News Release

Japan Credit Rating Agency, Ltd.

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JCR Solicits Public Comments on Revisions to Rating Methodology “Project Finance”

Japan Credit Rating Agency, Ltd. (JCR) is considering revisions to the rating methodology “Project Finance” as described below and solicits opinions on the proposed rating methodology.

1. Outline

JCR is considering entirely revising its rating methodology “Project Finance” as described in the attachment. The purpose of these revisions is to further enhance the transparency and explanatory power of the rating, as well as the quality of external dialogue, by enriching the content comprehensively based on accumulated insights and revising descriptions that have become outdated over time.

2. Future Plans

JCR solicits public comments on this matter. Comments will be accepted by e-mail to “Contact Us” on JCR website until February 20. JCR plans to finalize this rating methodology in about one or two months. There will be no existing individual ratings that need to be reviewed.

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Attachment

Draft for Public Opinions

Project Finance

1. Projects Subject to This Method

Project finance is a financial method where repayment is sourced from the cash flow generated by a specific business venture (project). While asset finance focuses on the value of the asset itself, project finance has a key feature in that the value is not solely dependent on the asset, which may be low or insufficient, but instead is formed by the integration of multiple project-related elements such as permits, licenses and contracts.

Projects subject to this method are diverse, including power generation, transmission and distribution, resource extraction, plants and infrastructures such as roads, airports, tunnels and waste treatment facilities. Partly because of tremendous efforts required for assessment for the arrangers, lenders and other parties, let alone the actual project operators, project finance is often used for financing large-scale and long-term projects.

2. Key Analytical Perspectives

(1) Technical risks

Technologies used in the project should be highly reliable and, wherever possible, have a sufficient track record of use. If a technology is not well-established or lacks a sufficient track record, the risk of technical issues occurring during the project period increases. If resolution requires a long period or if a fundamental cure is not possible, there is a risk of significant adverse effects on the project. Unless the technology employed is extremely simple and commonplace, supportive opinions from technical advisors possessing specialized knowledge are basically essential. Furthermore, JCR normally expects that important project contracts, such as EPC and O&M agreements, undergo review by a technical advisor. Especially with respect to technical and other specialized elements that impact cash flow, it is desirable that relevant reports cover such factors as project-specific issues and anticipated fluctuation ranges.[1]

(2) Risks related to the experience and creditworthiness of asset management companies and the financial strength of sponsors

The asset management (AM) contractor, who is the substantive operator of the project,[2] should

[1] Examples include: the annual availability rate and deterioration rate of project assets; solar radiation and wind conditions for renewable energy generation projects; and demand forecasts for infrastructure projects. It is also desirable that the technical advisor review the appropriateness of the assumed repair costs and the timing of such expenditures.

[2] Typically, a company within the sponsor group is often entrusted with asset management operations. When the difficulty of project completion and operation is not high, the sponsor may only provide funding, with a third party undertaking asset management operations.

ideally have experience managing multiple similar projects.[3] If the AM contractor lacks sufficient experience, the project may appear problem-free during the planning phase but becomes prone to encountering unexpected issues during actual operation, such as construction delays, cost overruns, technical failures and administrative challenges. Moreover, it can sometimes be difficult to respond appropriately and promptly when such issues occur. Experienced operators possess expertise, know-how, intuition and so forth gained from past experiences, making them relatively less prone to unexpected issues. Projects undertaken by such operators often feature high-quality contracts with counterparties that clearly define risk allocation, thereby reducing the risk of future disputes. The creditworthiness of the AM contractor is also critical in many cases. This is because, for highly difficult projects, the role of the AM contractor as the project's central coordinator remains crucial until completion. If the AM contractor's creditworthiness is deemed insufficient, it is desirable to have a backup agreement in place with a successor AM contractor possessing adequate experience and commensurate creditworthiness.

In project finance, while arrangements are typically non-recourse, unforeseen circumstances may arise, requiring additional support to stabilize the project. To prepare for such situations, the sponsor should preferably possess adequate capital contribution capacity. Even if the sponsor has such capacity, projects with low profitability may not be able to receive additional capital. It is desirable for the project to maintain sufficient profitability even after a certain level of additional capital is contributed.

(3) Permits and other development risks

Permits and other development risks must typically be minimized to zero or negligible levels before financing is executed. Should these risks materialize, the project could stall, and project finance lenders face the risk of total loss of their claims.

