

# How portfolio construction can help mitigate risk in infrastructure debt investing



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Infrastructure debt has become an increasingly popular and well-defined asset class in recent years, offering insurers and pension funds the potential to invest in well-structured investments with long-term, stable cash-flows. These are key advantages, particularly to help investors match long-term liabilities.

Yet, while infrastructure debt deserves its reputation as a low-risk asset class, there are risks (as with any investment) that need to be understood and managed. In this article, we explore two principal dimensions of risk in infrastructure debt investing and we set out some approaches to portfolio construction which aim to mitigate those risks while maintaining potential investment objectives.

We first look at credit risk—i.e., whether the investor will receive timely payments of principal and interest. This is important because insurers and pensions rely on the stability of these payments to meet their obligations to their customers. We then explore ratings volatility risk; this matters because it can force investors to sell an investment if it no longer meets their guidelines. Investors considering an allocation to infrastructure debt will also need to measure and manage other risks, such as illiquidity and market valuation, but we will set them aside for the purpose of this analysis.



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# Credit risk

Broadly speaking, credit risk as it applies to infrastructure debt can be divided into the following categories: political, regulatory, construction, counterparty, operations, sustainability, volume and market.

## Political risk

Political risk arises from changes in the policy environment which can directly affect a concession agreement, or otherwise influence the business environment. For example, in the UK, Labour's campaign pledge to re-nationalize the water industry during the 2017 general election would have had very uncertain implications for water utility bondholders, had it come to pass.

An example in Mexico in 2018 would include the presidential election which resulted in the suspended construction of the replacement Mexico City Airport, much of which was to be financed through the proceeds of bonds issued in 2016 and 2017. This gave rise to concerns about the ability of the bond issuer to continue servicing the bonds and to refinance them upon maturity, though these concerns were ultimately addressed through changes to the covenant structure agreed with the bondholders.

## Regulatory risk

Regulatory risk can manifest itself in a variety of ways, such as through changes in the rate of return or other revenue determination factors for a regulated utility, port or airport, environmental regulations for energy generation assets, or export licences for Liquefied Natural Gas (LNG) liquefaction projects. One particularly salient example of regulatory risk materializing was the case of Gassled, an oil pipeline business in Norway, which saw regulated tariffs reduced by up to 90% from 2016 in a regulatory decision made in 2013. Gassled appealed to the Norwegian Supreme Court, which upheld the regulator's decision. Although investors at the time were equity-only, they suffered a significant reduction in expected returns, highlighting the potential impact of regulation on infrastructure investments.

## Construction risk

For investors involved in the early stages of a project, construction risk is a key issue. In Moody's March 2018 report, "Default and recovery rates for project finance loans bank loans, 1983-2016," the rating agency observes: "marginal annual default rates for project finance bank loans show certain characteristics that distinguish them from corporate finance bonds and loans. Marginal default rates fall over time and trend towards marginal default rates consistent with the single-A rating category by year seven from financial close. They are consistent with high speculative-grade credit quality during an initial three-year period following financial close...The decline in marginal annual default rates over time suggests that the default risk of a project declines as construction is completed and the project starts to build its operating track record." The evidence therefore implies that, where a financing features construction risk, the construction period is when credit risk is highest.

We break down construction risk into two related, but distinct, risks:

1. whether the asset is built on time and on budget; and,
2. whether the construction contractor remains in business throughout the construction period (which is actually a particular type of counterparty risk).

## Completion on time and on budget

Whether the asset is built is a product of many factors: the experience and expertise of the contractor, the complexity of the build, success in obtaining planning and other construction permits on time, weather factors and the robustness of the supply chain. Through a combination of bad planning and bad luck, projects sometimes take longer and cost more to build than the contractor assumed. We have come across examples of this in many sectors, from hospitals (often more bespoke and challenging than is commonly assumed) to US Gulf Coast LNG liquefaction projects (hurricane impacts) or complex transport infrastructure.

## Contractor risk

Generally, this kind of risk is shouldered by the construction contractor, but it falls back on the project – and therefore investors – if the contractor becomes insolvent. In fact, the contractor is often the weakest link in a project. Whilst this isn't always made clear to investors, most construction contractors are not investment-grade counterparties. Security packages, such as letters of credit, retention funds and surety bonds, aim to mitigate this risk, but they don't always succeed.

## Counterparty risk

Counterparty risk arises when the performance of a project is dependent on the performance of other entities. Apart from construction contractors, other counterparties may include financial instrument providers (lenders, swap counterparties, letter-of-credit or other security providers), operation and maintenance contractors, purchasers (commercial, such as power purchase agreement counterparties or buyers of the output of LNG liquefaction plants, or government parties to a concession agreement) and other suppliers, such as a gas supplier to a combined cycle gas turbine power generation project.

