysis of Infrastructure Debt

Infrastructure debt is characterised by long maturities, asset-backed structures and features that frequently incorporate inflation protection — traits consistent with the requirements of institutional investors seeking long-duration assets to match liabilities and generate stable income. Typically secured by physical assets and governed by contractual covenants, these instruments exhibit credit performance patterns that differ from traditional corporate bonds. Real-estate debt, though secured by tangible property, carries heightened cyclical and refinancing risk; other private credit (direct lending, mezzanine) tends to offer higher spreads to compensate for illiquidity, idiosyncratic borrower risk and shorter maturities.

The framework below outlines how infrastructure debt differs across credit risk, maturity, spread, liquidity, duration, inflation linkage, diversification, structure and regulatory treatment — helping contextualise infrastructure debt within the broader fixed-income landscape.

■ **TABLE 1 – INFRASTRUCTURE DEBT VS. OTHER FIXED-INCOME SECURITIES**

Factor	Infrastructure Debt	Corporate Bonds	Real Estate Debt	Other Private Credit	Government Bonds
Credit Risk	Lowest default rates (<2%); robust collateral and covenants	Varies widely; IG moderate, HY high (defaults up to 14%)	Dependent on property cycles; volatile in downturns	Higher defaults; idiosyncratic and cyclical risk	Very low in developed markets; considered near risk-free
Maturity	Long-term (10–30 yrs); matches asset & liability profiles	IG: 5–15 yrs; HY: 3–7 yrs	Intermediate (3–10 yrs)	Shorter (2–7 yrs); tailored structures	Wide range: <1 yr to 30+ yrs
Spread	Senior IG: 100–130 bps; Non-IG: 250–400 bps	IG: 90–150 bps; HY: 300–600 bps	Senior: 200–350 bps; mezzanine: 500 bps+	350–600 bps+; opportunistic >700 bps	Lowest among major FI sectors; varies with country risk
Liquidity	Illiquid; bespoke terms; growing index transparency	Highly liquid IG/HY; narrow bid/ask	Illiquid; negotiated transfers	Least liquid; restricted transferability	Highly liquid; deep core markets
Duration / Convexity	High duration (8–18 yrs); moderate convexity	Moderate duration and convexity	Low to intermediate; prepayment-sensitive	Variable; prepayment & extension risk	Varies (short to very long; convexity options)
Inflation Protection	Common inflation linkage; predictable cash flows	Limited; mostly fixed or floating	Some pass-through via leases	Rare inflation protection	Nominal usually none; linkers exist (TIPS, gilts)
Diversification	Low / negative correlation to equities & credit	Higher correlation with equity & credit	Moderate correlation	Often correlated with economic cycles	Historically negative-to-low equity correlation
Counterparty / Support	Frequent government or essential-service backing	Private issuers; limited government backing	Tenant / borrower credit dependent	Primarily private counterparties	Government / sovereign backing
Structure	Strong covenants, asset-backed, cash-flow ring-fencing	Mostly unsecured, lighter covenants	Secured by physical assets	Secured to unsecured; deal-dependent	Standardized, simple, transparent terms
Regulatory Capital	Favourable under Solvency II	Standard by rating and sector	Risk-weighted by asset quality	Generally less favourable	Most favourable (often 0% risk weight for AAA sovereigns)

Source: *infraMetrics*.

Purpose-Built vs. Proxy: infraMetrics Indices in Comparative Perspective

Private infrastructure debt represents a distinct credit and risk-return profile compared with traditional fixed-income indices. While listed corporate and real-estate bond indices reflect public-market activity, they do not capture key structural features of private infrastructure debt. Relying on such proxies can lead to inconsistent benchmarking, misestimation of credit risk and less accurate evaluation of portfolio performance.

This section compares infraMetrics investment-grade (IG) and non-investment-grade (NIG) indices with selected public-market proxies — broad corporate bond indices, real-estate bond composites and listed high-yield infrastructure issuers — examining how performance differs in credit behaviour, spread movements, duration and cyclicalities. Instruments in the infraMetrics indices show lower spread volatility and more predictable performance during stressed periods than public benchmarks, linked to infrastructure debt's long-duration, asset-backed nature and contractual revenue predictability.

