National Bank for Financing Infrastructure and Development

Crisil Intelligence

Partial Credit Enhancement

New Paradigm for Infrastructure Finance

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by S&P Global

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National Bank for Financing Infrastructure and Development

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Abbreviations

AIFI	All-India financial institution
ABS	Asset-backed securities
AUM	Assets under management
APY	Atal Pension Yojana
BOT	Build-operate-transfer
CTG	Central Government securities
CPSEs	Central public sector enterprises
CPSU	Central public sector undertaking
CMBS	Commercial mortgage-backed securities
CAGR	Compound annual growth rate
DSRA	Debt service reserve account
EPF	Employees' provident fund
EPFO	Employees’ Provident Fund Organisation
EIB	European Investment Bank
EU	European Union
ECBs	External commercial borrowings
Fis	Financial institutions
GDP	Gross domestic product
HUDCO	Housing and Urban Development Corporation
HFCs	Housing finance companies
IIFCL	Indian Infrastructure Finance Company Ltd
IRFC	Indian Railway Finance Corporation
IREDA	Indian Renewable Energy Development Agency
InvITs	Infrastructure investment trusts
IRDAI	Insurance Regulatory and Development Authority of India
LGTT	Loan guarantee instrument for TEN-T
LPI	Logistics Performance Index
NABFID	National Bank for Financing Infrastructure and Development
NIP	National Infrastructure Pipeline
NIIF	National Investment and Infrastructure Fund
NLP	National Logistics Policy
NPS Trust	National Pension System Trust
NSIA	Nigerian Sovereign Investment Authority
NBFCs	Non-banking financial companies

NPAs	Non-performing assets
PCE	Partial credit enhancement
PCG	Partial credit guarantee
PFRDA	Pension Fund Regulatory and Development Authority
PFC	Power Finance Corporation
PPAs	Power purchase agreements
PIDG	Private Infrastructure Development Group
PSUs	Public sector undertakings
REITs	Real estate investment trusts
RRBs	Regional rural banks
RE	Regulated entity
RBI	Reserve Bank of India
RMBS	Residential mortgage-backed securities
SEBI	Securities and Exchange Board of India
SDS	Special deposit scheme
SPV	Special purpose vehicle
SDL	State development loan
STG	State guaranteed security
UPS	Unified Pension Scheme

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Foreword:

There are rare moments in a nation's economic journey that shape its future course. India today stands at such a pivotal juncture. As one of the fastest-growing major economies and having recently surpassed the USD 4 trillion GDP milestone, the country has showcased both resilience and ambition. The aspiration of becoming *Viksit Bharat* by 2047 calls for a structural transformation moving from a lower-middle income to a high-income economy. This transition demands sustained growth, powered by robust infrastructure that enables seamless connectivity, efficient logistics, and inclusive urbanisation.

Infrastructure is the backbone of economic progress yet financing it at the required scale remains a formidable challenge. Traditional sources (primarily bank lending) are constrained by asset-liability mismatches and concentration risks. The bond market, despite its potential, has played a limited role in infrastructure funding. To bridge this gap, innovative mechanisms are imperative.

It is in this context that Partial Credit Enhancement (PCE) emerges as a game-changer. By improving the credit profile of infrastructure bonds, PCE unlocks access to long-term capital from insurance companies, pension funds, and other institutional investors. The recent policy push to operationalise a dedicated PCE facility under National Bank for Financing Infrastructure and Development marks a decisive step toward deepening India's bond market and mobilising patient capital for infrastructure.

This knowledge paper, developed in collaboration with CRISIL, explores the transformative potential of PCE in catalysing infrastructure investment. It examines the evolving regulatory landscape, the role of institutional investors, and global best practices that can inform India's approach. The report also highlights the structural reforms and market innovations needed to scale PCE adoption-ranging from credit enhancement frameworks to investor awareness and risk-sharing mechanisms.

We are committed to enabling this transition by building confidence in credit-enhanced instruments, fostering partnerships, and creating an ecosystem that channels long-term savings into productive infrastructure assets. The insights presented here aim to inspire actionable strategies that will help bridge the financing gap and accelerate India's journey toward *Viksit Bharat 2047*.

Let us seize this opportunity to create a resilient, inclusive, and future-ready infrastructure financing framework-one that not only supports growth but also strengthens India's position as a global economic powerhouse.

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Executive summary

A new paradigm for infrastructure finance

India's vision of becoming a USD 30.0 trillion economy by 2047 hinges on the creation of robust and modern infrastructure that improves its potential growth rate.

A significant capital requirement underpins the vision. We estimate an investment of Rs. 90.0-100.0 trillion (USD 1.1 trillion)[1] will be required for infrastructure development between fiscals 2026 and 2030 alone.

Recent years have seen an unprecedented public capital expenditure push in infrastructure to realise the vision. Despite significant private investments, challenges in the financing landscape remain.

India's corporate bond market has been growing but has a relatively small footprint and remains inaccessible for many infrastructure projects. This has led to a heavy dependence on bank loans, bringing to the fore a structural mismatch between the banks' shorter-term liabilities and the long-term nature of the infrastructure assets.

To address the infrastructure spending requirement, India must tap into its domestic reservoirs of patient capital, specifically the funds managed by life insurance companies, pension funds and provident funds. These institutions have long-term liabilities that are perfectly aligned with the extended tenors of infrastructure projects, making them ideal investors.

For life insurance companies, the Insurance Regulatory and Development Authority of India (IRDAI) mandates that debt instruments must carry a credit rating of at least AA, or its equivalent, to qualify as an approved investment. This guideline has historically been a deterrent, as many new infrastructure bonds, weighed down by project-specific and execution risks tend of lower rating. Moreover, under construction greenfield infrastructure Special Purpose Vehicles don't have a cashflow backed credit rating and may be dependent on the sponsor. While insurers have a statutory obligation to invest a portion of their funds in infrastructure, the lack of compliant, high-rated bonds makes meeting these targets effectively a persistent challenge.

Retirement fund which includes pension funds (National Pension System or 'NPS') and provident funds (Employees' Provident Fund Organisation or 'EPFO'), also face similar challenges.

For instance, the provident funds prioritise stability and requires corporate debt to have a minimum AA rating from at least two credit rating agencies. Similarly, pension funds also prioritise stability and safety. They are permitted to invest in corporate bonds/securities with a minimum A rating, provided certain conditions are met.

To bridge this gap, the Union Budget 2025 announced a key financial initiative: The establishment of a dedicated partial credit enhancement (PCE) facility by National Bank for Financing Infrastructure and Development ('Institution').

PCE mitigates credit risk by providing support to debt instruments, which improves their creditworthiness and makes them more palatable to a broader investor base. The revised guidelines of August 2025 (in addition to amendments in 2017 and 2018) from the Reserve Bank of India (RBI) has bolstered the PCE facility by expanding the pool of PCE providers and enhancing the scope of instruments eligible for PCE. Further PCE limit has been enhanced to 50% of bond issue size from 20% previously. Capital requirement for the PCE provider has been linked to PCE amount and pre-enhanced credit rating of issuer. These changes directly address the limitations of 2015 PCE framework of RBI.

[1] 1 USD = Rs. 86

By supporting credit ratings of infrastructure bonds from a relatively lower-rated to a higher-rated category, PCE transforms them potentially into more appealing assets for insurance companies, pension funds and provident funds. This aligns the asset's risk profile with the stringent, risk-averse investment mandates of these entities, allowing them to channel their vast patient capital into the infrastructure sector.

This report covers the PCE framework and how it can unlock long-tenor capital from some of the country’s largest and most risk averse institutional investors.

Our assessment indicates operationalisation of the new framework, development of robust risk-pricing models, and fostering of a collaborative ecosystem with regulators and market participants will be important to drive adoption of such credit enhanced structured instruments.

If executed effectively, PCE will not only help bridge the country’s infrastructure financing gap but also allow long-term institutional investors to tap into an additional investment avenue that is aligned to their liability profiles.

India's infrastructure vision faces huge funding gaps

To realise its vision of becoming a USD 7.0 trillion economy by 2030 and reaching USD 30.0 trillion by 2047, the Government is proactively pushing for the creation of robust and modern infrastructure that can support rapid urbanisation, drive industrial growth and enhance global competitiveness.

This planned investment push reflects a clear understanding that infrastructure not just facilitates economic activity but acts as a catalyst for growth. The construction of highways, for instance, stimulates the economy through job creation and enhanced transit efficiency. Similarly, the expansion of public digital infrastructure, clean energy projects and resilient urban systems are essential to improve the quality of life and to position India as a leading global economic player.

For instance, the National Infrastructure Pipeline (NIP), a flagship initiative, has outlined planned investments of up to USD 1.5 trillion between fiscals 2020 and 2025. NIP prioritises key sectors such as energy, roads, railways and urban projects, which collectively account for nearly 70% of the planned investment.

The strategic focus has improved India's ranking in the World Bank's Logistics Performance Index (LPI) to 38 in year 2023 from 54 in year 2014.

Central Government's infrastructure spending to continue; States also ramping up

The Central Government has been the main driver of investments over the past five fiscals, building infrastructure to stoke and sustain long-term economic growth. Strategic initiatives such as Bharatmala, Sagarmala and NIP, along with Gati Shakti, have played a pivotal role.

After the Covid-19 pandemic, such investments have driven capital formation as well. The Government's capex has risen to 3.1% of the gross domestic product (GDP) budgeted for fiscal 2026 from 1.7% of GDP during fiscals 2016-2020. Gross fixed capital formation has improved to 30.1% of GDP in fiscal 2025 from 27.3% in fiscal 2021.

For the current fiscal, capex is budgeted at Rs. 11.2 trillion, up 10% from Rs. 10.2 trillion in fiscal 2025 (revised estimates), indicating that the Government has maintained its capex support at 3.1% of the GDP, the same as in fiscal 2025.

