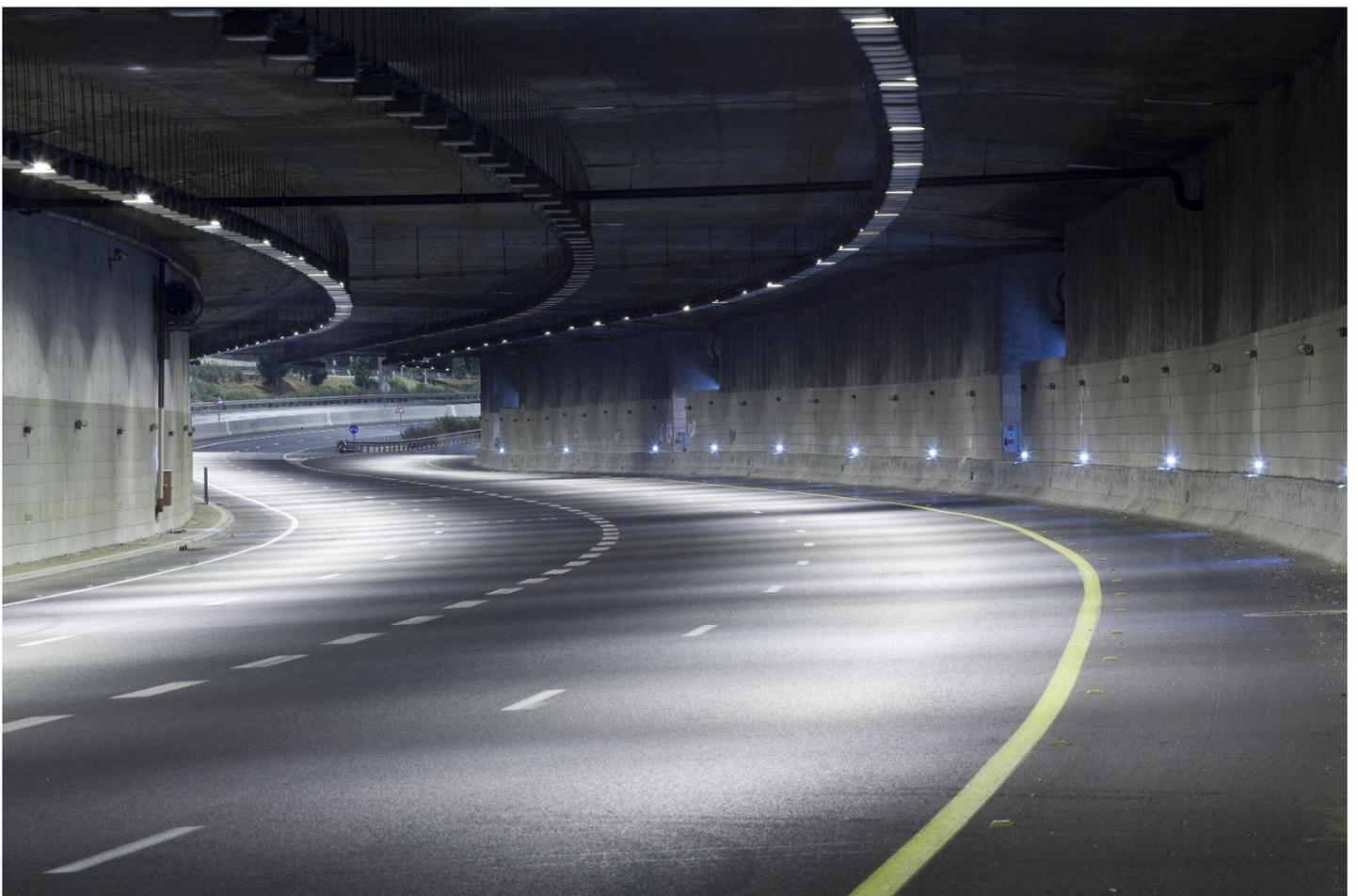


CRISIL Ratings criteria for rating annuity and HAM road projects

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Executive summary

The Government of India invites private participation in the road construction segment by awarding projects under different models such as cash contracts (engineering, procurement and construction [EPC]), toll, annuity, and hybrid annuity. The fundamental differences in these models are the method of compensation and the obligations during the construction and operational phases. This criteria document outlines CRISIL Ratings' approach and methodology for rating annuity and hybrid annuity model (HAM) road projects.