(4) Location conditions and landownership risks

There are cases where location conditions, including terrain and ground, land history, climate, accessibility, surrounding environment and disaster risk, significantly influence the difficulty of the target project. It is necessary to confirm whether there are any unfavorable location conditions and, if applicable, whether risks have been adequately addressed. Furthermore, if the necessary land rights have not been secured for the project period, the risk of project discontinuation increases, and so does the risk of a sharp rise in land rent at the time of land rights renewal. If understanding from government authorities, local residents and others has not been obtained, it may adversely impact project execution.

(5) Completion risk

Project assets must be ready for use by the scheduled commercial operation date, completed within budget and delivered with the expected performance. If the start of operations is delayed (time overrun), the risk of defaulting on principal and interest payments increases from the early stages of the project; in some cases, there is also the risk that the project period will be shortened or, in the worst scenario,

[3] When experience with similar projects is limited, factors such as the availability of applicable experience or experienced partner companies may be considered.

permits or off-take agreements may be invalidated. In the event that the project asset is not completed within budget, additional capital contributions or other forms of support will be required, jeopardizing the project's continuation. Both time overruns and cost overruns may occur simultaneously. If the project asset is not delivered with the expected performance, cash flow is likely to be lower than anticipated throughout the project period, negatively impacting the probability of principal and interest payments. This would lower the expected IRR and could negatively impact the sponsor's commitment to, and willingness to support, the project. Completion risk is influenced by such factors as the type of the project assets, maturity of the technology used, location conditions and flexibility of the delivery schedule. The higher the completion risk, the more desirable it is for the risk to be borne by an experienced and creditworthy company. Critical equipment in use should ideally be those by reputable manufacturers. Furthermore, it is necessary to verify whether the company entrusted with EPC services possesses sufficient experience and capability; and whether there are any concerns regarding the contract terms (scope of responsibility, cost structure, delivery schedule and liquidated damages for delays, performance guarantees, payment terms and milestones, delivery conditions, warranty for defects, force majeure clauses, etc.).

(6) Operational and maintenance risk

If the project asset does not achieve its expected availability rate or cannot be maintained such performance over the long term, cash flow is expected to decline. The greater the importance and complexity of operations and maintenance (O&M), the more desirable it is for the associated risks to be borne by an experienced and creditworthy company. It is necessary to confirm whether the company entrusted with O&M possesses sufficient experience and capability; and whether there are any concerns regarding the contract terms (duration and renewal conditions, scope, compensation structure, availability guarantees[4], risk allocation and exemptions, reporting obligations and content, termination rights, etc.).

(7) Supply risks for raw materials, fuels and other inputs

For projects requiring the supply of raw materials, fuels and other inputs for operation, raw materials and fuels of appropriate quality need to be delivered in the required quantities to the designated location at the specified date and time. If the supply stops, cash flow will no longer be generated, thus drastically impacting the project. Furthermore, failure to secure appropriate quality or quantity poses the risk of adversely affecting availability rate and output. To prepare for the risk of adverse impact on supply due to supply chain disruptions, etc., it is desirable to have reserve raw materials, fuels, and other inputs stored in suitable conditions. For solar, wind and hydroelectric power generation projects, the availability and extent of natural energy sources directly influence power generation levels. From this perspective, natural energy can also be considered as a type of supply risk. In such a project, factors including the availability and accuracy of historical observation data at the project asset location

[4] It is common for liquidated damages to be paid within a certain range, rather than full compensation for lost profits.

become critically important for forecasting project cash flow.

(8) Off-take risk

Goods and services provided by the target project should not ideally be exposed to price fluctuation risk and sales volume fluctuation risk as far as possible. While certain project types may lack a specific off-taker,[5] project finance often involves long-term off-take agreements with a specific off-taker. This is because robust contract terms can bring off-take risk close to the off-taker's credit risk. For a project with a certain level of variability in the cost structure, it is desirable to have a pricing mechanism that allows the main variable costs to be passed on to the sales price. If off-take risk is a concern for a project, the long-term demand forecast, margin for principal and interest payments under a downside scenario and the robustness of the security package become particularly important. If the sponsor is highly creditworthy, the likelihood of additional support based on strategic importance may also be considered as a qualitative supporting factor.