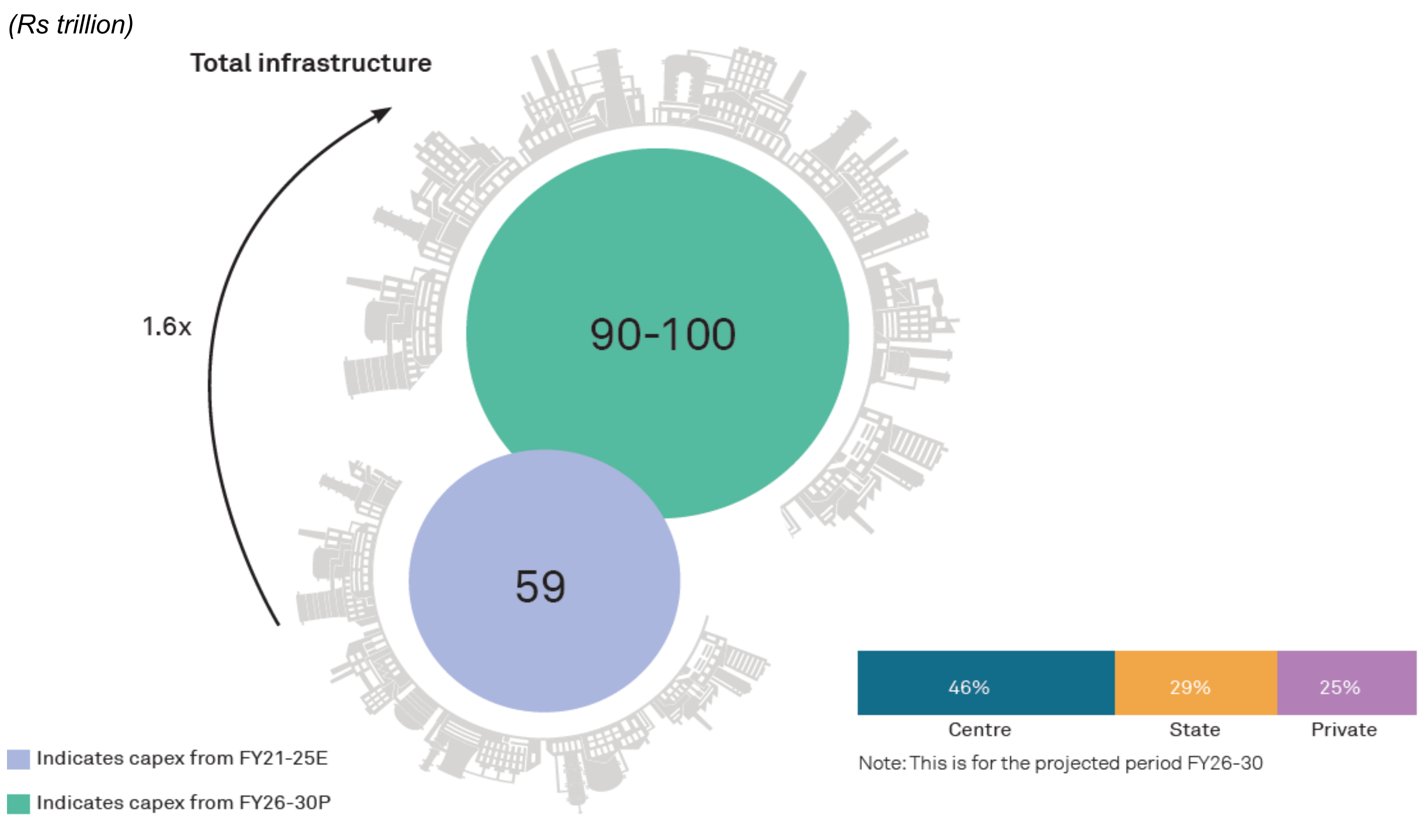
Infrastructure sectors are a catalyst for demand for related industrial sectors as well. For instance, according to a study by the National Institute of Public Finance and Policy, every rupee allocated to capex for infrastructure investment has a multiplier effect of 4.8 on the economy, as against just 1.0 for revenue expenditure.

Additionally, states are also ramping up capex to accelerate infrastructure-led growth, with budgets prioritising highways, urban renewal, industrial corridors and logistics hubs. Uttar Pradesh is leading the initiative with the construction of major expressway and metro projects, while Maharashtra has cleared HUDCO borrowings for urban infrastructure and launched the Nagpur International Business and Financial Centre hub. Andhra Pradesh has sharply raised its capex to back highway corridors and national highway expansion, and Telangana is planning a greenfield highway to strengthen coastal connectivity. These examples highlight a strong state-level thrust on infrastructure, complementing central programmes and creating opportunities for greater private and institutional capital participation.

Infrastructure spending to grow 1.6x between fiscals 2026 and 2030

Infrastructure spending in the country, which includes investments by the Central and State Governments, and the private sector—led by roads and power—will help push investments through fiscal 2030, with the total capex estimated to increase 1.6x to Rs. 90.0 - 100.0 trillion. Private sector involvement in infrastructure, which has been increasing, is poised to intensify with the Government's renewed emphasis on the build-operate-transfer (BOT) model in roads. The power sector continues to attract substantial private investment, driven by a sharper focus on non-fossil fuel energy generation.

Infrastructure spending to be Rs. 90.0 – 100.0 trillion between fiscals 2026 and 2030



Source: Quantix, company reports, Crisil Intelligence

Opportunities to support the vision of a USD 30.0 trillion economy by 2047

To achieve the ambitious target of a USD 30.0 trillion economy by 2047, our analysis highlights several key opportunities:

- **Transport and connectivity:** Infrastructure development is considered the bedrock for achieving this vision. The Government is focusing on a multimodal logistics network across roads, railways, ports, inland waterways and air. This aims to reduce transport costs, enhance supply chain efficiency and support sustainable growth. The National Logistics Policy (NLP) and the development of multimodal logistics parks are considered crucial for creating a smart, interconnected network essential for economic expansion
- **Power:** The power sector is one of the largest recipients of capital investment and it provides a significant investment opportunity in both conventional and renewable energy. The sector is also shifting to more efficient and smart grid systems, with the use of real-time data to improve efficiency
- **Green investments:** India's infrastructure growth is increasingly anchored in the transition to sustainability, with large-scale investments flowing into renewable power generation (solar, wind, hybrid projects), green hydrogen production, and grid-scale energy storage systems. This green push is reinforced by renewable energy development programmes and production-linked incentives, among others. Further, beyond just addressing climate commitments, these investments are likely to reduce import dependence, enhance energy security and open new avenues for industrial competitiveness
- **New-age investments:** Investments in technology-driven assets such as data centres and digital hubs are expected to grow to cater to the rising demand for digital services, data storage, etc., positioning India as a competitive destination

for global capital. The focus on such new-age infrastructure not only diversifies the capex portfolio, but also creates scalable, long-duration assets suitable for the participation of patient capital

Debt of Rs. 25.0 – 27.0 trillion needed for build-out over fiscals 2026 to 2030

Despite the unprecedented increase in public spending for infrastructure development, India still needs to invest Rs. 90.0 - 100.0 trillion between fiscals 2026 and 2030.

Our analysis indicates that the Central and State Governments together are likely to fund three-fourths of this capex (Rs. 67.0 – 75.0 trillion), with the private sector funding the rest. While the Government's capex spending will largely be through budgetary outlays, there are going to be significant private and public funding needs.

Overall, we expect cumulative debt requirement of Rs. 25.0 – 27.0 trillion over fiscals 2026-30, accounting for ~30% of the infrastructure capex, mainly led by the energy and road segments. We expect banks, non-banking financial companies (NBFCs) and all-India financial institutions (AIFIs) to fund ~75% of the debt requirement, while the rest would be funded via bonds and external commercial borrowings (ECBs).

Debt requirement for infrastructure is expected to remain high, thereby making a strong case for bond market expansion and facilitating flows from long-term investors to infrastructure assets.

Cumulative debt requirement between fiscals 2026 and 2030

Note: Banks and NBFCs include schedule commercial banks, Power Finance Corporation (PFC), REC Ltd, National Bank for Financing Infrastructure and Development, Indian Railway Finance Corporation (IRFC), Indian Renewable Energy Development Agency (IREDA), Indian Infrastructure Finance Company Ltd (IIFCL), National Investment and Infrastructure Fund (NIIF), NBFC-IDFs and other private NBFCs
Source: Crisil Intelligence

While it is crucial to sustain this scale of investment for growth and competitiveness, banks and NBFCs, the traditional financiers, face constraints. Our analysis highlights the following challenges that banks and NBFCs face while funding infrastructure projects:

- **Asset-liability mismatch:** Infrastructure projects typically involve long gestation and construction cycles—often stretching 4-7 years—before they begin generating revenue. During this period, lenders see no cash flows to service debt, increasing reliance on promoter equity and external financing. This makes them cautious about the segment. Further, banks usually mobilise deposits in the three-to-five-year range, but infrastructure projects require 15-30 years financing. This mismatch creates rollover risk and makes banks wary of extending long-dated loans
- **Volatility in interest rate:** Infra lending is exposed to interest rate cycles, as loans are often benchmarked to floating rates. In rising rate environments, debt service obligations can outpace projected revenues, especially when project

cash flows are fixed or regulated (e.g., tolls, tariffs, PPAs). This lack of alignment between volatile borrowing costs and relatively rigid revenue streams can strain project viability and raise default risk. For lenders, it results in higher credit costs and provisioning, discouraging long-term exposure to infrastructure projects