■ **TABLE 2 — COMPARATIVE OVERVIEW OF INFRASTRUCTURE DEBT, REAL ESTATE AND CORPORATE BOND INDICES**

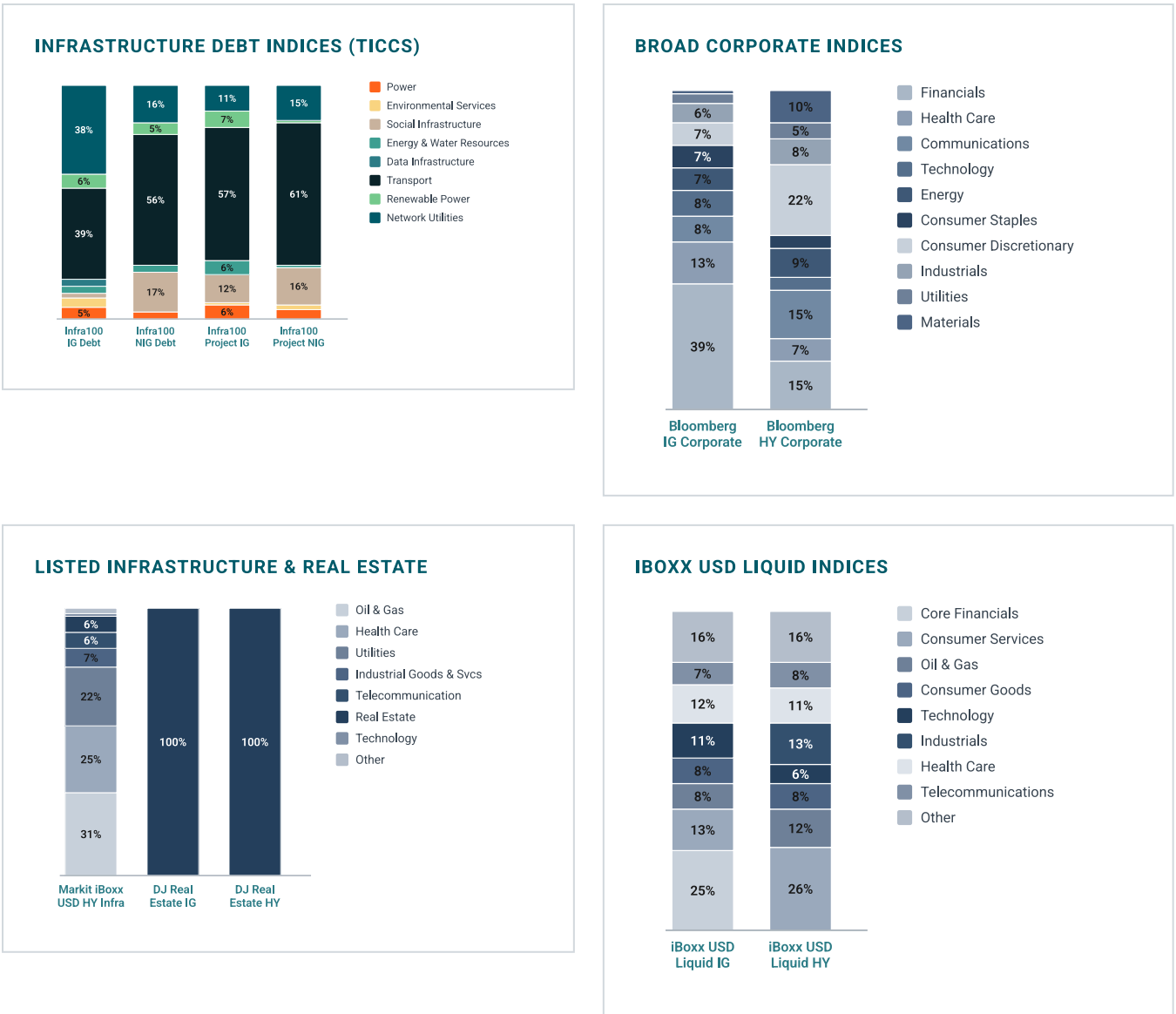
Category	Index	Focus	Region	Currency
Listed Infrastructure	iBoxx USD HY Infrastructure Index	USD HY corporate bonds in infrastructure sectors (utilities, telecoms)	Global	USD
Real Estate	DJ Real Estate IG	IG bonds from global REITs / property developers (A-rated)	Global	Multi
	DJ Real Estate HY	HY bonds from global real-estate issuers (BB-rated)	Global	Multi
Corporate Bonds	Bloomberg IG Corporate Index	IG corporate bonds (multi-currency)	Global	Multi
	Bloomberg Global HY Corporate (USD-hedged)	HY corporate bonds (multi-currency)	Global	Multi
	iBoxx USD Liquid IG Index	USD-denominated IG corporate bonds	Global	USD
	iBoxx USD Liquid HY Index	USD-denominated HY corporate bonds	Global	USD
Private Infra. Debt	infra100 IG Debt	100 largest IG infra senior debts (project & corporate)	Global	Multi
	infra100 NIG Debt	100 largest NIG infra senior debts (project & corporate)	Global	Multi
	infra100 Project IG Debt	IG senior debt from project-finance SPVs	Global	Multi
	infra100 Project NIG Debt	NIG senior debt from project-finance SPVs	Global	Multi

Source: infraMetrics, Bloomberg.

Compositional Contrast: Infrastructure Debt vs. Traditional Indices

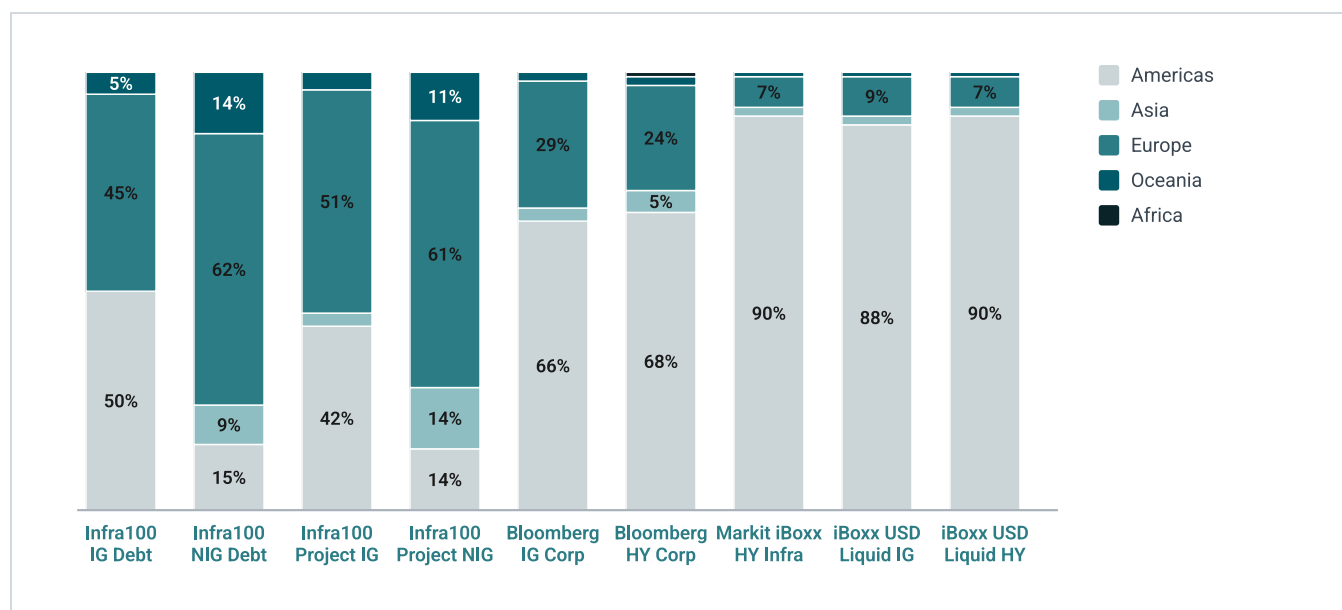
infraMetrics indices are constructed from asset-level data drawn from the private infrastructure universe. Through the TICCS taxonomy, assets are segmented by sector – transport, utilities, renewables – and by region. Each segment contributes differently to observed patterns in credit performance, inflation linkage and risk-adjusted returns, reinforcing the importance of compositional analysis. Traditional public proxies often have markedly different sectoral and regional skews, as the charts below illustrate.