(9) Hazard risk and non-life insurance

There is a risk that projects suffer damage due to sudden and external factors like natural disasters and accidents. Typically, in cases where damage can be avoided through the attention and efforts of project stakeholders, it is a common practice to hold such stakeholders responsible. Otherwise, risk should ideally be covered by non-life insurance that compensates for the replacement cost or the maximum loss amount that is reasonably calculated. It is also crucial to protect cash flow with business interruption insurance to prepare for the risk of business interruption during the damage repair period. In some cases, establishing a reserve is recommended to prepare for risks not fully covered by insurance, such as non-negligible deductibles and non-insurable events. Unfavorable location conditions can lead to higher hazard risks. It should be noted that, even if risks were covered by non-life insurance at the beginning of the project, changes in the insurance company's underwriting policies could lead to reductions in insured amounts or coverage during the project period.

(10) Risks related to politics, laws, regulations, etc.

Political factors such as laws and regulations sometimes impact projects. Projects involving regulated industries, central government and local authorities are particularly susceptible to such impacts. In cases where there are concerns about political stability, sustainability of frameworks, etc., efforts should be made to mitigate risks through prearrangements regarding the burdens arising from legal changes and the use of political risk insurance.

(11) Security package

In project finance, various risk mitigation measures are taken not only for anticipated risks but also for unforeseen risks. These are collectively referred to as a security package. Examples of some of these measures are provided below.

- Cash flow waterfall

  The predetermined order of priority for various payments to be made by project SPCs. The

[5] For example, toll infrastructure such as roads, bridges, and tunnels.

priority of payments to equity holders is usually subordinated. In some cases, the payment of certain operating expenses is subordinated to debt service.

- Debt Service Reserve Account (DSRA)
  A reserve set aside to cover principal and interest payments in the event of cash flow shortfalls. It is established with consideration given to such factors as seasonality and variability of cash flow and the potential shutdown period in the event of an accident.
- Maintenance Reserve Account (MRA)
  This account is set in consideration of the estimated repair costs during the project period. Typically, the timing of expenditures is at least several years in the future, it is a common practice to accumulate and reserve funds during the period to reserve the funds.
- Dividend suspension DSCR
  Dividends to equity holders are suspended when DSCR falls below a certain level.
- Cash sweep
  Not only will dividends to equity holders be suspended, but surplus cash will be forcibly allocated toward early repayments. Even before dividend suspension, the structure is often developed so that a cash sweep is triggered if specific conditions are breached.
- Tail
  This is a measure to increase the certainty of principal recovery by setting the scheduled maturity of a loan shorter than the legal maturity and project completion date. Even if the project's earnings deteriorate and principal repayment is not completed by the scheduled maturity, maintaining a residual period under the off-take agreement or similar contracts increases the certainty of principal recovery. In project finance, it is basically desirable to have a tail period extending beyond a certain length.

(12) Structure-related risks

While risks are normally expected to be minimized as much as possible through the structure. However, risks may arise or remain due to the structure of project finance itself. Some examples are given below.

- The structure relies on refinancing rather than full payout.
- The tail is absent or set shorter than comparable cases.
- Cash flow is prone to leaking to equity holders (e.g., dividend suspension DSCR is low, or cash sweep is less likely to be triggered).
- The structure contains exchange rate risk and interest rate risk, including the risk of fluctuations in hedging costs and risks arising from over-hedging when the cash flow of the hedged items falls below expectations.
- The security package does not operate as expected, e.g. when the structure is complex and

relatively new.

- In projects where investments are made through multiple vehicles, leverage is applied to the ultimate underlying assets and the pathways leading thereto.

3. Major assessment frameworks

(1) Quantitative assessment

JCR examines project risks and other qualitative risks primarily from the aforementioned perspectives, adjusts the cash flow model submitted by the operator and develops JCR's own base case. JCR then performs quantitative assessment by conducting various stress tests tailored to the characteristics of the target project on the base case.