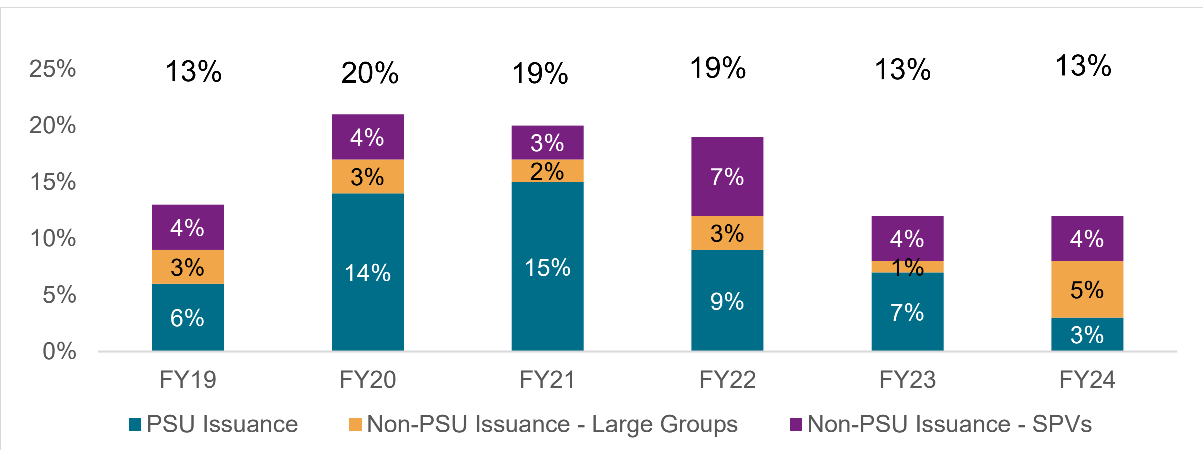
- **Legacy stress:** The past experience of high non-performing assets (NPAs) in power, roads and telecommunication segments lead to a more cautious approach. Hence, banks usually tread cautiously, while extending loans to infrastructure segments.
- **Concentration risk:** A handful of large corporate groups dominate infrastructure projects. This creates exposure caps and regulatory ceilings that curb the ability of banks to lend more

Moreover, within traditional financiers, most infrastructure investments stem from Government-backed financial institutions (FIs) such as the institution, PFC, REC, IRFC, IIFCL and IREDA. These institutions are policy driven with large balance sheets, critical to bridging the funding gap. That said, there is a need to gradually diversify funding sources and increase the investor base so that these institutions do not have to shoulder the burden on their own.

The persistent infrastructure funding gap

Over the past six fiscals, bond issuances from the infrastructure sector averaged ~16% of total issuances. Within the infrastructure segment, issuances by public sector undertakings (PSUs) averaged ~9%, while non-PSU issuances stood at ~7% of bond issuances. However, funding from the bond market for infrastructure assets still lags the requirement. This has placed a burden on Government spending, creating a potential strain on fiscal deficit targets.

Bond issuances from the infrastructure sector remain modest, non-PSU issuances even lower



Note: Data denotes share of infrastructure issuance in overall corporate issuances
Source: Prime Database, estimates by Crisil Ratings

A deep and liquid corporate bond market can bridge the funding gap

Given the constraints facing the banking sector, the solution lies in the development of a deep and liquid corporate bond market, which can provide an alternative and a more sustainable source of financing for infrastructure projects. Unlike banks, bond markets can aggregate long-term savings from diverse investors and channel them into infrastructure assets.

- **Long-term capital mobilisation:** Insurance companies, pension funds and provident funds have long-duration liabilities that match infrastructure project tenors. However, the key investors in the bond market, i.e., the patient capital investors such as insurance companies, pension funds and provident funds, have seen limited participation. For instance, investment of life insurers in the infrastructure sector (including housing) stood at ~9.7% of their life fund AUM at end of fiscal 2024 (covered under investment regulations of life insurance companies in the subsequent chapters)

- **Widening of investor base:** Bond markets spread the exposure beyond banks and NBFCs to a larger set of investors, making it more suitable for infrastructure projects
- **Market development and liquidity:** Participation of long-term insurance funds in infrastructure bonds not only broadens the investor base but also deepens the corporate bond market by providing stable demand for long-duration paper. Their participation enhances liquidity, supports secondary market development and encourages transparent price discovery—creating a cycle that attracts more institutional investors and reduces reliance on bank lending

Challenges and barriers to investing in the infrastructure sector

Domestic institutional investors such as life insurance companies, pension funds and provident funds are the most logical source of long-term patient capital for infrastructure. These institutions manage vast pools of capital that are stable because of liabilities spanning decades, making them a perfect match for the long gestation periods of infrastructure projects. However, the central issue is a fundamental mismatch between the investment mandates of these institutional investors and the intrinsic characteristics of infrastructure projects.

While these institutions require low-risk and highly rated investments to meet their fiduciary obligations, infrastructure projects are often characterised by significant construction risks, lower credit ratings and long gestation periods. The disconnect has created a self-reinforcing cycle where a large pool of capital is unable to access a sector with immense funding needs. Therefore, limited participation of such institutional capital in infrastructure segment is a result of deeply ingrained structural and regulatory requirements.

Additionally, the infrastructure sector sees significant construction and operational risks that are often beyond the control of stakeholders. These include protracted delays in land acquisition and environmental clearances, as well as complex contractual disputes and arbitration. The scale of this problem is underscored by the fact that several cases are pending with tribunals in key sectors, signifying the delay in resolving these matters and the associated locking up of working capital. These challenges directly affect the credit profile of infrastructure projects, with most, especially early-stage ones, receiving lower credit ratings. This is the most significant barrier to attracting large pools of patient capital, as these ratings fall below the minimum threshold mandated by key institutional investors.

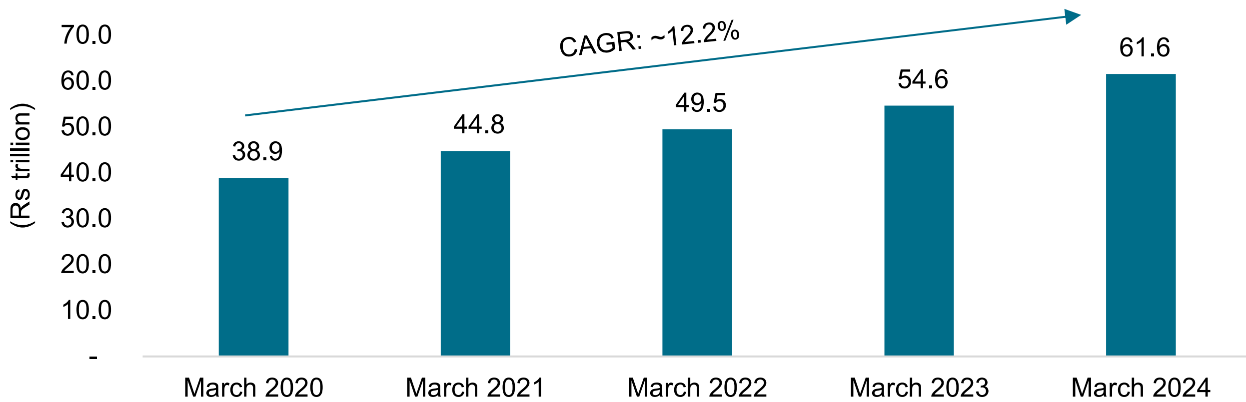
The funding gap is, therefore, not a symptom of capital scarcity, but a direct consequence of a structural mismatch between the risk profile of infrastructure assets and the risk appetite and regulatory mandates of the long-term institutional investors that hold the patient capital required for such projects.

Overview of life insurance and pension funds in India

Mandate of life insurance companies

The life insurance industry has emerged as one of the largest institutional asset pools in the country, with aggregate assets under management (AUM) crossing Rs. 61.0 trillion by end of March 2024, growing in high-single to low-double-digits year-on-year. This scale, comparable with the mutual fund industry, gives it a significant potential to fund infrastructure assets.

AUM of life insurers grew by ~12.2% CAGR between March 2020 and March 2024



Source: Life Insurance Council, IRDAI annual report, company disclosures, Crisil Intelligence

Investment regulations applicable to life insurance companies

Life insurance companies, as custodians of large pools of long-term savings, are governed by stringent investment regulations set by the Insurance Regulatory and Development Authority of India (IRDAI). Their primary mandate is to protect the interest of policyholders. This mandate is reflected in their investment guidelines, which stipulate a tiered system for asset allocation. The investment by life insurers is divided into two categories: Approved investments and other investments.

Approved investments consist of securities such as:

- Equity shares of listed company
- Repo, reverse repo in Government securities and corporate debt securities
- Investments in mutual funds, including Government Security Fund (GILT ETFs), Exchange Traded Funds (ETFs) and debt ETFs
- Investment in alternative investment funds (AIF Category I and Category II within SEBI regulations)
- Debt securities issued by banks
  - Debt instruments (in case of private banks, securities to be rated not less than AAA; in case of public banks, securities to be rated not less than AA)
  - Banks' capital instruments under Basel III
  - Long-term bonds by banks–financing of infrastructure and affordable housing
  - Additional Tier 1 (Basel III compliant) perpetual bonds
- Exposure to interest rate derivatives and credit default swaps

- Investments in units and debt of REITs and InvITs (securities to be rated not less than AA)
- Bonds or debentures and commercial papers issues by the AIFIs
- *Bonds or debentures issued by corporates with credit rating not less than AA and equivalent to long-term products, and not less than A1 for short-term products*
- Collateralised borrowing and lending obligations (CBLOs) created by Clearing Corporation of India and exposed to G-secs and liquid mutual funds
- Fixed deposit with banks
- Investment in asset-backed securities (ABS), pass through certificates (PTC) and security receipts (SRS) with underlying housing and/ or infrastructure assets
- Insurers to classify infrastructure investments, issued by infrastructure companies rated not less than A along with an expected loss rating of EL1 as part of approved investment

These regulations prescribe specific investment patterns, including a mandatory minimum 15% investment in housing and infrastructure for a life fund AUM. However, there exists a headroom for life insurers to shore up investments in infrastructure.

