Last Updated: January 25, 2018

# Rating Methodology for Infrastructure Funds

## 1. General outline

Infrastructure funds provide the opportunity to invest in essential public assets with long term horizon, such as airports, toll roads, rail facilities, water, energy, power, renewable energy, communication, waste management and etc. Their strategies are diversified across geographic regions, project development stage (green/brown), infrastructure sectors, risk-vs-reward. Infrastructure funds were first introduced in Australia and UK in the 1990s and then broadened their activities into other areas, such as Europe, America, and Asia. Some background factors are; (1) Need for governmental bodies globally to find alternative financing methods using private sector money in order to mitigate fiscal burden[1]. (2) Trying to introduce more efficiency and quality of service using private sector know-how. (3) Strong demand by institutional investors[2] for current income generating, inflation-hedge, long-term assets that matches their long-term liabilities. (4) One of the alternative investments, which have low correlation with traditional assets such as listed stocks, bonds. This document describes JCR's rating methodology for investment corporations ("private infrastructure funds", "listed infrastructure funds" except for TSE listed investment corporations). JCR set up rating methodology for TSE listed investment corporations on Dec 16, 2016, which is available on JCR website.

## 2. Fund Structure

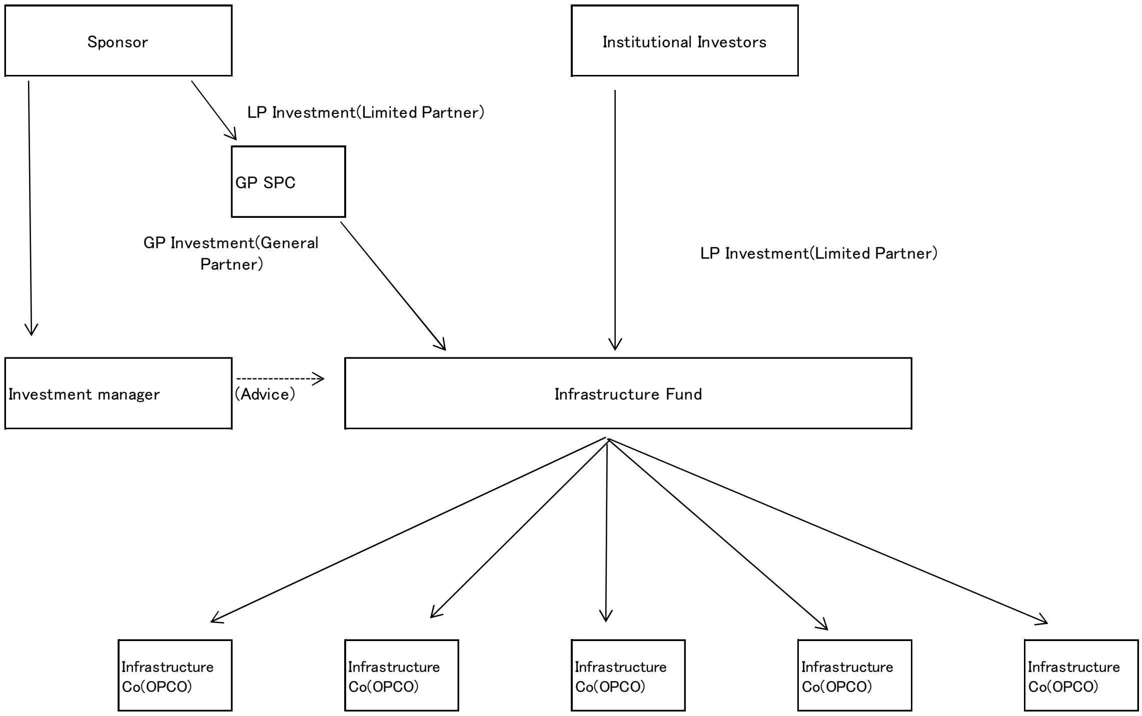
### (1) Typical Structure

The structure of the fund are chosen after thinking about various factors such as in0vestment target (geographies, development stage, etc.), risk-vs-reward preference of investors, tax considerations, listed/not-listed, target size and so on. The below chart is a very simplified image of infrastructure fund. But, their structure differs across the board. For example in Australia, some funds adopt hybrid structures which is called 'stapled securities' funds. Infrastructure funds are managed by specialist fund managers, who make investment decisions on behalf of investors. Infrastructure Fund provides investors with the opportunity to benefit from the expected long term global growth in infrastructure, and the return potential associated with infrastructure assets. For a case of private funds (focusing on brown field projects in developed countries), it invests in operating companies that own and operate infrastructure assets, derive most of their cash flow from these assets. At the beginning, the fund invests the infrastructure assets through acquisition of those companies. The major source of cash flow is dividends received from these operating companies. After some years of holding, these operating companies are sold to other institutional investors, strategic buyers, which produce capital gain. The funds usually get investment commitment from investors. After the investment opportunities materialize, the funds make capital-call to raise investment money. The asset under management increases after a few years. In the latter part of the investment period, the funds monetize their investment assets. The investors understand and accept the illiquidity of their investment.