In annuity road projects, a special purpose vehicle (SPV) constructs the road and receives fixed payments from the National Highways Authority of India (NHAI) or state government authorities throughout the concession period, with an obligation to maintain the quality of the road. Unlike toll road projects, demand risk here is mitigated by a steady stream of assured payments.

HAM is a variant which combines the features of annuity and EPC projects. In HAM projects, the concessionaire receives inflation-adjusted payments during the project implementation phase to fund a certain percentage of the project cost. During the operational phase, these projects receive annuity payments and maintenance compensation, which are adjusted for interest rate and inflation, respectively.

Both annuity and HAM projects face construction and funding risks in the project phase. Construction risk depends on the availability of right of way (ROW) and environment and forest clearances. Funding risk mainly involves the ease of tying up financing. These risks are mitigated in HAM projects by certain features such as presence of 80% ROW before the work begins and funding support from the concessioning authority during the construction phase.

During the operational phase, annuity road projects are insulated from fluctuations in revenue as cash flow to the concessionaire is fixed and semi-annual as per the concession agreement. So, the major residual risk pertains to the costs — operations and maintenance (O&M), and major maintenance and repair (MMR) — to maintain the road. CRISIL Ratings' analysis of annuity road projects considers the adequacy of these costs and potential increases therein due to inflation.

Operational HAM projects, in addition to the annuities, have inflows comprising interest on the residual annuities and inflation-linked maintenance compensation. Such a project resembles a financial asset with almost a pass through cash flow structure, if bid appropriately. The major residual risk, therefore, is the extent of adverse co-movements in the interest rate and inflation. CRISIL Ratings' analysis of HAM projects centrally factors in structural cushion in terms of leverage along with any liquidity buffer to manage these residual risks. The revised model concession agreement pegs the interest rate for annuity with MCLR (Marginal Cost of Funds based Lending Rate) — which typically is the index used for interest on term loans, thereby further reducing the residual risks.

CRISIL Ratings' analysis also looks at the counterparty risks and adequacy of the liquidity cushion to counter any delay in payment of annuity by the counterparty.

Scope

The scope of the criteria¹ applies to projects that receive annuity payments from counterparties such as NHAI and state governments.

¹ For accessing the previous published document, kindly refer to the following link:

https://www.crisilratings.com/content/dam/crisil/criteria_methodology/infrastructure/archive/crisil-criteria-for-rating-annuity-and-ham-road-projectsjune2023.pdf

The document also covers CRISIL Ratings' approach to financial ratios used for assessing annuity and HAM projects, including adjustments it carries to the reported metrics in the financial statements.

Rating annuity and HAM roads

An annuity or HAM road project has two main stages:

1. Construction (project) stage
2. Operational stage

The methodology for rating in each of these stages is explained below.

Rating construction (project) stage annuity and HAM road projects

For annuity and HAM road projects that are under implementation, the rating factors in construction/project stage risks. Key risks are listed below.

Table 1: Key risks in annuity and NHAI HAM road projects in the construction stage

Risks	Annuity roads	HAM roads
Implementation	Road projects span several kilometers. Hence, factors such as land acquisition, environmental clearances and delay in contracts may hamper timely implementation. Most clearances and permits are to be sought on an ongoing basis. Terrain complexity such as hills, forests and proximity to rivers makes execution more complicated.	HAM projects fare better in implementation risk front due to the presence of certain specific features. Firstly, 80% ROW is available before the work begins. Also, in the event of delays in handing over required ROW by NHAI within the stipulated time, there is an option to descope or delink. In such instances, the PCOD is given for the completed stretch and annuity payments are received. This feature minimises the risk of delay in project completion which in road projects arises primarily due to land acquisition issues
Funding	Availability of funding, both debt and equity, is critical for timely project completion.	The concessioning authority's support for 40% of the construction cost in HAM projects reduces this risk to some extent.
Technology	The technology for construction of roads is well established.	