Headroom for insurers, especially LIC, to shore up investment in infrastructure

Company	Share of housing and infrastructure as a % of life fund AUM (at end of March 2024)
Industry	**9.7%**
Life Insurance Corporation	7.8%
SBI Life Insurance	17.6%
HDFC Life Insurance	17.0%
Bajaj Allianz Life Insurance	11.5%
ICICI Prudential Life Insurance	16.1%
Axis Max Life Insurance	17.8%
Kotak Life Insurance	16.5%

Source: Life Insurance Council, IRDA, company disclosures, Crisil Intelligence

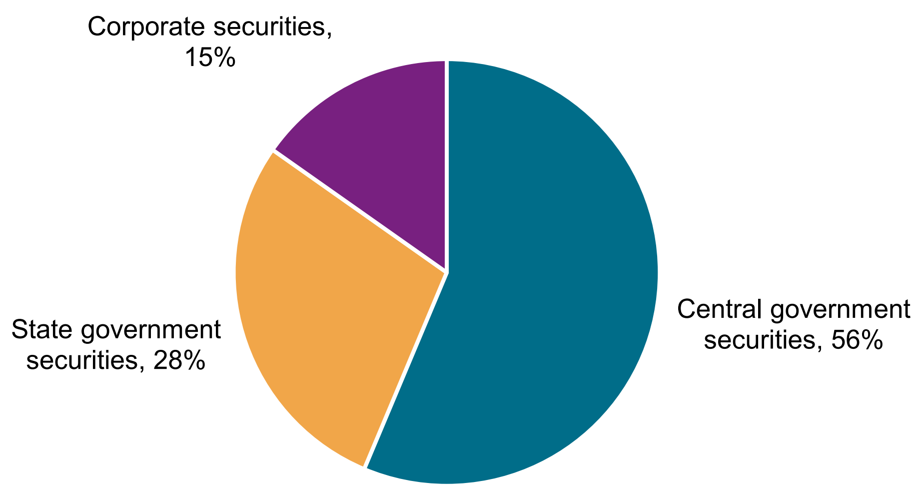
Life insurance players can subscribe to securities that do not meet the criteria of approved investments through the other investments segment. However, the regulator has prescribed a cap on investment under this segment. The cap, which varies depending on the fund category, is detailed below.

Category	Cap on other investments
Life fund	Not exceeding 15% of life fund AUM
ULIP fund	Not more than 25% of ULIP fund AUM

Source: Life Insurance Council, IRDA, company disclosures, Crisil Intelligence

84% of debt investments of life insurers are in Central or State Government securities

Share of debt products for top 7[2] life insurance players (March 2025)



Note:

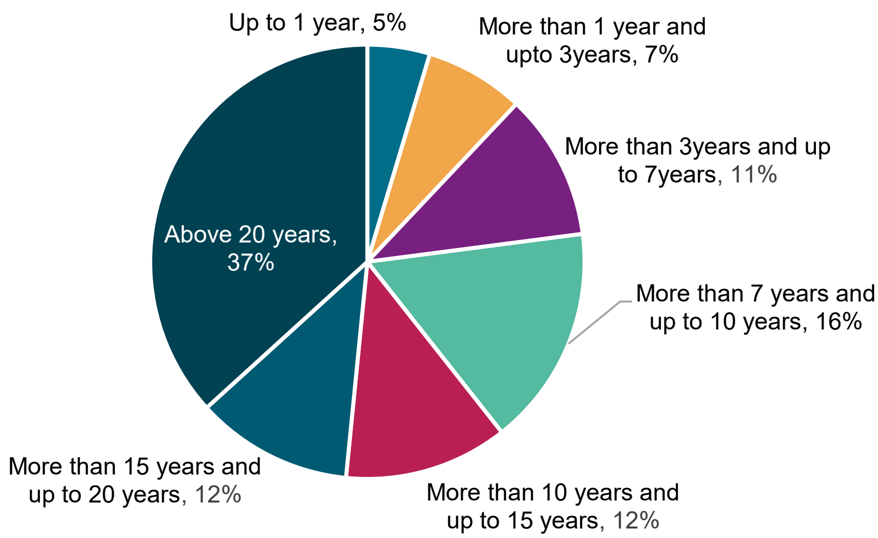
[1] Life Insurance Corporation of India, HDFC Life, SBI Life, ICICI Prudential Life Insurance, Axis Max Life Insurance, Kotak Life Insurance, Bajaj Allianz Life Insurance

Central Government securities include reverse repo investments with underlying G-sec and T-bill and TREPS investments guaranteed by Clearing Corporation of India Ltd

Life insurance players have investment tenors that suit long-term infrastructure projects. For instance, life insurance companies have high residual maturities (61% of debt instruments is marked for more than 10 years), which underscores their ability to park funds in long-dated papers. Even in the ULIP portfolio, where the share of corporate securities is higher, the percentage of exposure with residual maturity in the range of more than 7 years stood at 44%, which makes the investor segment best suited for investments in infrastructure assets and bonds.

[2] Top 7 players by premium as of March 2025; these players account for ~95% of the industry's AUM

Debt investments across residual maturity periods (March 2025)



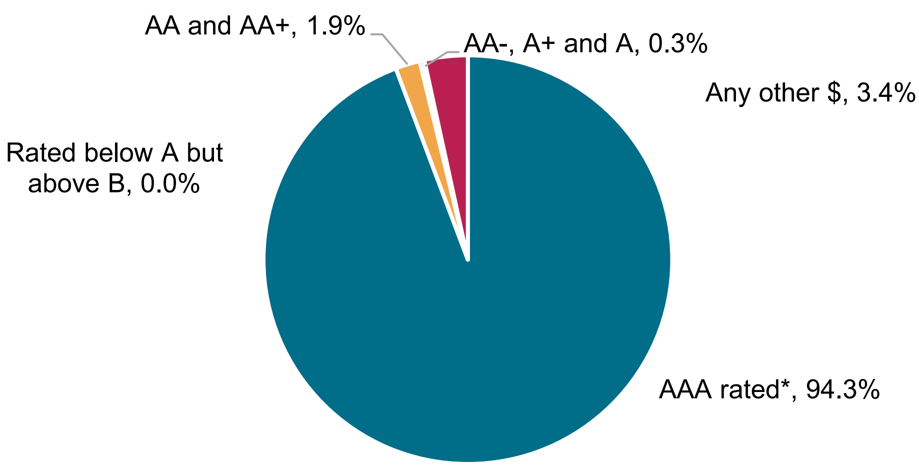
Note: Data for Life Insurance Corporation of India, HDFC Life, SBI Life, ICICI Prudential Life Insurance, Axis Max Life Insurance, Kotak Life Insurance, Bajaj Allianz Life Insurance

Source: IRDAI, Crisil Intelligence

Life insurance players have high share of exposure to AAA and equivalent investments

With ~94% of debt investment in AAA and equivalent-rated products, life insurance companies continue to be extremely cautious on the investment front and have a strong focus on capital protection.

Credit rating profile of life insurance players' exposure to debt instruments (March 2025)



Note:

Data for Life Insurance Corporation of India, HDFC Life, SBI Life, ICICI Prudential Life Insurance, Axis Max Life Insurance, Kotak Life Insurance, Bajaj Allianz Life Insurance

** Includes Central and State Government securities, reverse repo with underlying G-secs and T-bills, TREPS and AAA-equivalent-rated instruments*

$ Includes fixed deposit, loan assets and debt instruments rated B and below

Source: Company disclosures, Crisil Intelligence

Our assessment suggests the need for a policy pivot to encourage patient-capital investors to fund long-gestation infrastructure projects. This is where PCE becomes a direct and powerful enabler. By providing credit support, subject to a ceiling, it ensures timely payment to investors, which can potentially help elevate a lower rated infrastructure bond to a higher rating category. This transformation can potentially move the bond from a non-compliant or unattractive category into an approved investment for insurers, effectively opening access to a vast pool of capital.

It is not merely about making an investment more appealing, but about making it a regulatory possibility in the first place, thereby aligning the asset with the investor's long-term and low-risk mandate.

Mobilising pension and provident funds (NPS and EPFO)

Pension funds and provident funds share a similar risk-averse investment philosophy. Their core objective is ensuring the preservation of members' retirement savings while generating stable, consistent returns over the long term to meet future liabilities.

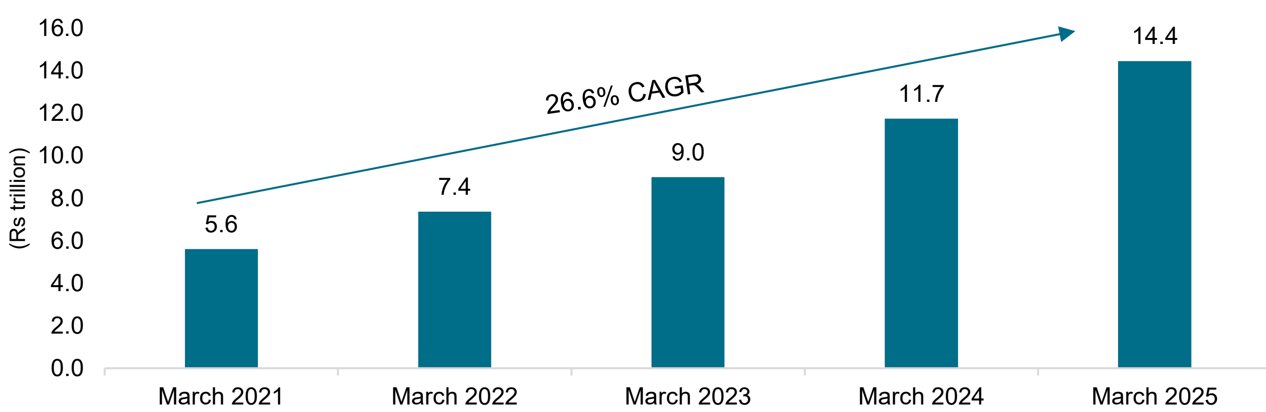
This conservative stance is reflected in a high allocation towards Government bonds and public sector undertakings (PSUs). For example, both the NPS and EPFO follow investment pattern that assigns higher weight to low-risk asset classes such as Government securities and lower weight to other asset classes.