[1] For example, there were limited amount of public-sector capital available for UK Government in 1990s. PPP, PFI were introduced to use private sector investment in order to deliver public sector infrastructure and/or services according to a specification defined by the public sector. There is a current and growing need for governments to finance, maintain, modernize, expand and develop infrastructure facilities.

[2] Pension funds, insurance companies, sovereign wealth fund, for example.

A simpified example of infrastructure fund




The rating will be assigned on preferred stocks, borrowings, notes which are issued by the fund with contractual maturities. For the operating company's debt evaluation, the rating methodology for project finance, rating methodology for corporation shall be applied.

(2) Examples of Infrastructures

Infrastructures are the essential facilities and services which people life, economic activities of society depend on. Typical classifications are regulated assets, transportation assets, communication assets, social infrastructure assets and other assets.

・Regulated assets: water distribution assets, electricity transmission lines, gas and oil pipelines.
・Transportation assets: toll roads, bridges, tunnels, railroads, seaports, airports
・Communication assets: radio and television broadcast towers, wireless communication towers, cable systems
・Social infrastructure assets: schools, hospitals, prisons, courthouses

These infrastructure assets have several unique characteristics to attract investments as below.

・Stable cash flows

Because of monopolistic nature of most of infrastructure assets, demand is often stable. Hence, usage does not materially decline during the periods of economic downturn or with price increases in times of inflation (inflation-protection characteristics).

・Attractive long-term return

The services provided by infrastructure assets are indispensable for the society. Though not allowing infrastructure assets owners to charge monopoly prices, governments often allow infrastructure assets owners to earn fair returns to improve, maintain good operation in long term.

・Inflation protection

Rates charged by infrastructure assets are determined by regulators, concession agreements with governments. Infrastructure assets owners are often allowed to increase rates at certain degree which is linked to inflation rate, economic activity level.

・Diversification benefits

Due to low utilization volatility, inflation-protection characteristics, a portfolio of infrastructure assets has low correlation to other traditional asset classes, which brings diversification benefits to investors.

3. Possible Risks

(1) Overall Fund level

There are risks associated with the following areas of fund operation.

(1) Governance, (2)Retaining talents, (3) Skill of value creation after investment, (4) Fund raising, liquidity, (5) Regulatory change risk (6) Foreign exchange, interest rate, (7) Economic crisis, financial market turmoil which affect exit strategy

(2) At each investment level

Below are typical risks along with sector specific risks.

(1) construction and completion risk[3], (2) technological obsolescence risk, (3) operational risk, (4) performance risk, (5) procurement risk in raw materials, fuel, (6) market risk, (7) environmental risk, (8) political/country risk, (9) Legal and contractual risk, (10) force majeure, (11) counter party/credit risk

4. Rating Methodology

(1) Analysis Points

JCR will consider above risk factors and mitigate factors against them, resilience against stress scenarios. Given that infrastructure funds have many projects under its operations, the following can be points for making analysis of them: (1) assessment of feasibility of individual projects as in the case of project finance; (2) assessments of strategy and execution capabilities of operating companies; (3) assessment of portfolio as assembly of individual projects; (4) capacity of sponsor, asset management company; (5) financial management policy: (6) tax, foreign exchange risk.

1. Individual Infrastructure Projects

JCR assesses feasibility and characteristics of individual investment projects for individual infrastructure assets.

2. Assessments of strategy and execution capabilities of operating companies

The management teams, know-how in sub-sector, strategy for value creation, operational excellence are examined along with experiences, track-record, and business plan. As for operating companies, operational indicators and financials are also examined to evaluate cash-flow projection, corporate value, credit risk.

3. Assessment of portfolio

JCR assesses portfolio's cash flow generation capacity, stability/ variability and degree of diversification of projects.

4. Capacity of sponsor, asset management company

Fund performance significantly depends on an appropriate acquisition price and appropriate/ conservative management policies. Capacity to acquire infrastructure asset at moderate price is a key driver of value creation. Sourcing of such projects, due diligence, management system and philosophy are extremely important.

[3] As for the case of "green field" project

5. Financial management policy

Financial policy, fund raising policy, liquidity managements are examined in terms of external shock resilience and flexibility of funding at normal time.

6. Tax, foreign exchange risk considerations.

Many funds invest multi-nationally, which requires tax considerations, foreign exchange risk considerations.

(2) Incorporation into Rating

JCR assesses infrastructure funds with regards to each infrastructure asset, portfolio, and abilities of sponsor & investment manager, structure of the infrastructure fund. The holistic approach based on both qualitative and quantitative analysis will be applied to determine the rating. JCR will consider overall management experiences, track records, value appreciation of individual project and their forecasts. As for quantitative measures, IRR, cash yield, leverage, EBITDA, EBITDA multiple, DER and etc. are used. For the structuring aspect of the fund, contract with fund investors, cash flow available for fund investor distribution, waterfall mechanism will be examined.

**Japan Credit Rating Agency, Ltd.**
Jiji Press Building, 5-15-8 Ginza, Chuo-ku, Tokyo 104-0061, Japan
Tel. +81 3 3544 7013, Fax. +81 3 3544 7026