



## Rating Criteria – Rating of BOT (Annuity) road projects

### EXECUTIVE SUMMARY

The strength of an economy is greatly determined by its infrastructure and road infrastructure is of the most important tenets of a country's economic growth. Being an important stimulant of growth, it provides connectivity, helps enable trade and employs a significant proportion of the population.

Road projects in India are undertaken through a public private partnership under the Engineering, Procurement and Construction (EPC), Build-Operate-Transfer (BOT (Toll) or BOT (Annuity)), Toll-Operate- Transfer (TOT) and Hybrid Annuity Model (HAM) modes, where EPC remained the dominant mode of awarding the projects

A BOT (Annuity) road project is one in which a road developer, usually a private sector entity (through SPV), constructs the road, undertakes the operational risks, and receives fixed payments from the National Highway Authority of India (NHAI) or State government authorities during the concession period. In general, the time frame for the concession period is around 25-30 years, after which the project is transferred to the state government / Central Government/NHAI.

PPP has been a major contributor to BOT projects in India. The BOT annuity model is largely dependent on receiving fixed annuity from authorities for recovering the developer's investment over a concession period after developing the project. The only obligation for the developer is to maintain the quality of the road. In this case, the government provides support in the form of fixed annuity, and the developer does not have any dependency to recover his investments from toll collections.

The BOT (Annuity) receives a fixed annuity payment from the NHAI or State Governments during the concession agreement, which reduces the risk of toll collection or short fall arising out of toll collections. Some of the other risk factors considered are related to the road development, maintenance, funding risk if the debt is not fully tied up, or loss of annuities in case of delay in completion of the project.

For the EPC part, the entire cost, including the procurement of raw materials and construction cost, is borne by the government. In this case, the risk associated with the funding arrangement and regulatory approvals, such as the right of way (ROW) or land acquisition, are very low as the government has to obtain ROW before handing over the concessioner.

## SCOPE

The document provides a brief analysis of the quantitative and qualitative attributes considered by Brickwork Ratings (BWR) in rating BOT (Annuity) road projects. It focuses on the credit risk assessment of the road developer and analyzes various pre and post implementation risks in detail. A summary of the effect of these attributes on the overall credit rating of Developer is highlighted which helps ascertain the debt servicing capacity and the ability of these BOT developers to undertake large scale road infrastructure projects.

## RISK ASSESSMENT AND RATING CRITERIA AT BRICKWORK RATINGS

Brickwork ratings factors in the various quantitative and qualitative risks that the road developers are exposed to, while assessing the risk in these projects to arrive at the rating. This document provides a risk assessment framework to analyse the qualitative and quantitative risk characteristics that are likely to affect the ratings of BOT (Annuity) road projects. The methodology has many similar attributes as the underlying rating drivers are identical to other infrastructure projects (for example, EPC, BOT (Toll) Road projects, TOT, HAM etc.). However, the sector specific criteria, such as payment mechanism and structure of financing vehicle, will determine the indicative rating along with the inherent underlying stresses in the project. As highlighted above, the key risks that developers face in an annuity road project are the Construction risk, funding risk, , legal risk, counterparty risk, and O&M risks. These risks are considered to arrive at the rating of an annuity road project. The risks and how they are incorporated in the rating framework are discussed in detail below.

### Project risk:

The risks that a project is exposed to at the initial stages of construction have a huge role to play in its successful completion and operation.