FIGURE 7 – INDEX SECTOR ALLOCATION (30 JUNE 2025)



Source: infraMetrics, Bloomberg, S&P Global.

FIGURE 8 – INDEX REGION ALLOCATION (30 JUNE 2025)



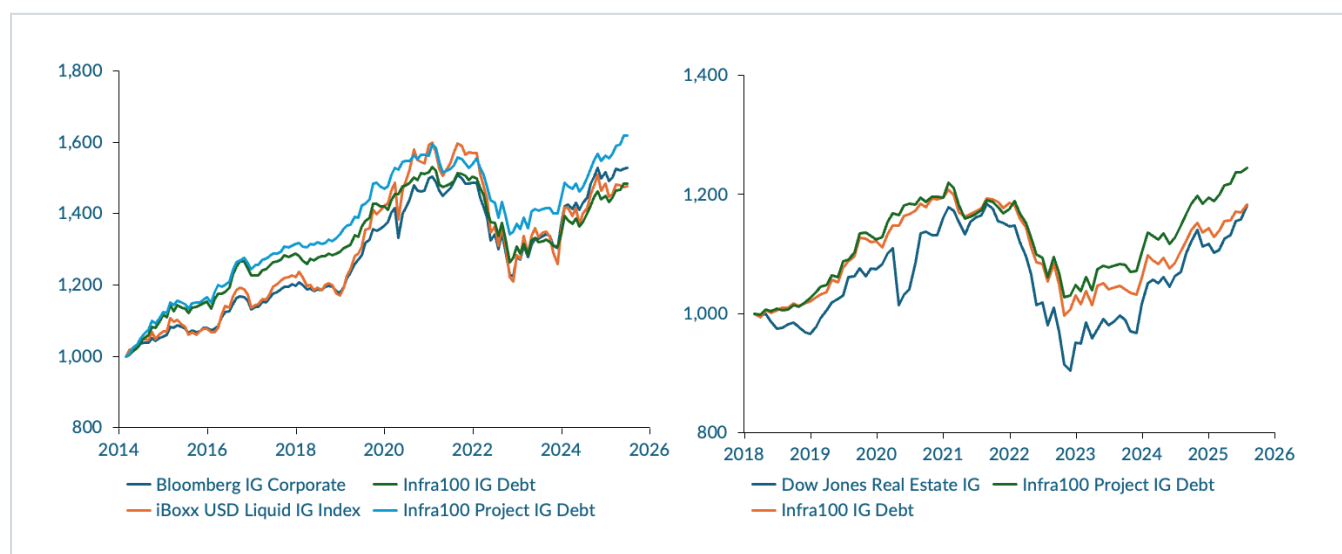
Source: *infraMetrics, Bloomberg, S&P Global.*

Why Infrastructure Debt Requires Its Own Benchmark

Infrastructure debt has generally exhibited more stable performance — lower volatility and smaller drawdowns — than corporate or real-estate credit, especially during market stress. This reflects its asset-backed structure, longer duration and contracted cash-flow profile. The following charts and tables compare cumulative and annual performance across investment-grade and non-investment-grade segments.

Investment-grade performance comparison

FIGURE 9 – CUMULATIVE INVESTMENT-GRADE INDEX PERFORMANCE – GROSS RETURNS (JUN 2025)



Indexed to 1,000 at inception; monthly observations.

Source: *infraMetrics, Bloomberg.*

■ **TABLE 3 – ANNUAL PERFORMANCE – INVESTMENT-GRADE INDICES (JUN 2025)**

Year	Bloomberg IG Corp	iBoxx USD Liquid IG	DJ Real Estate IG	Infra100 IG Debt	Infra100 Project IG
2014	6.0%	7.0%	N/A	11.0%	12.1%
2015	1.2%	-0.2%	N/A	2.2%	2.7%
2016	6.2%	7.1%	N/A	8.2%	9.1%
2017	5.9%	8.3%	N/A	4.3%	4.8%
2018	-1.1%	-3.9%	-2.20%	1.7%	3.0%
2019	15.4%	19.9%	10.77%	8.2%	8.9%
2020	9.2%	12.0%	8.81%	8.6%	8.0%
2021	-1.1%	-1.8%	-2.59%	-2.2%	-2.5%
2022	-14.6%	-18.9%	-17.33%	-14.1%	-12.7%
2023	11.8%	11.3%	10.68%	8.2%	9.6%
2024	5.0%	2.1%	4.86%	2.8%	4.6%
2025	3.9%	4.2%	7.19%	4.8%	4.7%

Source: infraMetrics, Bloomberg. Infrastructure indices shown in tint.

■ **TABLE 4 – INDEX PERFORMANCE – GROSS RETURNS & FUNDAMENTALS, INVESTMENT GRADE (JUN 2025)**

Index	Trailing Return				Annualized Return					Fundamentals		
	1 Mo	3 Mo	1 Yr	YTD	3 Yr	5 Yr	10 Yr	Since Feb '14	Since Feb '18	Duration	Spread	Yield
Bloomberg IG Corporate	1.45%	1.92%	7.20%	3.92%	6.03%	1.46%	3.82%	3.88%	N/A	6.37	83 bps	4.51%
iBoxx USD Liquid IG	2.17%	2.00%	6.49%	4.21%	4.81%	-0.22%	3.58%	3.63%	N/A	7.90	88 bps	5.52%
Dow Jones Real Estate IG	2.04%	4.40%	10.36%	7.19%	6.40%	0.70%	N/A	N/A	2.17%	N/A	N/A	N/A
Infra100 IG Debt	1.14%	2.33%	7.02%	4.77%	3.92%	0.18%	2.96%	3.59%	2.27%	5.64	96 bps	4.92%
Infra100 Project IG Debt	0.61%	2.20%	8.43%	4.70%	5.44%	1.01%	3.69%	4.33%	2.96%	5.84	104 bps	5.05%

Source: infraMetrics, Bloomberg, Refinitiv.