### Counterparty Risk

When considering whether a construction contractor is acceptable as a counterparty, investors should consider a number of factors:

- ◆ Balance sheet strength. For example, we favor contractors who have positive net assets after the subtraction of goodwill from the balance sheet. We also consider the impact of pension liabilities and other off-balance-sheet items;
- ◆ Cash-flow management. In our view, there is no clearer sign that a contractor is in difficulty if we see consecutive periods of negative cash-flow;
- ◆ The size and liquidity of the construction security package. In many markets, the security level is likely inadequate for covering the realistic cost of replacing an insolvent contractor. It is therefore crucial to be sure the package is robust when considering an investment;
- ◆ Is the contractor part of a diversified group? Although the ultimate parent rarely offers guarantees, we think that if the contractor is part of a group that is not solely reliant on construction, there is some mitigation to the counterparty risk, particularly as construction is a business with low margins and high exposure to economic cycles;
- ◆ Is the contractor part of a joint venture or alone in undertaking construction of a project? When Carillion, a UK construction contractor, became insolvent in 2018, the projects where it was the sole contractor experienced severe difficulties and led in at least one case to significant credit losses. In contrast, a complex project in which Carillion was part of a joint venture experienced far less stress from the perspective of the senior debt holders;
- ◆ The size of the project relative to the turnover of the contractor. We consider this measure to ensure that the contractor hasn't bitten off more than it can chew;
- ◆ The experience of a contractor in constructing similar projects to time and to budget.

A recent example of counterparty risk is the impact of the bankruptcy of Pacific Gas and Electric (PG&E) in the United States. This has had an adverse impact on a number of renewable power generation projects in California where PG&E was the partial or sole purchaser of the power, leading to a heightened uncertainty for investors in those projects, although it remains to be seen whether PG&E's power purchase obligations will be honored.

## **Operations risk**

Operations risk stems from the question of whether an asset can be operated and maintained at the costs assumed in the base case. If operations are sub-contracted out to one or more specialist providers, rather than born directly by the project (partially or entirely), the operations risk is primarily a counterparty risk. If, on the other hand, the project itself includes the running of operations, the risk is harder to mitigate. We think there is an advantage for the investor when the operations are well-known and understood (rather than aiming to break new ground) and where they can be undertaken by a number of alternative providers.

Another element of this type of risk is whether the asset can be operated to a sufficient level to produce the outcomes required under a critical agreement (e.g., performance levels required under a concession agreement, or product quality and volumes required under an offtake agreement). Failure to meet outcomes could lead to termination of an agreement, leading to potential investor losses.

## **Sustainability risk**

Sustainability risk is where an asset is negatively affected by reputational damage, loss of business revenue, or other losses due to the asset's impact on the environment, employees or local communities. For example, the asset could suffer financial penalties for breaching environmental regulations, a financial cost of cleaning up pollution, bad press coverage from a poor level of employee health and safety standards, or the threat of losing key permits or licences following protests from impacted local communities. In some cases, even a project with strong cash flows and a robust environmental management plan could be considered unsustainable for the long-term. For example, a coal-fired power station might be considered to have an unacceptable risk of becoming a stranded asset because of future potential limitations on carbon dioxide emissions. Given the long-term nature of infrastructure debt allocations, investors need to carefully weigh these possibilities.

## **Volume and market risk**

Volume and market risk (i.e., the risk that demand will not be sufficient for the project to become profitable) is present in a variety of assets, from ports to airports, toll roads, car parking concessions, airport hire car facilities, and power and LNG liquefaction projects with exposure to power or other commodity prices. Generally speaking, we believe the risk is greater for borrowers who are exposed to greenfield volume risks, such as new ports and airports or new toll roads. Inaccurate or overly optimistic forecasting can also increase volume and market risk, although this can be mitigated by haircutting growth projections, for example, when forming a base case for projects exposed to prices or volumes. We can have some tolerance for forecast risk in relation to renewable power assets that are not yet operational, subject to an assessment of the objectivity of the energy generation forecasting process and to appropriately-conservative debt sizing.

## The importance of structure to minimize credit risk and maximize return on capital

The above summary is indicative of the relative complexity of credit analysis required in the infrastructure debt sector. This is one reason why many investors choose to work with an asset manager with a specialist team with expertise in assessing the particular risks of the sector.