1. **Project Planning & Completion Risk:** This includes the evaluation of the risks associated with the financial closure of the project, any associated technology risks or the track record of the sponsor in completing similar projects in the past and current status of the project.
  - ❖ **Funding risk:** Since annuity projects are highly capital intensive, a higher degree of leverage is required to fund these projects. The onus of ensuring financial closure in case of BOT Annuity projects falls on the SPVs and these projects are usually funded by 70-90% debt. Hence, the ability of the sponsor to ensure funds in a timely manner is assessed. Although grants are provided by the government to ensure debt levels are kept lower, the sponsor / developer needs to have the financial strength to achieve financial closure on time or infuse additional funds in form of equity / debt in case of cost overruns associated with the project for various reasons. The main source of revenues for these SPVs is the annuity payments by project owner and there need to be sufficient cash flows from the project to service the debt.
  - ❖ **Technology risk:** Technology/Design for road construction is widely accepted and hence the lifecycle of technology-in-use does not have much variation during the tenure of the project. However, appropriate road construction technology ensures adequate life-of-road and speed of project implementation to an extent.
  - ❖ **Track record of sponsor/EPC contractor:** Sponsor's history of projects undertaken, execution track record of the EPC contractor plays an important role in reducing overall time and cost overrun. In BOT (Annuity) projects, the ability of the sponsor to execute the project on time and within budget, timely receipt of annuity and limiting various operating and maintenance costs, including major maintenance, are an important determinant of the viability of the project.

- ❖ Stage of project completion and construction risk: The backbone of a project is the way it is executed. Construction risk arise due to delays in obtaining approvals and clearances, obtaining RoW before the start of the project, land acquisition, labour management, shortage of material required, limited funding options or no funding tie-up/financial closure, etc. The completion risk varies with the stage of completion of project at the time of assessment of credit risk.
2. Project Implementation risk : Brickwork assesses the attributes responsible for timely project implementation, like obtaining right of way or the level of land acquisition for the project (e.g. In case of NHAI-owned BOT road projects, at least ~80% of the RoW should be available before the start of the project as per concession agreement) and environment and forest or statutory clearances obtained by the concessioning authority, the costs incurred, complexity of the project and the appropriateness of the bid price.
- ❖ Land acquisition: Timely availability of various environmental/statutory and legal clearances plays critical role towards timely implementation of the project and reduces cost overruns. In most of the road projects, the Central or state government is responsible for obtaining various environment and statutory clearances and land acquisition. However, delays in land acquisition due to higher costs in obtaining right of way (area within which the sponsor has unrestricted entry to undertake the project) may lead to a halt in the construction process and result in time and cost overrun.
  - ❖ Environmental clearances: A faster approval requires that the environmental clearance cost of the project is kept low and the benefit to the general public is more than the environmental costs at the time of construction. In case of any road project's timely implementation depends upon its ability to acquire all environmental and statutory clearances before the start of project. This risk remains high where newly constructions are being proposed where majority of the clearances and required land is yet to be acquired and the risk will be lower where the project requires upgradation of an existing stretches.
  - ❖ Terrain complexity: The geographical conditions where the project is undertaken is assessed and its exposure to inhospitable terrains like mountainous regions, high rainfall belts is seen as problematic and construction as well as maintenance remained challenging and can lead to cost and time overruns.
  - ❖ Bid aggression: Road projects are undertaken through a bidding process wherein the developer with the lowest bid gets the contract to take up the project. An inexperienced sponsor with no prior experience may indulge in aggressive bidding which leads to a huge difference between actual and expected costs of the project. Further, number of bids, type of bidder (L1, L2 or L3) or base price offered by the authorities and bid price by the concessionaire impacts the overall cost of the project and returns (IRR) or profitability.

**Operational risk:**

It includes the risks that a project is exposed to at various stages of construction and takes into consideration the risks due to delays in receipt of annuities, obtaining statutory and legal clearances and geographical complexities of the project.