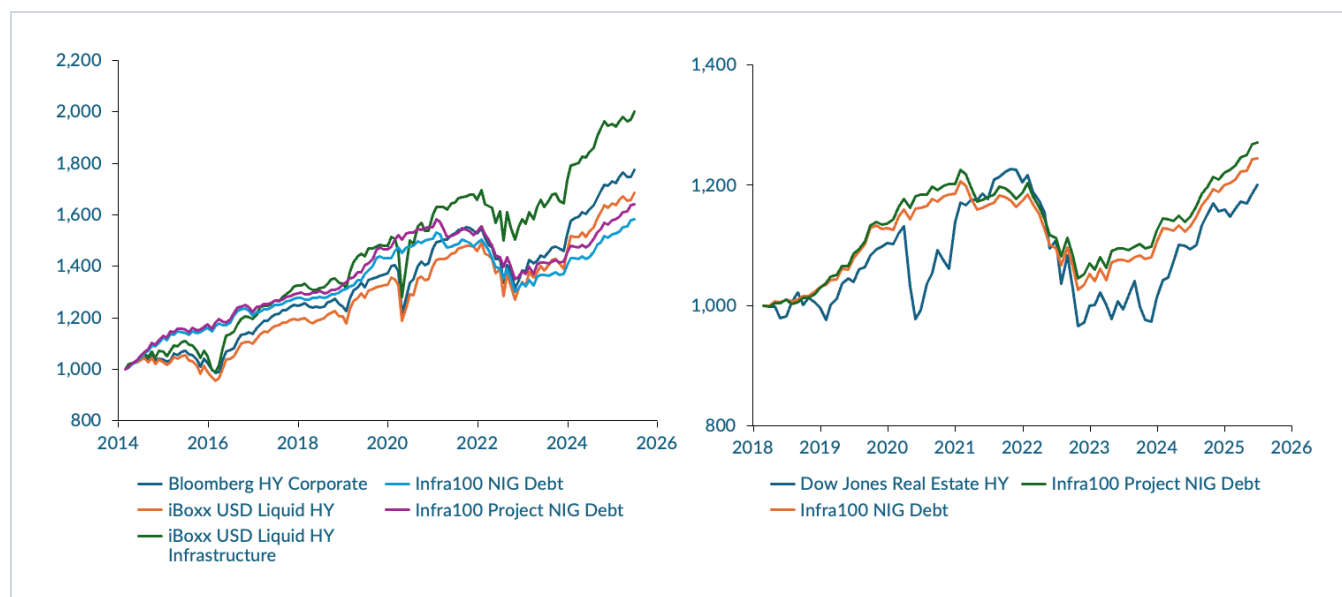
■ **TABLE 5 – INDEX RISK & RETURN CHARACTERISTICS – INVESTMENT GRADE (JUN 2025)**

Index	Annualized Std. Deviation					Risk-Return Ratio				
	3 Yr	5 Yr	10 Yr	Since Jan '14	Since Feb '18	3 Yr	5 Yr	10 Yr	Since Feb '14	Since Feb '18
Bloomberg IG Corporate	7.53%	7.05%	6.03%	5.74%	N/A	0.80	0.21	0.63	0.68	N/A
iBoxx USD Liquid IG	10.61%	9.80%	8.31%	7.96%	N/A	0.45	-0.02	0.43	0.46	N/A
Dow Jones Real Estate IG	8.00%	7.80%	N/A	N/A	7.60%	0.80	0.09	N/A	N/A	0.29
Infra100 IG Debt	6.28%	5.70%	4.74%	4.68%	5.07%	0.62	0.03	0.62	0.77	0.45
Infra100 Project IG Debt	5.57%	5.39%	4.46%	4.41%	4.81%	0.98	0.19	0.83	0.98	0.62

Source: infraMetrics, Bloomberg, Refinitiv.

Non-investment-grade performance comparison

FIGURE 10 – CUMULATIVE NON-INVESTMENT-GRADE INDEX PERFORMANCE – GROSS RETURNS (JUN 2025)



Indexed to 1,000 at inception; monthly observations.

Source: *infraMetrics, Bloomberg.*

TABLE 6 – ANNUAL PERFORMANCE – NON-INVESTMENT-GRADE INDICES (JUN 2025)

Year	Bloomberg HY Corp	iBoxx USD Liquid HY	iBoxx HY Infra	DJ Real Estate HY	Infra100 NIG Debt	Infra100 Project NIG
2014	2.9%	1.7%	5.3%	N/A	11.4%	12.4%
2015	-2.8%	-4.9%	-5.2%	N/A	2.9%	3.0%
2016	15.9%	15.8%	21.4%	N/A	6.8%	7.4%
2017	7.9%	6.6%	9.4%	N/A	4.4%	4.4%
2018	-2.0%	-1.3%	-0.7%	-2.4%	2.8%	3.2%
2019	14.2%	15.0%	15.0%	12.9%	8.9%	10.2%
2020	6.7%	5.1%	7.8%	6.3%	7.1%	7.2%
2021	3.7%	4.7%	4.0%	3.9%	-1.8%	-1.8%
2022	-10.9%	-11.1%	-7.8%	-17.8%	-12.1%	-11.9%
2023	14.2%	14.4%	14.5%	4.2%	8.4%	8.0%
2024	9.4%	7.9%	8.4%	10.0%	6.7%	7.1%
2025	4.4%	5.0%	4.8%	6.6%	3.8%	4.0%

Source: *infraMetrics, Bloomberg.* Infrastructure indices shown in tint.