Overview of investment of the NPS

The NPS, introduced by the Government of India to facilitate income after retirement, is governed by the Pension Fund Regulatory and Development Authority (PFRDA). Subscribers are required to invest in the scheme until they turn 60 to build a financial cushion for their post-retirement years. Thus, the investors have a long-term investment horizon. Accordingly, pension funds also prefer to invest in long-term, stable income-generating assets.

Pension funds have prescribed investment limits based on ratings, with restrictions on investment below A rating category[3]. In the last 4 years, AUM for NPS has shown strong growth at ~26.6% from Rs. 5.6 trillion to Rs. 14.4 trillion.

NPS AUM grew at a robust pace between March 2021 and March 2025



Source: NPS Trust, Crisil Intelligence

3 Pension funds are allowed to invest in corporate bonds/securities with a minimum A rating, subject to the condition that investment between A and AA-rated bonds is made to the maximum extent of 10% of the total debt instruments portfolio (consisting of only corporate debt) of the pension funds, at any point of time. Pension funds are also allowed to invest in papers issued by infrastructure companies rated not less than A, with an expected loss rating of EL1. In this case, for investment in below AA-rated papers in excess of 10% of the total debt instrument portfolio in the scheme concerned, the risk of default should be fully covered with credit default swaps.

An EL1 expected loss refers to a credit rating indicating the lowest possible expected loss over the life of the debt instrument

Investment regulations of NPS

The investment guidelines for the Unified Pension Scheme (UPS), NPS, Atal Pension Yojana (APY) Scheme through Central/State Government window, Corporate CG, NPS Lite, APY fund scheme are as follows:

Maximum investment for composite schemes in NPS

Asset class	Limit
Government securities and related investments	Up to 65%
Debt instruments and related investments	Up to 45%
Equity and related investments	Up to 25%
Short-term debt instruments and related investment	Up to 10%
Asset backed, trust structured and miscellaneous investments	Up to 5%

Source: NPS Trust, PFRDA circular, Crisil Intelligence

Within debt and related investments, the PFRDA allows the following infrastructure-related debt instruments:

- Listed (or proposed to be listed in case of fresh issue) debt securities issued by body corporates engaged mainly in the business of development of operation and maintenance of infrastructure, or development, construction or finance of affordable housing. This category also includes:
  - Securities issued by the Indian Railways or any of the body corporates in which it has a majority shareholding
  - Securities issued by an authority of Government which is not a body corporate and has been formed mainly with the purpose of promoting development of infrastructure
  - Infrastructure and affordable housing bond issued by a scheduled commercial bank
  - Listed (or proposed to be listed in case of fresh issue) debt securities issued by infrastructure debt funds operating as a NBFC and regulated by the RBI
  - Listed (or proposed to be listed in case of fresh issue) debt securities units issued by infrastructure debt funds operating as a mutual fund and regulated by the SEBI
- Listed or proposed to be listed credit rated municipal bonds
- Investments in unit of debt ETF issued by the Government of India, specifically meant to invest in bonds issued by Government-owned entities such as CPSEs, CPSUs and other Government organisations

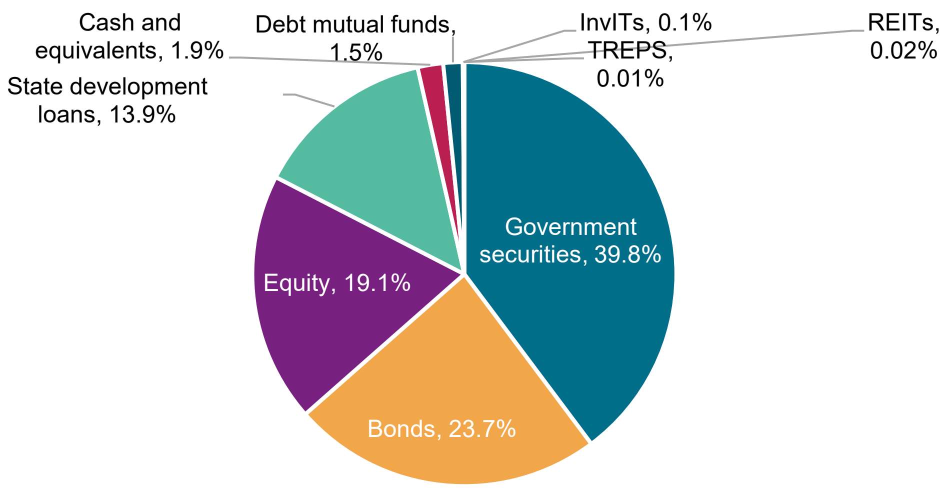
However, the investments in the above category can be made in securities *with at least AA rating or equivalent* in the applicable rating scale with at least two rating entities.

The pension funds are allowed to invest in corporate bonds/securities with a minimum A rating, subject to the condition that investment between A and AA-rated bonds is made to the maximum extent of 10% of the total debt instruments portfolio (consisting of only corporate debt) of the pension funds, at any point of time. Pension funds are also allowed to invest in papers issued by infrastructure companies rated not less than A, with an expected loss rating of EL1 (An EL1 expected loss refers to a credit rating indicating the lowest possible expected loss over the life of the debt instrument). In this case, for investment in below AA-rated papers in excess of 10% of the total debt instrument portfolio in the scheme concerned, the risk of default should be fully covered with credit default swaps.

A fourth of pension fund investments in debt not issued by Central or State Governments

According to NPS Trust, pension funds under NPS managed assets to the tune of ~Rs. 14.4 trillion as of March 2025. These funds have seen an expansion of 27% CAGR in their corpus over the past four years. Around 52% of the assets (as of March 2025) were invested in Central Government securities or state development loans, and corporate bonds accounted for 24% of their investments. About 3-4% of investments were in money market instruments (primarily liquid and overnight mutual funds), debt mutual funds, infrastructure investment trusts (InvITs), real estate investment trusts (ReITs) and fixed deposits. The remainder is in equity.

Portfolio mix of pension funds (March 2025)

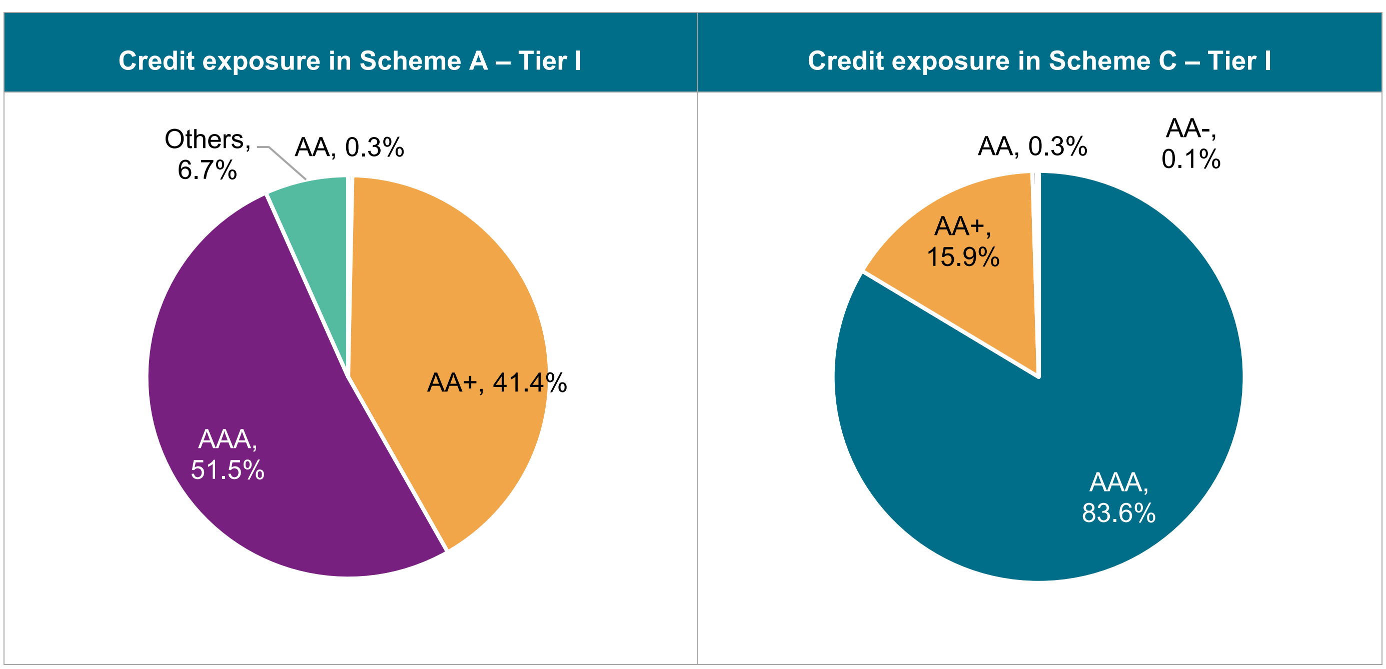


Note: Data includes all schemes across NPS (Non-Government sector, Central Government, State Government, Atal Pension Yojana, NPS Lite Scheme and Corporate Central Government Scheme)

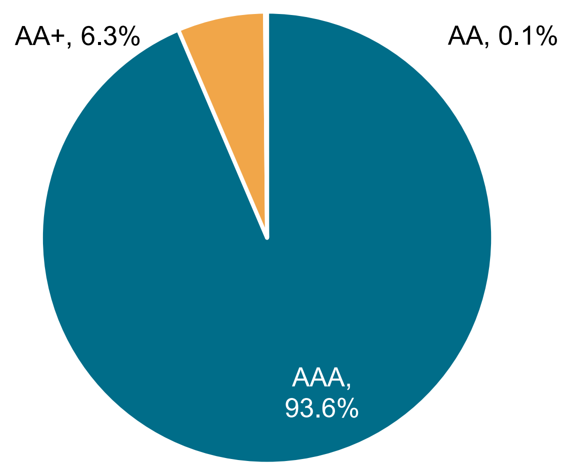
Source: NPS Trust, company reports, Crisil Intelligence

Currently, investment by pension funds is concentrated in AA and above rated instruments (~99.9% of total bond investment by pension funds), which leaves a huge headroom (~9.9% of the overall bonds investment) for a calibrated allocation into A and AA- rated securities. Further, within infrastructure bonds, majority of them are issued by PSUs or large corporates which are usually high rated securities.