In quantitative assessment, the volatility of expected cash flow and the level of corresponding DSCR are particularly important. The required DSCR benchmark for each rating category is affected by cash flow volatility; even within the same rating category, projects with higher volatility require a higher DSCR. Cash flow volatility varies significantly by project type.[6] For example, projects where payments from a specific off-taker are made based on the availability rate of project assets typically exhibit low cash flow volatility. Projects like solar or wind power generation, where sales volume is influenced by external factors such as weather, generally have higher cash flow volatility. However, if the sales price is fixed, volatility is often predictable. Projects where either the sales price or both the sales price and sales volume fluctuate tend to exhibit greater cash flow volatility and lower predictability. In addition to requiring a relatively higher DSCR commensurate with the level of volatility, project-specific security-package measures are generally necessary to address the decline in predictability.[7] When focusing on DSCR, the emphasis is basically placed on the level and stability of DSCR at each repayment date. However, depending on the structure, assessments may sometimes prioritize Loan Life Coverage Ratio (LLCR) or Project Life Coverage Ratio (PLCR).[8] If cash flow risks increase in the latter part of the project compared to the earlier part, assessments may sometimes focus on DSCR for the latter part of the project.

(2) Qualitative assessment

JCR quantifies qualitative risks to the extent possible and incorporates them into the aforementioned quantitative assessments. For factors that are difficult to quantify, JCR considers whether or not a rating is feasible and reflects them in the rating through notch adjustments, ceilings, etc. applied to the quantitative assessments.

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6 Project types may exhibit vastly different levels of volatility even in the same category. For example, in Japan's FIT-based solar power generation, some projects face output curtailment for up to 30 days annually without compensation, while others face no restrictions. Cash flow volatility differs between heavy snowfall areas and non-heavy snowfall areas. Furthermore, wind power generation faces varying wind conditions depending on location.

7 For example, a cash sweep clause tied to the target project's KPIs and an extremely conservative tail period

8 For example, when the contractual deferral of a certain number of principal and interest payments is approved in advance, or when the principal repayment date is set at maturity with no pre-fixed amortization schedule and sufficient interest payment reserves are established, assessments typically focus on LLCR and PLCR.

In project finance, an approach that reduces risk by allocating various risks to the project stakeholders is often taken. Therefore, the creditworthiness of project stakeholders tends to become a constraining factor. Generally speaking, the particularly important project stakeholder refers to the EPC contractor prior to operation and the off-taker assumes the role after operation. Furthermore, the greater the project complexity, the more crucial the experience and creditworthiness of other key participants, such as the AM contractor, O&M contractor and the raw material supply contractor.

Typically, even if quantitative assessments are exceptionally strong, the creditworthiness of the EPC contractor prior to project completion and that of key project stakeholders after completion tend to constrain the creditworthiness of the rated entity. That said, prior to completion, if the following conditions are sufficiently met, a rating exceeding the EPC contractor's creditworthiness may be considered.

- It is considered entirely feasible to transfer EPC scope of work to another company.
- Even if EPC scope of work is transferred, it is considered that sufficient leeway exists in terms of schedule and budget[9].
- The AM contractor possesses high creditworthiness, or an appropriate backup AM contractor is available.
- If the project's profitability is high and funding shortages are feared, additional financial support can be expected.

After completion, if the following conditions are sufficiently met, assigning a rating that exceeds the creditworthiness of key project stakeholders may be considered.

- It is considered entirely feasible to transfer the contracted work of key project stakeholders to another company.
- Measures[10] are in place to prevent default occurring before the successor contractor assumes the target operations.
- The target project's DSCR is high enough to withstand a corresponding increase in costs.
- The AM contractor possesses high creditworthiness, or an appropriate backup AM contractor is available.

Additionally, if there are other factors to take into account, such as the target project's difficulty, the experience of project stakeholders, project-related contracts and security packages, notch adjustments based on quantitative assessments and the creditworthiness of key project stakeholders will be considered.

When refinancing risk exists, an assessment is conducted to determine whether refinancing can be arranged by the statutory maturity date of the rated debt. Specifically, attention is paid to factors such as

9 JCR verifies payment requirements and milestones for the EPC contractor and assesses the impact on project costs in the event that the EPC contractor becomes insolvent. If a Performance Bond or similar exists, JCR considers its expected effectiveness.

10 Examples include: reserves at a level deemed reasonable; the definition of default requirements in finance contracts; and support from other project stakeholders.

the depth of the refinancing market, the strength of incentives and track record of the refinancing initiators, the amount of time available for refinancing (length of the tail period) and the margin and volatility of residual cash flow against the refinancing amount. Typically, the smaller the tail period margin, the greater the stress tolerance required. Cases where the tail period is deemed insufficient may present challenges for rating. Ultimately, the decision to assign a rating, the ceiling and the notch-down range are determined based on the assessed level of refinancing risk.[11]

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[11] In cases where refinancing risk can be determined to be extremely low, a notch-down may not be considered.