■ **TABLE 7 — INDEX PERFORMANCE — GROSS RETURNS & FUNDAMENTALS, NON-INVESTMENT GRADE (JUN 2025)**

Index	Trailing Return				Annualized Return					Fundamentals		
	1 Mo	3 Mo	1 Yr	YTD	3 Yr	5 Yr	10 Yr	Since Feb '14	Since Feb '18	Duration	Spread	Yield
Bloomberg HY Corporate	1.52%	3.09%	10.07%	4.42%	10.47%	5.92%	5.47%	5.25%	N/A	3.19	337 bps	6.81%
iBoxx USD Liquid HY	1.85%	3.69%	10.58%	4.98%	10.15%	5.90%	5.19%	4.81%	N/A	2.86	305 bps	7.17%
iBoxx USD Liquid HY Infrastructure	1.62%	3.57%	9.25%	4.79%	10.66%	6.46%	6.39%	6.37%	N/A	2.94	320 bps	7.01%
Dow Jones Real Estate HY	1.92%	4.54%	11.15%	6.63%	5.67%	2.99%	N/A	N/A	2.70%	N/A	N/A	N/A
Infra100 NIG Debt	0.36%	2.02%	8.88%	3.83%	5.42%	1.41%	3.43%	4.10%	3.02%	4.63	143 bps	4.79%
Infra100 Project NIG Debt	0.33%	1.97%	9.33%	3.97%	5.63%	1.48%	3.70%	4.43%	3.29%	4.50	149 bps	4.88%

Source: *infraMetrics, Bloomberg, Refinitiv.*

■ **TABLE 8 — INDEX RISK & RETURN CHARACTERISTICS — NON-INVESTMENT GRADE (JUN 2025)**

Index	Annualized Std. Deviation					Risk-Return Ratio				
	3 Yr	5 Yr	10 Yr	Since Jan '14	Since Feb '18	3 Yr	5 Yr	10 Yr	Since Feb '14	Since Feb '18
Bloomberg HY Corporate	6.11%	6.74%	7.39%	7.04%	N/A	1.71	0.88	0.74	0.75	N/A
iBoxx USD Liquid HY	7.52%	7.87%	7.66%	7.36%	N/A	1.35	0.75	0.68	0.65	N/A
iBoxx USD Liquid HY Infrastructure	7.48%	7.87%	8.88%	8.49%	N/A	1.42	0.82	0.72	0.75	N/A
Dow Jones Real Estate HY	8.42%	8.86%	N/A	N/A	8.77%	0.67	0.34	N/A	N/A	0.31
Infra100 NIG Debt	4.79%	4.73%	3.92%	3.87%	4.23%	1.13	0.30	0.88	1.06	0.71
Infra100 Project NIG Debt	4.66%	4.73%	3.96%	3.94%	4.24%	1.21	0.31	0.93	1.13	0.78

Source: *infraMetrics, Bloomberg, Refinitiv.*

Sector Composition: *infraMetrics* vs. Traditional Corporate Indices

The *infraMetrics* indices (infra100 IG/NIG and infra100 Project IG/NIG) are built on actual infrastructure sectors — transport, power, renewables, utilities — which feature long-term contracted or regulated revenues, lower cyclicity and tangible asset backing. Broad-market indices such as Bloomberg IG/HY Corporate and Markit iBoxx USD Liquid IG/HY carry large exposures to cyclical sectors (financials, industrials, technology, consumer discretionary) that are more sensitive to volatility and economic shocks. The Bloomberg High-Yield and iBoxx USD Liquid HY indices each allocate over 20% to consumer discretionary and services — among the most vulnerable in downturns — whereas infrastructure indices hold sectors that continue generating revenue even in recessions.

Markit iBoxx USD Liquid HY Infrastructure Index and its composition

Despite its name, this public index does not fully capture private infrastructure debt. It comprises primarily corporate issuers with some infrastructure-related business, is dominated by general high-yield bonds rather than project-specific debt, and carries significant exposure to real estate and technology – sectors that typically lack the long-term contracted revenues, regulatory protections or essential-service mandates that define true infrastructure. It also excludes project-finance debt (ring-fenced senior loans issued by SPVs with dedicated cash-flow waterfalls and covenants). As a result, its performance mirrors broad high-yield corporate credit, with higher correlation to macroeconomic cycles rather than the stable, defensive profile of private infrastructure debt.

A BENCHMARK THAT REFLECTS REALITY

Behaviour through periods of market stress

2022 (monetary tightening & inflation shock): Bloomberg US IG Corporate and iBoxx USD Liquid IG fell about –14.6% and –18.9%; infra100 IG declined roughly –14.1% and infra100 Project IG –12.7% – smaller losses despite similar duration.

2018 (equity sell-off & credit volatility): broad high-yield slipped (–2.0% Bloomberg HY, –1.3% iBoxx USD HY), while infra100 NIG gained about +2.8% and infra100 Project NIG +3.2%.

2015 (growth slowdown & oil collapse): Bloomberg HY returned –2.8% and iBoxx USD Liquid HY –4.9%, while infra100 NIG delivered about +2.9% and infra100 Project NIG +3.0%.

Over 2014–2025, traditional benchmarks experienced several noticeable drawdowns and periods of heightened volatility – particularly in 2015, 2018 and 2022 – whereas the infraMetrics indices followed a steadier upward trajectory with fewer and shallower drawdowns and relatively swift recoveries. The iBoxx USD Liquid HY Infrastructure index illustrates the contrast: it delivered strong gains in risk-on years (+21.4% in 2016, +15.0% in 2019, +14.5% in 2023) but suffered notable declines in tougher years (–5.2% in 2015, –0.7% in 2018, –7.8% in 2022), reflecting exposure to cyclical sub-sectors and lacking the stable long-term compounding of the private infra100 NIG and Project NIG indices.

Risk-Adjusted Return Metrics and Yield Profile

- **Investment grade.** infra100 IG achieved a return/volatility ratio of about 0.62 over ten years — above the 0.43 for iBoxx USD Liquid IG and in line with the 0.63 for Bloomberg IG. Its volatility since 2014 (~4.7%) was well below the iBoxx IG (~8.0%) and below Bloomberg IG (~5.7%). It provided a yield of about 4.92% with a duration near 5.6 years, versus 4.51% yield and 6.37-year duration for Bloomberg IG — a similar return with less rate risk and lower volatility.
- **Non-investment grade.** infra100 Project NIG showed a ten-year return/volatility ratio of about 1.13, well above broad HY (around 0.74 Bloomberg US HY, 0.65 iBoxx USD Liquid HY). Its volatility (mid-single digits, ~4.5–5.0%) compares with 7–8% for typical HY corporate indices, and its yield of roughly 4.88% (duration near 4.5 years) delivered a more favourable risk-return balance.
- **iBoxx HY Infrastructure.** Delivered a ten-year annualised return of about 6.39% with a yield around 7.01% and a spread of roughly 320 bps. Its short duration (~2.94 years) limits rate risk but its high volatility (~8.49%) produced a return/volatility ratio of roughly 0.75 — much of the nominal return coming with elevated risk.