CRISIL Ratings also factors in the track record of the sponsor with regard to timely completion of projects, post-implementation debt-servicing ability, and liquidity, when rating annuity and HAM projects in the construction stage.

Rating operational annuity and HAM road projects

Major risk factors in operational annuity and HAM road projects are highlighted below:

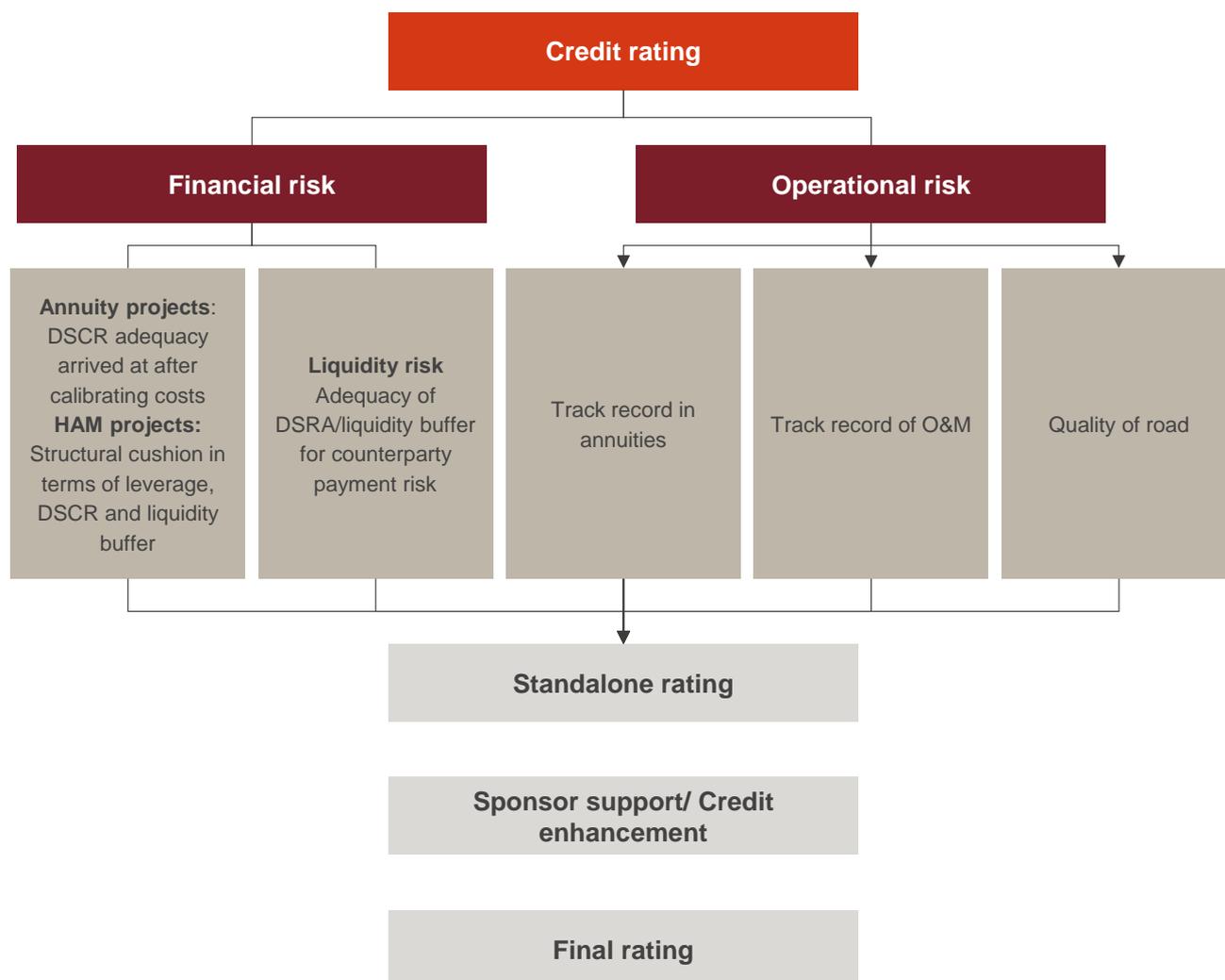
Table 2: Key risks in operational annuity and HAM road projects