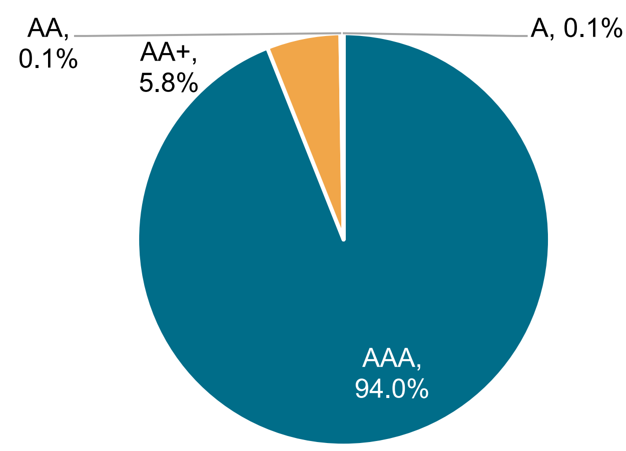
Pension fund investments skewed towards AA and above, Headroom exists to expand into A to AA- (March 2025)



Credit exposure in State Government schemes



Credit exposure in Central Government schemes



Note: Data excludes Government securities

In NPS, Scheme A is the Alternative Investment Fund class, offering a high-risk, high-return option with a maximum 5% allocation for investments in instruments like REITs and InvITs, while Scheme C is the Corporate Bond class, a medium-risk option that provides stable, fixed-income returns with no allocation limit.

Source: NPS Trust, Crisil Intelligence

Our assessment indicates that by cautiously expanding into A to AA- infrastructure bonds, pension funds can balance risk adjusted returns, while supporting India's infrastructure financing gap, without breaching prudential norms.

Overview of investments strategy by the EPFO

Established in 1952, the EPFO is India's largest retirement fund of individuals. With an asset base of Rs. 24.8 trillion as of March 2024, it is also India's second largest asset manager, the first being the Life Insurance Corporation of India with ~Rs. 61.6 trillion asset base as of March 2024. To put it in perspective, the size of the EPFO's corpus is more than the debt assets, including debt-oriented schemes and liquid/money market instruments, managed by the entire mutual fund industry, which was Rs. 19 trillion as of March 2025.

The EPFO's corpus is built through regular contributions from its members and their employers. As of March 2024, it had 73.7 million contributing members (defined as those making regular contributions through their establishments). They contribute 12% of their basic salary and dearness allowance each month towards their Employees' Provident Fund (EPF) account, with their employers contributing a similar amount. The Central Board of Trustees, chaired by the Union Minister for Labour and Employment, decides the interest rate to be given to EPFO members every year, which is subsequently ratified by the finance ministry.

The EPFO's popularity as an avenue for parking retirement savings in India can be attributed to:

- Lineage and comfort provided due to Government ownership
- The only avenue that was available to many employees in India for their social security and create a nest egg for their retirement prior to the launch of the NPS in 2004
- Tax exemption up to a certain limit on contributions to the EPFO
- Tax exemption available on interest accrued from the EPFO

Until the launch of NPS in 2004, the EPFO was the only avenue available for both private and public sector employees in the country that functioned as a social security and a nest egg for their retirement.

The EPFO has historically favoured AAA-rated instruments to meet its stringent safety criteria and has been required to invest a significant portion of its assets in Government-backed instruments.

Regulations governing EPFO's investments

The EPFO invests its funds as per the investment strategy notified by the Union Ministry of Labour & Employment. The ministry defines how fresh accretions to the fund are to be invested in the permissible categories, while also complying with other restrictions in the various sub-categories of the permissible investments.

Investment pattern notified by the Ministry of Labour and Employment

Category	Percentage to be invested
Government securities and related investments	Minimum 45% and up to 65%
Debt instruments and related investments with minimum AA rating, except in cases where the risk is fully covered via credit default swaps	Minimum 20% and up to 45%
Short-term debt instruments and related investments	Up to 5%
Equities and related investments	Minimum 5% and up to 15%
Asset-backed, trust structured and miscellaneous investments, including CMBS, RMBS, ABS, ReITs and InvITs that are listed, with minimum AA or equivalent rating in the applicable rating scale from at least two credit rating agencies	Up to 5%

CMBS – commercial mortgage-backed securities; RMBS – residential mortgage-backed securities; ABS – asset-backed securities: ReITs – real estate investment trust; InvITs – infrastructure investment trust

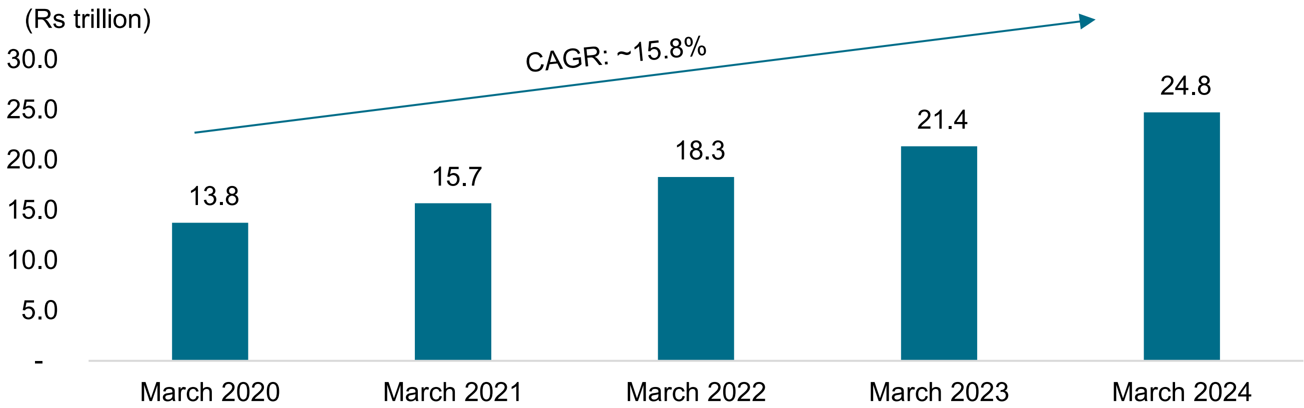
Source: EPFO annual report, Crisil Intelligence

Within debt instruments and related investments, the ministry allows investments in infrastructure-related debt instruments, similar to those defined by pension funds. However, the investments have to be in debt securities that are rated at least AA or its equivalent by at least two rating agencies, of which the lowest rating will be considered. Further investments are permitted in securities having investment grade rating below AA in case the risk of default for such securities is fully covered with credit default swaps issued as per the guidelines of the RBI and purchased along with the underlying securities. The purchase amount of such swaps is considered to be an investment made under this category.

EPFO investment portfolio logged ~15.8% CAGR in four years; debt accounts for a lion's share

The EPFO's investment corpus logged a ~15.8% CAGR between fiscals 2021 and 2024, largely indicating a consistent flow of contributions into its corpus and subsequent investments. As of March 2024, the total investments by the EPFO were Rs. 24.8 trillion, of which ~90.5% (or ~Rs. 22.4 trillion) was in debt and ~Rs. 2.3 trillion in equity ETFs.

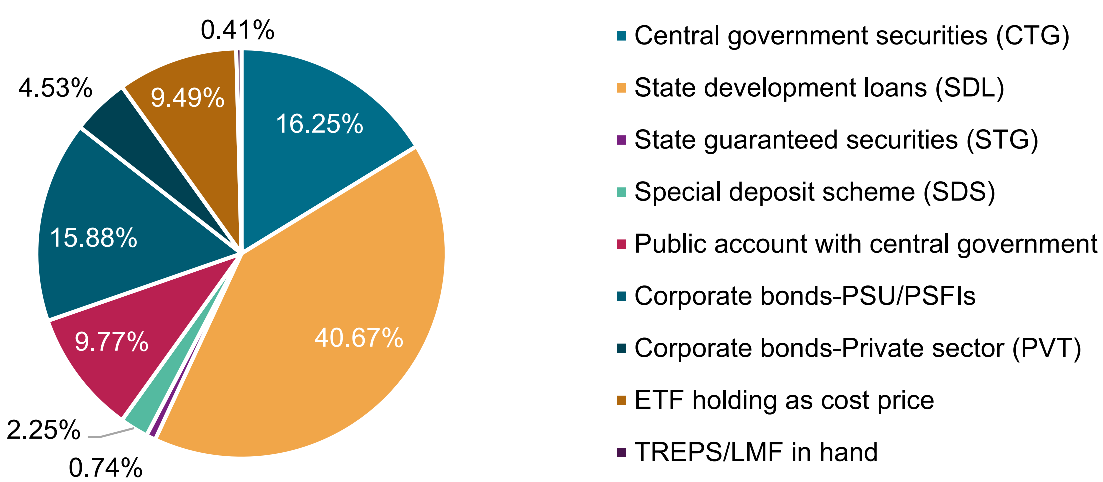
Trend in EPFO's investment portfolio (debt and equity)



Source: EPFO annual report and disclosures, Crisil Intelligence

Central Government securities, State development loans and State Government securities hold the largest share in the EPFO's debt portfolio. Investments in bonds and non-convertible debentures issued by public sector undertakings and private companies accounted for ~20% as of March 2024. The EPFO had no exposure to structured products.