Right Asset, Right Benchmark

Private infrastructure debt is not simply "private corporate credit with a longer duration" — it is an asset class built on essentiality, regulation, long-term stability and contractual protection. Benchmarking such assets against generic corporate indices introduces distortions that undermine performance attribution, misrepresent volatility and overstate liquidity risk. infraMetrics IG/NIG indices, built from real-world, bottom-up transactions across global markets, offer an accurate and transparent reference point: they allow GPs to demonstrate skill in infrastructure-debt selection and LPs to back-test strategies against benchmarks that match their investment universe rather than a public proxy.

Not All Asset-Backed Credit Is Equal: Infrastructure vs. Real-Estate Bonds

Real-estate bond indices are typically composed of debt from REITs, commercial-property companies and developers, with cash flows tied to property values and rental income that can be cyclical. They face valuation swings, lease renewals and vacancies, tenant creditworthiness and shifts in demand across property types. Infrastructure debt, by contrast, is backed by projects delivering essential services under long-term agreements or regulated revenue models, with covenants and collateral that protect investors. Because demand for electricity, water and transport persists through downturns, revenue streams are more predictable and less correlated with short-term fluctuations.

In 2022, the Dow Jones Real Estate IG index dropped approximately –17.3% and its High-Yield counterpart about –17.8%, among the worst-performing credit segments that year. Infrastructure debt had smaller drawdowns: infra100 IG down roughly –14.1% and infra100 Project IG –12.7%; on the high-yield side infra100 NIG and Project NIG declined about –12.1% and –11.9%. Following dislocation, infrastructure debt indices generally showed quicker recoveries and steadier compounding, whereas real-estate credit rebounded more slowly — the essential-service nature of infrastructure assets providing insulation from some of the severe downturns that hurt the real-estate sector.

Risk-Return Metrics: Infrastructure vs. Real-Estate Credit (Since 2018)

- **Investment grade.** Since 2018, infra100 Project IG shows a return-to-risk ratio of about 0.62 versus roughly 0.29 for the Dow Jones Real Estate IG Bond index — about twice the return per unit of volatility. Annualised volatility of infra100 Project IG (~5.4–5.6%) is below the real-estate IG index (~7.6–8.0%).
- **Non-investment grade.** infra100 Project NIG posts a return/risk ratio of about 0.78 since 2018 versus roughly 0.31 for Dow Jones Real Estate HY, with volatility around 4.7% against approximately 8.9% for the real-estate HY index.

Real-estate credit benchmarks have been more prone to sharp boom-bust cycles, in line with the cyclicity of the property sector. This volatility and drawdown pattern does not mirror the more stable, income-oriented performance of private infrastructure debt. Using a real-estate bond index as a performance proxy for infrastructure debt could therefore be misleading; investors focused on infrastructure credit typically require benchmarks — such as the infraMetrics series — that specifically capture the dynamics of infrastructure financing.

Strategic Allocation Implications

Private infrastructure debt offers a fundamentally distinct profile within fixed-income allocations, blending long-duration, contract-backed cash flows with low credit cyclicity and strong downside protection. Across market cycles, infraMetrics indices indicate this asset class has delivered higher cumulative returns than comparable public benchmarks, along with stronger volatility-adjusted performance, faster recovery times and greater resilience during stress — characteristics relevant for diversification, yield enhancement and capital stability.

Importantly, private infrastructure debt carries an embedded illiquidity premium — a dynamic feature rather than a static spread — compensating investors for limited secondary tradability and longer holding periods. During market stress, public credit markets often experience sharp dislocations and forced selling; private infrastructure debt tends to be largely insulated from mark-to-market volatility thanks to contractual cash flows and stable fundamentals. infraMetrics data show this premium has been associated with long-term performance comparable to or better than liquid IG or HY credit, while exhibiting materially lower risk.

Examining correlations further highlights the differentiated role of infrastructure debt. Both IG and NIG infrastructure debt display a credit-behaviour profile materially distinct from traditional public fixed income — with implications for diversification, risk management and benchmark selection.

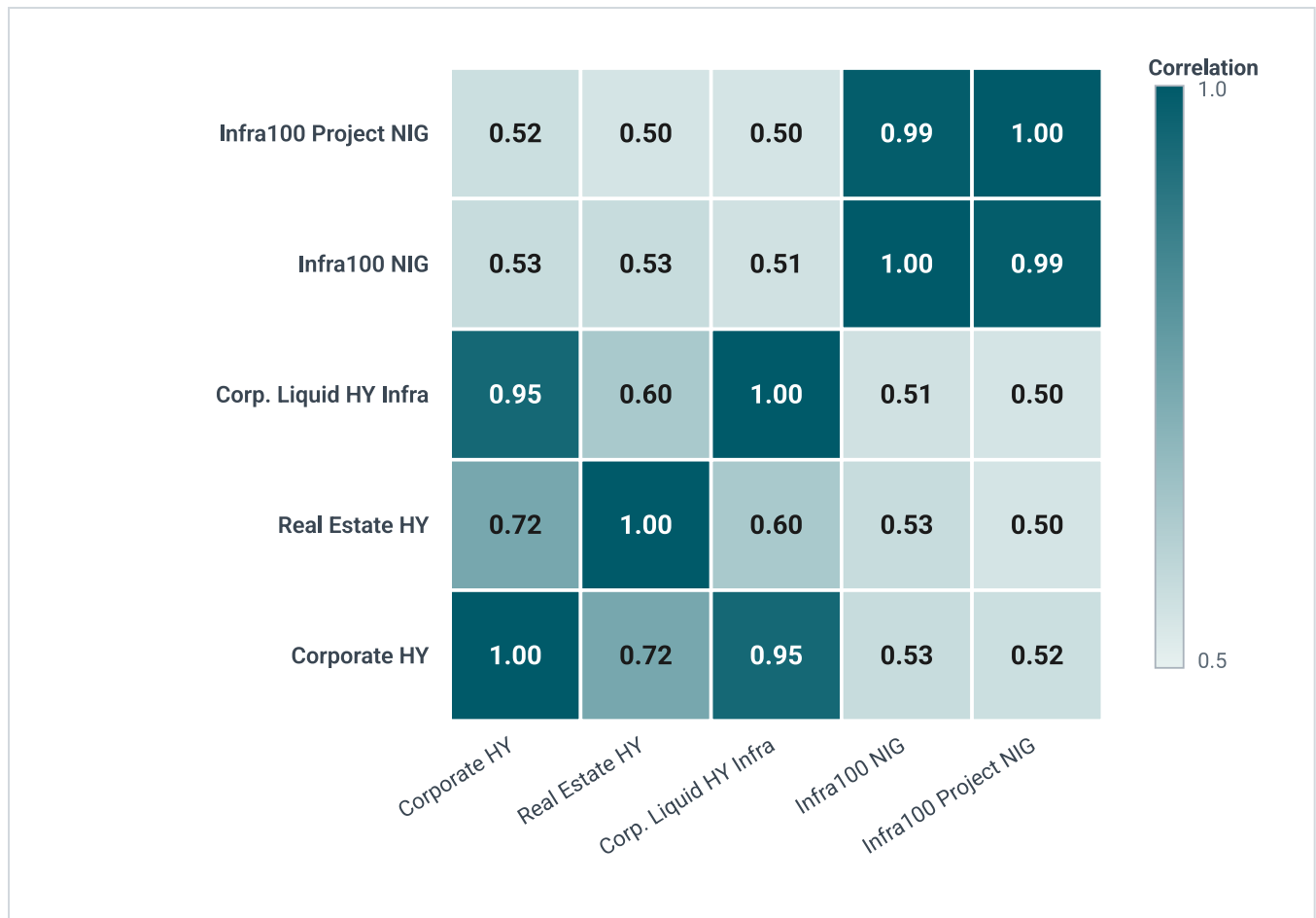
■ FIGURE 11 — INVESTMENT-GRADE INDEX RETURN CORRELATIONS