Yet a simple understanding of the risk is not in itself enough to determine an investment decision. Beyond the project itself, structuring can make all the difference between a good credit and an un-investable one. Of course, a poorly-structured project can still perform as expected in the base case if none of the identified risks come to pass, but should any of the major risks materialize, structure can make the crucial difference between being paid or not, or making a substantial recovery following a payment default – or not.

### Key structural questions include:

- ◆ Does the project offer security?
- ◆ Does the security offered cover everything that is required to properly mitigate credit risk?
- ◆ Is there enough equity or other subordinated finance to absorb cash-flow deficiencies and keep senior secured debt current?
- ◆ Is there scope for creditors to take action before a non-payment event occurs?

### Portfolio construction approach 1:

#### Minimize credit risk, maximize return on capital

For insurance investors regulated under a risk-based approach such as Solvency 2, there may be regulatory capital benefits to investing in infrastructure debt relative to similarly- or better-rated corporate debt of the same duration. In the case of a Solvency 2 investor, it might even be sufficient for an infrastructure debt portfolio to achieve and retain Solvency 2 Qualifying Infrastructure Investment (“QII”) status for the assets (by remaining investment-grade) while at least matching the yield-to-maturity of alternative corporate fixed income investments.

To achieve these investment goals, however, taking the right approach to portfolio construction is crucial. While adaptations are needed for each individual investment strategy some potential high-level investment guidelines for such portfolios might be:

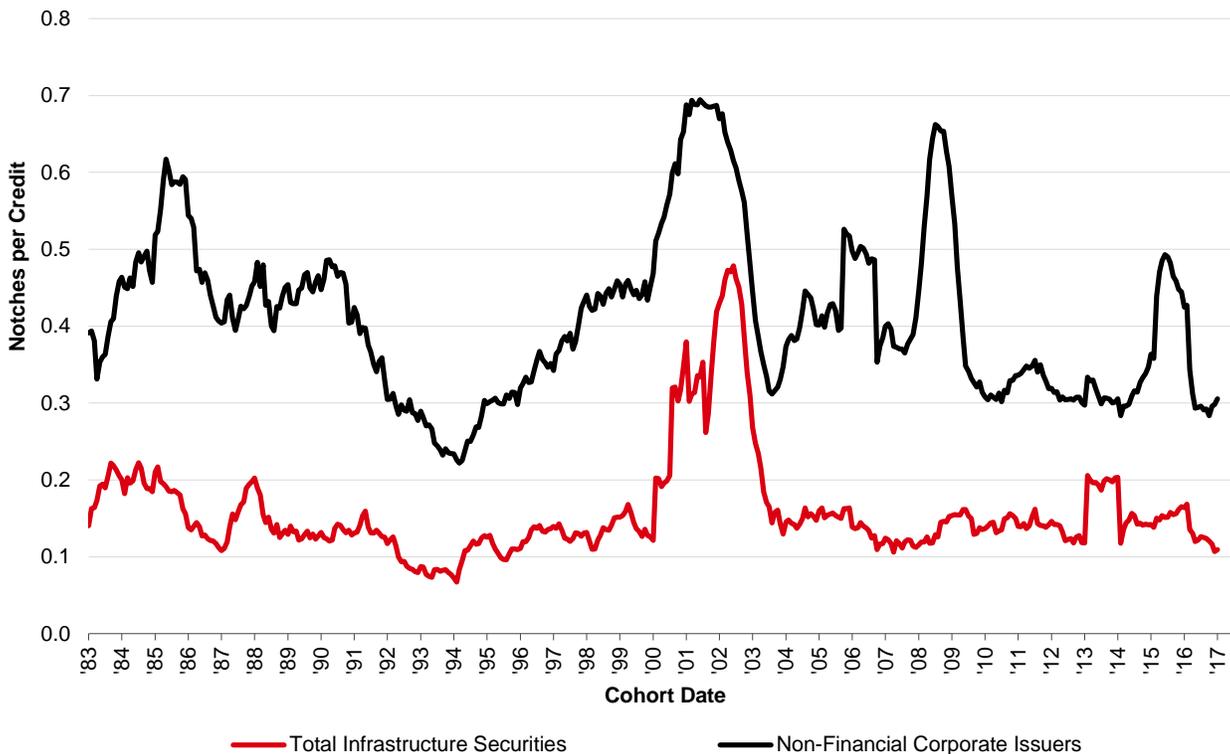
- ◆ All assets to achieve QII status
- ◆ At the date of investment, the return must either match or outpace that of an appropriate corporate fixed income index
- ◆ No construction risk
- ◆ No corporate counterparty risk
- ◆ Limited market risk (e.g., only assets which have demonstrated resilience through a cycle);
- ◆ Developed countries only
- ◆ Compliance with sustainability criteria
- ◆ No BBB- assets, only higher-rated assets

# Ratings volatility risk

Much of the senior debt purchased by institutional investors is rated investment grade at the time of purchase. Any of the credit risks identified above can have an impact on the credit rating. This can be the case even when debt servicing is maintained as scheduled. For life insurance companies in particular, a downgrade to below investment grade may have adverse consequences, such as a significant increase in the amount of regulatory capital required to be applied against an asset.