Debt instruments form 90-91% of EPFO's investment portfolio (March 2024)



Note: Debt investments are at face value and equity ETFs at cost price
Source: EPFO annual report and disclosures, Crisil Intelligence

As per our assessment, PCE-backed bonds can address the concerns of risk that are inherent to pension and provident funds. This can be done by taking a sub-investment-grade bond and elevating its rating to a higher investment grade.

Overview of the PCE facility

PCE is a sophisticated financial tool designed to mitigate credit risk and improve the creditworthiness of a debt instrument. At its core, it involves a third party, such as a bank or financial institution, providing credit enhancement to a bond issuance. This backing typically takes the form of a liquidity support or an irrevocable contingent line of credit that covers a specified portion of the bond's principal and interest payments in the event of a cash flow shortfall, subject to a ceiling defined by the RBI regulations. This support reduces the perceived default risk associated with the bond, leading to a potential upgrade in its credit rating.

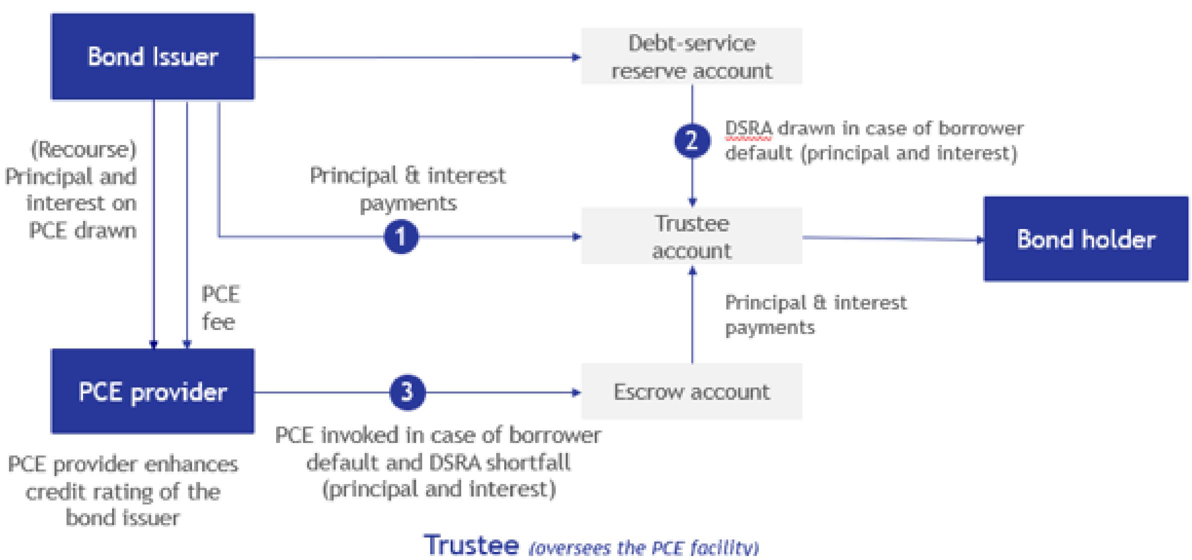
Typical structure of a PCE facility

A PCE transaction involves **three primary parties**: the issuer of the bond (e.g., an infrastructure special purpose vehicle or SPV), the investors and the PCE provider. The PCE provider, with its superior credit rating, stands between the issuer and the investors, providing a layer of protection that fundamentally changes the bond's risk profile.

The value proposition of PCE rests on several key benefits:

- **Credit rating support:** The most direct benefit of PCE is the improvement in a bond's credit rating. The enhanced credit from two credit rating agencies, as per the RBI guidelines, lowers the perceived default risk. This uplift is crucial because a higher rating expands the eligible investor base, particularly by attracting institutional investors such as life insurers, pension funds and provident funds that are often restricted to investing in high rated bonds
- **Reduced cost of borrowing:** A higher credit rating may translate into lower interest cost for the bond issuer. This reduction in borrowing cost could possibly result in significant savings over the life of a long-term infrastructure project, improving its financial viability and long-term sustainability
- **Diversification of funding sources and widening of investor base:** Historically, infrastructure financing in India has been heavily concentrated in the banking sector, exposing banks to high asset-liability mismatches, as they finance long-tenure projects with shorter-term deposits. PCE takes this burden off the banking system and shifts it to the corporate bond market, attracting a wider, more diverse set of investors with a natural appetite for long-term assets. This diversification enhances the overall stability of the financial system

Structure of a PCE facility



Note: 1,2 and 3 indicate the sequence in which the source of funds will be used to make debt service payments to the bondholders. Bondholders maintain funds in debt service reserve account equivalent to x times of debt service payments, as aligned in deal structure

Source: Industry, Crisil Intelligence

PCE waterfall structure

The cash flow waterfall in a PCE-backed structure prioritises bondholder protection, beginning with project revenue, then tapping the reserve account, and finally drawing on the PCE credit enhancement facility, thereby significantly reducing default risk and rendering bonds attractive for patient capital investors.

The stepwise flow of cash in a PCE structure (assumed project SPV for illustration) is as follows:

1. **First line of defense – project SPV cash flow**

- The project SPV posts operating revenue
- These flows are first routed to the **trustee account**
- From here, **scheduled principal and interest payments** are made to bondholders.

2. **Second line of defense – debt service reserve account (DSRA)**

- If the SPV's cash flow is not sufficient, DSRA is tapped
- DSRA is a reserve account that is pre-funded to cover a specified number of months of debt servicing obligations
- The trustee draws from the account to ensure timely principal and interest payment to bondholders.

3. **Third line of defense – PCE provider**

- If both SPV cash flow and DSRA are inadequate, **the PCE facility is invoked**
- The PCE provider covers the shortfall in principal and interest, subject to a ceiling of 50% of bond issue size
- Payments flow via an escrow account from the trustee to the bondholder. This enhances the credit quality

4. **Reimbursement and recourse**

- Any amount drawn from the PCE provider is treated as a recourse obligation of the SPV (PCE drawn acts as a 30-day liquidity support and upon non-repayment by the SPV post 120 days, it would be classified as an NPA, as per the RBI norms)
- Future surplus cash flows from the SPV are used to replenish DSRA

The 2015 PCE framework

The RBI introduced the concept of PCE in India in 2015. However, the initial framework did not gain traction. The primary reason was a restrictive regulatory structure that made offering the enhancement financially unviable for banks.

Under the 2015 PCE framework, a PCE provider was required to have capital based on the difference in pre and post enhanced risk weights on the *entire* bond amount, rather than just the PCE amount. This made the instrument more costly for the provider than a traditional bank loan, effectively disincentivising its use. The exposure limit for a single entity was also capped at 20% of the bond issue size, which was insufficient for achieving a significant rating uplift on lower-rated bonds.

The 2025 framework: Enabling new levers for incremental funding

The new PCE framework announced in the Union Budget 2025-26 addresses some of the issues with the old framework. The new guidelines, released by the RBI in August 2025, are a game-changer that has created new levers to unlock long-term capital. The revisions focus on three key areas:

- **Increased exposure limit:** The new norms increase the PCE exposure limit that a single regulated entity (RE) can provide to an impressive 50% of the bond issue size from the previous cap of 20%. This higher limit for a single entity drastically simplifies transactions and allows for a more meaningful enhancement of a bond's credit rating. For instance, a 50% PCE might procure a higher rating for the instrument, opening it up to a much larger pool of institutional investors
- **Revised capital requirements:** The new framework fundamentally optimizes the capital burden on the PCE provider. The old rule, which calculated capital on the differential risk weight of the *entire* bond, has been replaced with an approach, under which the capital requirement is based only on the PCE amount, at the pre-enhanced risk weight. This change would reduce the cost of providing the enhancement
- **Expanded provider base:** The eligibility to provide PCE has been expanded beyond just commercial banks to include AIFIs, NBFCs and housing finance companies (HFCs). This diversification of providers increases competition, which can lead to more competitive pricing for issuers, further boosting the viability of PCE-backed bonds. PCE may also be provided to bonds issued by municipal corporations too

The new framework, thus, represents a fundamental and necessary shift in India’s financial architecture. By moving the long-tenure financing burden away from commercial banks, which are exposed to asset-liability mismatches, the framework helps diversify funding sources and enhances the overall stability of the financial system. The inclusion of a provision to enhance the bonds issued by municipal corporations also provides a potential to bolster the state and urban infrastructure sector.

Revised PCE guidelines allow flexibility that can encourage PCE bond issuance

Parameters	Old framework 2015	New framework 2025
PCE provider	Banks only	**Expanding the pool of PCE providers** • RBI allowed scheduled commercial banks (excluding RRBs), AIFIs, and NBFCs/HFCs in the middle layer and above, collectively called regulated entities
Scope of instruments	Bonds issued by corporates/ SPVs	**Expanding the scope of instruments eligible for PCE** • Bonds issued by corporates/SPVs + bonds issued by large NBFCs/HFCs (with >Rs. 10 billion assets) + bonds issued by municipal corporations
Single provider limit	Up to 20% of issue size	**Increase the extent of enhancement provided by a single PCE provider** • Up to 50% of the issue size
Capital requirement	Capital on bond size, risk weight based on difference between pre and post enhanced credit rating	**Cover-based capital requirement** • Capital requirement based on PCE amount with risk weight linked to pre-enhanced credit rating

Note: RRBs – regional rural banks

Source: Reserve Bank of India (Non-Fund Based Credit Facilities) Directions, 2025, Crisil Intelligence

De-risked proposition for institutional investors

A compelling financial and economic argument

The value proposition of PCE is compelling for issuers as well as investors. It significantly reduces infrastructure companies' cost of borrowing. A project-level bond with a lower rating can potentially get a higher rating, allowing the issuer to secure financing at a substantially lower interest rate. The reduction in borrowing costs can lead to significant savings over the long life of an infrastructure project, thereby enhancing financial viability. Our assessment of investor profiles shows that life insurance companies and pension funds are inherently long-term investors, with liabilities extending over decades. This makes their investment horizon naturally aligned with infrastructure assets, which are capital-intensive with long gestation periods and require patient capital. By reducing their exposure to infrastructure financing, banks will be able to free up more resources to focus on short term and working capital loans, supporting growth of other industries.