Source: *infraMetrics, Bloomberg.*

While infra100 IG Debt shows a moderate correlation of 0.78 with the Corporate IG Bond index and 0.73 with the Real Estate IG Bond index, these indicate only partial overlap. infra100 Project IG Debt shows even lower correlations — 0.76 with Corporate IG and 0.72 with Real Estate IG. By contrast, Corporate and Real Estate IG indices are closely linked (0.91 correlation), sharing similar sensitivities to economic and refinancing risk. The relatively low correlation of *infraMetrics* IG indices with traditional benchmarks highlights the diversifying potential of infrastructure debt — grounded in its long-term contracted or regulated cash flows, essential-service orientation and asset-backed structures.

■ FIGURE 12 — HIGH-YIELD INDEX RETURN CORRELATIONS



Source: *infraMetrics, Bloomberg.*

Non-investment-grade infrastructure debt shows a markedly different profile from traditional high-yield credit. *infra100* NIG Debt has a relatively low correlation of about 0.53 with both a broad corporate HY index and a real-estate HY index; *infra100* Project NIG is weaker still — around 0.52 with corporate HY and 0.50 with real-estate HY. By comparison, the corporate HY and liquid infrastructure HY indices are very closely aligned (around 0.95), reflecting shared exposure to general high-yield credit risk. These patterns suggest private infrastructure NIG debt functions as a distinct component within high-yield portfolios rather than moving in lockstep with traditional HY bonds — offering high yield with materially different downside characteristics.

Infrastructure debt is not just a niche credit segment — it is a strategic asset class deserving of its own benchmark. The combination of stable income and moderate-to-low correlation with traditional indices confirms its independence as a return stream, justifying dedicated allocation and benchmarking.

Conclusion

Infrastructure debt has grown in institutional portfolios in response to structural market shifts, regulatory change and a global search for stable, long-duration assets. The retreat of some traditional lenders, tighter capital requirements and heightened volatility have created space for private infrastructure credit as a source of yield and long-term liability matching, particularly where conventional fixed-income products may not fully meet these needs.

From a credit perspective, infrastructure debt exhibits distinctive characteristics due to its asset-backed structures, regulatory frameworks and contractual cash flows. Default rates have historically been significantly lower than in corporate or real-estate debt, and over 75% of the infrastructure-debt universe is classified as investment-grade. Credit losses have been mitigated by strong recovery rates and predictable cash-flow profiles, while embedded protections such as covenants and step-in rights provide structural defences for lenders.

The analysis also shows that public credit benchmarks — corporate, real-estate or listed infrastructure bond indices — are not fully representative proxies for private infrastructure debt. They tend to experience larger drawdowns and more cyclical volatility and typically do not account for the longer duration and illiquidity of private infrastructure loans. infraMetrics indices, purpose-built from actual transaction data and real asset exposures, provide a sound basis for performance attribution, strategy back-testing and aligning capital deployment with the characteristics of the market.

Beyond yield, infrastructure debt can contribute to portfolio stability, offer income aligned with inflation and assist in matching long-term liabilities. As global investment flows increasingly target clean energy, transport and digital infrastructure, the role of infrastructure debt in portfolio construction is expected to expand — potentially becoming a larger component of fixed-income strategies in the years ahead.