1. Financial risk: BOT models have a significant impact on the economic growth and development of a country. Road assets being highly capital intensive requires external debt to support the project. However, the risk of repayment of debt is usually low for these projects as the concessioning authority gives fixed annuity payments which can be used to repay debts. DSCR is used as a key indicator to identify the project's ability to service its debt, considering the post-construction and associated costs

involved in operating and maintaining the road. Budgeting right proportions of associated cost will ensure sufficient funds are available for debt servicing. A measure of solvency of the firm can be ascertained by Loan life coverage ratio (LLCR). Brickwork also assesses the ability and financial strength of an SPV and promoter's ability to undertake risks related to an unexpected increase in input prices (bitumen, stones, diesel, labour, concrete). To ascertain that, the Debt service coverage ratio (DSCR) is required to be steady and undertake under such cost escalations. Also, the ability to handle exchange rate and interest rate fluctuations is assessed. These risks emphasize the ability of the entity or SPV to service its debt obligations on time, and maintenance of its operations and liquidity efficiently. Some of financial indicators which need to be arrived at while assessing the financial risk are follows:

- ❖ Leverage and coverage indicators
- ❖ Sensitivity of DSCR to cost escalation
- ❖ Internal rate of return
- ❖ Liquidity and financial flexibility and refinancing
- ❖ Level of DSRA, escrow mechanism & profitability
- ❖ Interest rate and forex risks
- ❖ Off balance sheet exposures
- ❖ Adequacy of termination of Concession Agreement and/or Insurance

2. Criticality risk: It refers to the exposure of an SPV to risks related to change in existing laws due to a change in the government, which can lead to stalling of under construction projects. Complex terrains can increase the O&M costs of the project and events regarded as “act of god” or force majeure risks, which are beyond the control of the SPV can hinder the progress of these projects. Brickwork assesses the following risks which can affect the timely completion of annuity projects:

- ❖ Change in law/ regulatory risk
- ❖ Geographical risk and contingency plan
- ❖ Force Majeure risk

3. Counterparty risk: In case of annuity projects, operating and maintenance costs are taken care of through the fixed annuity payments received from the concessioning authority. Although the concessioning authority in most cases is a government entity (NHAI) and chances of default are very low, there can be delays in payments which can affect the SPVs ability to account for these costs on time. Hence the counterparty risk is more pronounced for annuity- based projects due to dependence for annuities. Therefore, the ability of the SPV to service debt and various operational costs in case of delay in annuities is assessed. Also, if the SPV can fund the project through other sources, the counterparty credit risk can be mitigated to some extent. Additionally the risk from EPC contractors and O&M contractors do contribute to the overall counterparty risk and these factors are considered while evaluating the risk.

4. Business risk: For a road project to function smoothly, operating and maintenance costs have to be incurred frequently and a failure to undertake these costs can lead to a breach of the terms and conditions of the concession agreement, causing impediments in receipts of annuities. Maintenance costs constitute a significant portion of the initial construction cost of an annuity road project (25- 40%) and occur once in five years. Also, for annuity projects, the annuities start flowing in after six months from the COD (Commercial Operation Date). Therefore, projects with adequate funding to meet the first six months of O&M expenses and fixed interest obligations are considered favourable. There is no demand risk in case of annuity projects as there is no dependence on toll collection for revenues. However, the ability of the stretch to withstand increased traffic needs to be assessed as traffic levels which exceed the limit assigned can lead to additional wear and tear and increased O&M costs. Business risks assessed by Brickwork include the following:

- ❖ Track record of annuities

- ❖ Operational performance, O&M expenses and track record
- ❖ Adequacy of stated O&M and maintenance costs
- ❖ Delay in receiving raw material supplies and availability.
- ❖ Management and corporate governance

## CONCLUSION

Brickwork Ratings arrives at the final rating output after measuring the impact of each of the above-mentioned risks and attributes. In the pre-implementation phase, project completion risks like track record of sponsor and construction risks such as approval of clearances, land acquisition or RoW and other statutory clearances significantly affect the rating of the project. In the post implementation, the focus shifts towards financial parameters such as level of DSRA, O&M risks, repayment structure, DSCR and track record of receipt of annuities etc. As opposed to BOT (Toll) road projects, annuity projects are exposed to a greater counterparty credit risk as their operational expenses and various other fixed interest obligations are being serviced from the annuities received from the annuity provider.

[The previous document can be found in](#)

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