Universe of investors evaluated based on their investment preferences

Investor type and preferences	Long-term investment horizon	Debt allocation in investments	Preference for high-rated securities
Life insurance	High	High	High
Pension funds	High	High	Medium
Provident funds	High	High	High
Mutual funds	Medium	Medium	Medium
General insurance	Medium	Medium	High

Source: Crisil Intelligence

Our analysis indicates that the Rs. 5-8 trillion funding gap in infrastructure that should come from corporate bonds, can be funded by investments from life insurance, pension funds and provident funds, provided their infrastructure investments meet the relevant regulatory requirement.

Given their growth, life insurance companies are expected to have an incremental corpus of ~Rs. 27.0 trillion and provident funds another ~Rs. 30.0 trillion that will be available for investments over fiscals 2026-2030. Additionally, based on the ~23% growth pension funds saw in fiscal 2025, we project NPS AUM to reach Rs. 41.0 trillion by fiscal 2030. We have highlighted scenarios of different allocations of corporate bonds served by PCE and the funding availability. However, this hinges on effective product structuring, building market confidence and the ability to secure tangible rating upgrades and pricing advantages.

Cumulative potential availability of funds from life insurance companies, provident and pension funds (FY26-30P)

Scenario and investor type (Rs. trillion)	2% of incremental flow	5% of incremental flow	7% of incremental flow	10% of incremental flow
Life insurance	~0.6	~1.3	~1.9	~2.7
EPFO	~0.6	~1.5	~2.1	~3.0

Source: Crisil Intelligence

Scenario and investor type (Rs. trillion)	1% of AUM	3% of AUM	5% of AUM	7% of AUM
NPS	~0.4	~1.2	~2.0	~2.8

Source: Crisil Intelligence

According to our assessment, Foreign Direct Investment (FDI) in construction development (townships, housing, built-up infrastructure and construction development projects) and construction (infrastructure) activity sectors stood at Rs. 1.4 trillion and Rs. 2.6 trillion respectively, between April 2000-March 2025. The influx of foreign capital into India's infrastructure sector has been consistent, which is a testament to India's attractiveness as an investment destination.

As the country embarks on an ambitious USD 1.1 trillion infrastructure pipeline, this foreign investment is expected to continue, providing a strong foundation for growth. Moreover, with the introduction of Partial Credit Enhancement (PCE), the stage is now set for a potential surge in domestic capital flows into the infrastructure sector, driving the country's infrastructure development to new heights. PCE can possibly be a win for institutional investors as it will help them gain access to a new stream of long-tenure investment opportunities that are tailored to their regulatory mandates and risk profiles. PCE can provide investors with a higher-rated, de-risked bond, while achieving a superior, risk-adjusted yield compared with similar-rated sovereign bonds. This will help them diversify their portfolios beyond traditional public sector and Government instruments, strengthening their ability to meet long-term liabilities, while channeling capital into nation-building projects.

As a result, the future of India's infrastructure sector looks brighter than ever, with a potent combination of foreign and domestic capital set to fuel its rapid growth and transformation.

Precedents and proven models for de-risking infrastructure

To understand the transformative potential of the new PCE framework, it is essential to look at its successful application in other markets. Credit enhancement is a globally recognised strategy for mobilising private capital and addressing the structural challenges of infrastructure finance. In developed economies and among multilateral institutions, guarantees have proven to be a cost-effective way to mitigate risk and channel long-term savings into large-scale, long-tenure projects.

InfraCredit in Nigeria: A blueprint of success

The Nigerian Infrastructure Credit Enhancement Facility (InfraCredit) is a powerful example and a blueprint of a successful market-building approach. InfraCredit is a specialised, self-sustaining institution in Nigeria providing local currency guarantees to enhance the credit quality of debt instruments for infrastructure projects. It was created through a strategic partnership between the Nigerian Sovereign Investment Authority (NSIA) and the Private Infrastructure Development Group (PIDG), which provides it an immediate credibility and a focused mandate. The success of the InfraCredit model is driven by three critical pillars:

- **Specialised institutional structure:** Unlike a one-off project, InfraCredit is a permanent, mission-driven entity. Its governance framework includes independent committees for new business, credit, risk and finance, which ensures high standards of accountability and transparency. This professional, dedicated structure builds long-term trust with investors and provides a consistent source of credit enhancement
- **Multi-tiered capital base:** Its capital structure comprises three tiers: core capital, subordinated capital and callable capital. As a highly liquid component, core capital acts as a first-loss protection, while subordinated capital and callable capital provide additional layers of risk absorption. This layered approach is instrumental in maintaining InfraCredit's 'AAA' rating, which is essential for its guarantees to have a meaningful impact on bond ratings
- **Market-making mandate:** Its core mission is not just to guarantee transactions but to "expand the market for infrastructure finance" and help projects access longer-tenure capital. By consistently providing AAA-rated guarantees, InfraCredit has created a new class of eligible infrastructure bonds. The impact of this model on attracting patient capital has been profound. Nigerian pension funds have an authorisation to invest up to 35% of their assets in corporate bonds but were reluctant to invest in infrastructure due to a preference for Government securities. InfraCredit's guarantees directly addressed this problem by making infrastructure bonds eligible for investment. As a result, it has successfully "crowded in over 21 domestic institutional investors", representing "around 60% of total pension fund assets in the country", to finance infrastructure projects with a tenure of up to 20 years. This is a key metric of success that demonstrates the power of a dedicated, market-building institution over a project-by-project facility.

LGTT in the EU: Making the project bankable

The **Loan Guarantee Instrument for TEN-T (LGTT)**, jointly developed by the European Commission and the European Investment Bank (EIB), was designed as a PCE tool to address the traffic and revenue ramp-up risks that often deter private financing of large transport infrastructure projects. A prominent example of its successful application is the **Tours–Bordeaux high-speed line (LGV Sud Europe Atlantique)** in France, a €7.8 billion private-public partnership under the TEN-T priority network. Commercial lenders were initially reluctant to provide long-tenure financing due to uncertainties around early passenger volumes. Through the LGTT, a portion of senior debt was guaranteed, specifically covering the high-risk early operating years. This reduced downside exposure for banks and institutional investors, unlocking long-term project financing alongside significant EIB loans and sponsor equity.

The impact was two-fold: for one, it mobilised private capital at scale—turning a potentially un-bankable project into a financeable one—and, second, it demonstrated the catalytic role of partial credit guarantee (PCG) in crowding in private lenders without requiring blanket sovereign backing. By narrowing public support to a targeted risk (traffic shortfall in ramp-up years), the LGTT instilled confidence, ensured financial close and facilitated timely delivery of the high-speed line, which began operations in 2017. The project not only advanced the European Union's TEN-T integration goals but also highlighted how well-calibrated credit enhancement instruments can derisk infrastructure financing, setting a model for replicability in other geographies.

Way forward

The RBI has strengthened the PCE framework which directly addresses some of the limitations of the 2015 PCE framework and makes the facility more conducive for attracting wider investor participation.

However, the success of PCE in India depends on an enabling ecosystem that addresses both supply and demand-side constraints. On the one hand, issuers require well-structured products, tangible rating upgrades and pricing advantages to justify adoption. On the other, investors—particularly those managing patient capital such as insurers, pension funds and sovereign pools—need confidence, awareness and clarity to allocate funds meaningfully. Further, building institutional capacity will ensure that the market develops depth, consistency and scalability.

Priorities for accelerating PCE offtake

- **Product innovation and structuring:** Develop tailored structures that balance risk-return and meet investor needs
- **Pricing advantage:** Structured investments are typically priced higher than vanilla bonds, creating a cost hurdle that institutions must navigate through innovative structuring, credit alignment and investor education. Demonstrating cost benefits vs standalone issuance helps attract issuers and investors
- **Market confidence:** Build transparent frameworks and credible execution mechanisms to strengthen trust
- **Rating enhancement:** Secure meaningful rating upgrades to improve credit quality and market acceptance
- **Capacity building:** Strengthen capabilities of issuers, investors and intermediaries to ensure consistency and scalability
- **Investor awareness:** Conduct targeted outreach to insurers, pension funds and sovereign pools to build comfort with PCE
- **Patient capital mobilisation:** Position PCE as a credible tool to channel long-term funds into infrastructure financing
- **Simplified process documentation:** Clear templates, easier documentation and well-defined risk sharing norms and processes will drive better understanding and reduce execution friction

About National Bank for Financing Infrastructure and Development

National Bank for Financing Infrastructure and Development is a Development Financial Institution (DFI) established in April 2021. The institution is dedicated to accelerating the development of India's infrastructure ecosystem by addressing the long-term financing needs of the sector. The institution plays a pivotal role in driving the nation's economic growth and fostering sustainable development. It is committed towards its vision of becoming a strong provider of impact investment, catalysing infrastructure financing for transformative growth of India.

The institution aims to be a key partner in helping India achieve its ambitious infrastructure development objectives - responsibly and sustainably. Additionally, the institution is working towards developing a deep and liquid market for bonds, loans, and derivatives for infrastructure financing.

Website: https://nabfid.org/

LinkedIn:https://www.linkedin.com/company/national-bank-for-financing-infrastructure-and-development/

Twitter: https://x.com/NaBFID_official

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