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Appendix

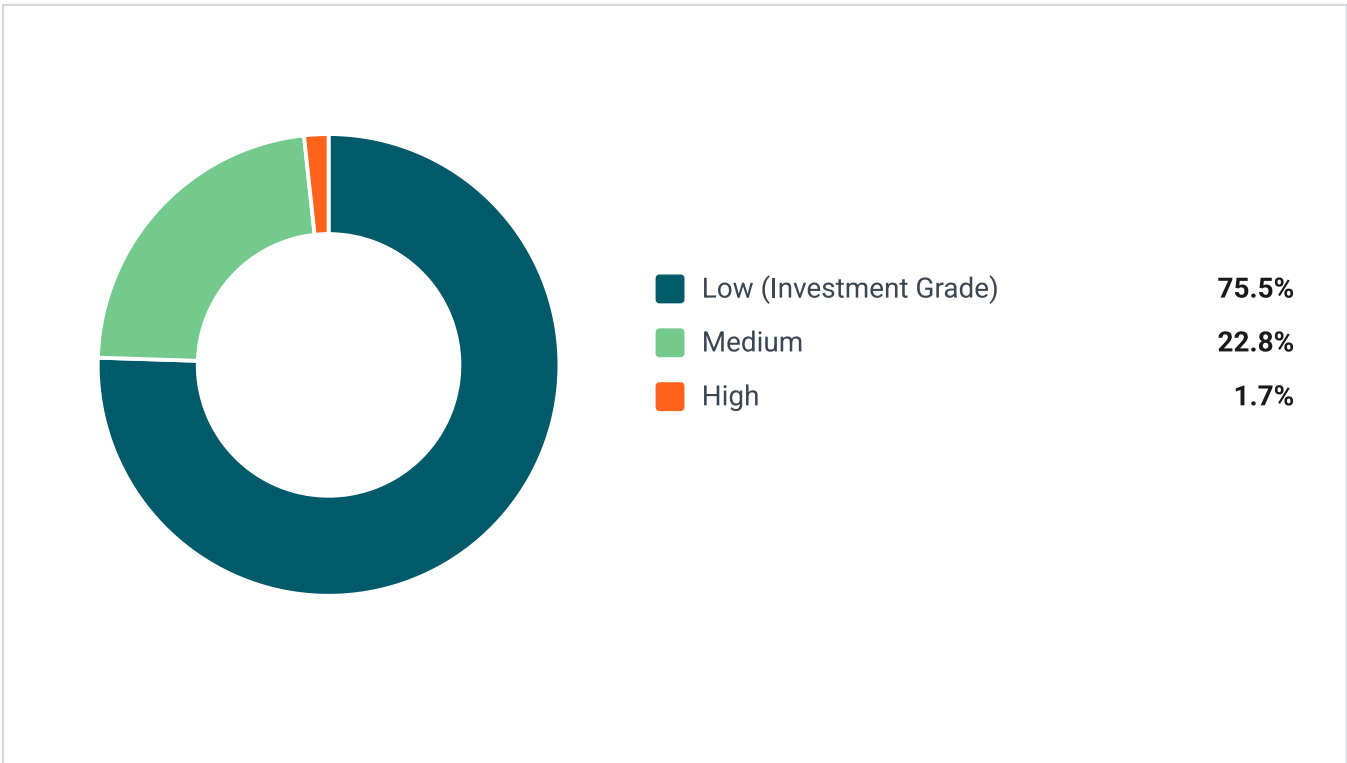
Credit-Risk Model

In credit-risk analysis for infrastructure projects and corporate debt, survival analysis is pivotal for modelling the time until specific financial events, such as defaults, occur. The Cox proportional-hazards model examines the relationship between covariates and the hazard rate – the immediate probability of an event at a particular moment – and is valuable for estimating borrower default risk from multiple factors.

The approach incorporates time-varying covariates to capture changes in risk factors over time. Data is organised by company identifier and an age variable, creating intervals reflecting periods when covariates were recorded; start and end times are defined chronologically to enable dynamic modelling. The dataset includes financial ratios, economic indicators and TICCS factors. The time-dependent Cox model uses over 8,000 annual observations from SIPA's internal database spanning 1988 to 2023, providing a comprehensive view of default and survival events.

Figure 13 shows the credit-risk composition of the debt universe as of December 2024, using a grading system with Low, Medium and High categories based on probability of default: Low (0–1%), Medium (1–10%) and High (>10%) – aligning with market standards where Low ≈ investment grade and Medium/High ≈ high yield.

FIGURE 13 – CREDIT-RISK DISTRIBUTION OF THE INFRAMETRICS PRIVATE INFRASTRUCTURE DEBT UNIVERSE (DEC 2024)



Source: *infraMetrics*.

The infraMetrics credit classification aligns closely with external benchmarks. As of December 2024, around 75% of the universe is classified as investment-grade and 25% as high-yield – mirroring S&P’s finding that 75–80% of rated infrastructure debt is investment-grade (S&P Global Ratings, Infrastructure Default and Rating Transition Study, 2023), reinforcing the credibility of infraMetrics for market-aligned credit analytics.

Credit-Spread Model

The infraMetrics platform employs a transaction-based valuation methodology to estimate credit-risk premia for private infrastructure debt. Each month the model is recalibrated using 5,000+ historical and new transactions, capturing market movements and pricing trends and enabling the shadow-pricing of hundreds of instruments for which risk-factor exposures are known. At its core is a multi-factor credit-spread framework that decomposes spreads into key systematic risk factors, grounded in economic rationale, statistical relevance and data availability.

■ TABLE 9 – RATIONALE FOR INFRAMETRICS SYSTEMATIC RISK FACTORS

Factor	Definition	Economic Rationale	Reference
Size	Outstanding face value	Larger instruments tend to carry lower spreads	Strahan (1999)
Maturity	Tenor of the debt instrument	Longer tenors attract a higher premium for corporates, less so for projects	Blanc-Brude & Yim (2019)
Credit Risk	Probability of default	Higher default risk attracts a higher expected return	Blanc-Brude & Yim (2019)
Short-Term Rates	3-month interest rate	Higher funding costs for lenders carry positive risk premia	Blanc-Brude & Yim (2019)
TICCS Business Risk	Merchant / regulated / contracted controls	Merchant companies systematically attract higher risk premia	Blanc-Brude & Yim (2019)
TICCS Sector	Industrial-activity super-class / class controls	Some sectors show systematically higher or lower expected returns	Blanc-Brude & Yim (2019)

Source: infraMetrics; Blanc-Brude & Yim (2019).

Monthly recalibration lets the factor model reflect the latest shadow prices for assets in the universe. Table 10 summarises the number of shadow prices available by TICCS activity class for the period 2000 to 2024.

■ **TABLE 10 – SHADOW PRICES FOR TICCS SECTORS, 2000–2024**

TICCS Code	TICCS Name	Number of Shadow Prices
IC10	Power	24,107
IC20	Environmental Services	9,716
IC30	Social	20,996
IC40	Natural Resources	9,881
IC50	Data	4,944
IC60	Transport	117,289
IC70	Renewables	40,775
IC80	Network Utilities	99,718
Total	All infrastructure	327,426

Source: *infraMetrics*.

The credit-spread model demonstrates strong accuracy, with a mean error of just -0.12% for project debt and -0.79% for corporate debt, and a median absolute percentage error (MedAPE) of 1.27% and 2.42% respectively – confirming the model's reliability in matching actual transaction prices and capturing market risk dynamics.

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