The chart below is taken from the September 2018 Moody's publication "Infrastructure default and recovery rates, 1983-2017." It illustrates a general point that infrastructure securities exhibit less ratings volatility than non-financial corporate issuers.

**Figure 1: One-year ratings volatility, 1983-2017: Total infrastructure securities and non-financial corporate issuers**



Source: Moody's Investors Service, September 2018. **Past performance is no guarantee of future performance.**

In our view, however, not all senior secured infrastructure debt is equal in terms of ratings volatility. A number of factors can influence volatility, some of which we have already explored in relation to credit risk – which is logical. Particular factors affecting ratings volatility risk include:

- ◆ The country environment, both in terms of the economic strength of the country and the stability of institutions. Investments in countries with low investment-grade ratings are more likely to be downgraded at the same time as the country than investments in higher-rated countries;
- ◆ Construction risk can lead to ratings downgrades (and defaults), where a project faces significant delays and increasing risks of concession termination;
- ◆ Where a borrower has exposure to corporate counterparties, their downgrade may have a direct impact on the borrower's own rating;

- ◆ Political action: it is important to understand the political context in which an asset exists and to know whether it has broad electoral support that would sustain it following a change of government (as shown in the earlier example of Mexico City airport);
- ◆ Market changes: an asset with exposure to market or volume risk may experience changes in its credit rating as a result of demand shifts in the market;
- ◆ Sustainability: for example, Californian investor-owned utilities face the possibility of all being downgraded to non-investment-grade because of their exposure to liabilities arising from wildfires.

## Summary: Low risk is not risk-free

Despite a well-deserved reputation for being low-risk, infrastructure debt does present a host of complex risks, many of which aren't immediately obvious.

Robust investment strategies require knowledge of infrastructure projects, access to the right deals at the right time, and careful portfolio construction to mitigate these risks while meeting key investor objectives.

### Portfolio construction approach 2:

#### Minimize rating volatility, maximize yield

For some investors, an infrastructure debt strategy can form part of a general focus on maximizing returns across a portfolio (e.g., to support a life insurance company's competitive position in providing fixed-return long-term savings products). A BBB-rated infrastructure debt portfolio can potentially deliver higher returns than an A-rated corporate fixed income portfolio (through illiquidity, rating and complexity premia) while also offering a capital reduction benefit.

To minimize ratings volatility while achieving those higher returns, the high-level investment guidelines to construct such a portfolio might be:

- ◆ A large proportion of the assets to be QII (this contributes to minimizing volatility through the application of structural and other tests);
- ◆ Return target yield to maturity to exceed the return on an appropriate corporate fixed income index-- by a specified number of basis points;
- ◆ Limited construction risk (e.g., compliance with the checks outlined above, with a specified maximum limit on investments bearing construction);
- ◆ No corporate counterparty risk;
- ◆ Limited market risk (e.g., only assets which have demonstrated resilience through a cycle);
- ◆ Compliance with sustainability criteria;
- ◆ Only countries rated BBB+ or higher;
- ◆ A limit on the percentage of investments in developing countries.

### **Portfolio construction approach 3:**

#### **Accepting a higher level of ratings volatility to maximize yield**

For certain investors, ratings stability may be less important than maximizing yield. For instance, this may be the case for pension funds which are not required to comply with risk-based capital regimes (as are many insurers), but which need to honor their obligations to their members. Once again, portfolio construction is critical in helping to ensure that all assets are expected to pay as scheduled throughout their term, while accepting that a limited number of projects within the portfolio may suffer some ratings volatility.

The high-level investment guidelines for such a portfolio might be:

- ◆ A large proportion of the assets to be QII;
- ◆ Return to be higher – by a specified number of basis points – than the return on an appropriate corporate fixed income index;
- ◆ Construction risk at the discretion of the manager, subject to compliance with the manager's internal credit appraisal guidelines;
- ◆ Specified maximum percentage of assets to be exposed to corporate counterparty risk;
- ◆ Some market risk (e.g. assets which have a demonstrated track record with no greenfield market or volume risk projects);
- ◆ Compliance with sustainability criteria;
- ◆ Only countries rated BBB- or higher;
- ◆ Country diversification limits, but no explicit limit on investments in developing countries.

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