Risks	Annuity roads	HAM roads
Demand	No demand risk (fixed semi-annual payments from NHAI or the state government without linkage to traffic on the road)	No demand risk (annuity payments from NHAI or the state government along with interest on residual annuities, and inflation-linked maintenance charges without linkage to traffic on the road)
Price	No price risk	

Risks	Annuity roads	HAM roads
Cost	Risk due to inadequacy of maintenance estimates of the road to account for actual maintenance cost	Risk due to aggressive bidding leading to inadequate maintenance compensation compared to actual cost
Inflation and interest rate risk	Fixed inflow leads to inflation risk on maintenance cost front and interest rate risk on debt servicing front.	Both interest rate and inflation risks are minimised as the inflow is linked to benchmark interest and inflation rates. However, residual risks remain due to possible adverse co-movement of these rates vis-à-vis cost indices.
Counterparty	Risk due to delay in payment of annuities that could lead to liquidity mismatches, thereby affecting ability to service debt on time.	

Methodology to assess operational annuity and HAM projects

Overview of CRISIL Ratings' methodology for assessment of operational annuity and HAM road projects



Financial risk

CRISIL Ratings' analysis of the financial risk profiles of operational annuity and HAM projects involves analysis of the cash inflow against maintenance and debt servicing requirements, and presence and adequacy of liquidity buffers.

In annuity projects, with inflow being stable and known, the financial risk profile is highly sensitive to the adequacy of the provisions for maintenance expenses. CRISIL Ratings looks at debt service coverage ratios (DSCRs) of annuity projects after sensitizing inflation on maintenance cost, to understand their ability to meet financial obligations.

In HAM projects, annuity is received adjusted for interest rate (in the form of interest on residual annuities). Also compensation for maintenance is adjusted for inflation. Such adjustments help mitigate risks arising due to inflation or interest rate movements. However, residual risks remain, arising from adverse co-movements in the indices (if the indices are different), and receipt of inadequate compensation against outflow could lead to cash flow mismatches. CRISIL Ratings, therefore, centrally looks at leverage and liquidity in HAM projects, to maintain a healthy credit risk profile.

Key changes introduced to the HAM roads model concession agreements:

The concession agreements of HAM road projects have undergone two key amendments over the past couple of years –

- Interest on annuity balance linked to MCLR (November 2020)
- Maintenance compensation to be paid as fixed percentage of bid project cost (May 2022)

Interest on annuity balance linked to MCLR:

Initially, interest on residual annuities for HAM roads was linked to the bank rate. These HAM roads received 'bank rate plus 3%' as interest on the annuity. However, the interest cost on debt availed was generally linked to MCLR. The use of different indices – bank rate for inflow and MCLR for outflow of interest – resulted in basis risk as the indices may not move exactly in tandem.

NHAI in November 2020 amended the model concession agreement, whereby the interest payouts were linked to MCLR. Projects awarded post November 2020 are to receive 'MCLR plus 1.25%' as interest on residual annuities semi-annually. This change is expected to nullify the nominal basis risk in HAM projects awarded post November 2020.

Maintenance compensation to be paid as fixed percentage of bid project cost:

The bid evaluation as per the initial concession agreement was a factor of both bid project cost (BPC) and NPV of maintenance bid. NHAI in May 2022 amended the model concession agreement whereby it prescribed that the bid evaluation be solely based on BPC and that maintenance compensation be paid as a fixed percentage of BPC for the projects awarded post May 2022. The said changes to the maintenance norms are expected to reduce the risk of under-bidding the maintenance payouts to a large extent.

Leverage:

In case of HAM projects, leverage is measured in terms of Debt to annuity balance. HAM road projects are designed similar to a financial asset wherein the inflows and outflows are largely matched, and the asset is subject to residual risk in the form of adverse co-movement of the inflow-outflow indices. Leverage is used as key determinant of the credit profile to address the inherent nature of HAM model.

CRISIL Ratings evaluates the Debt to Annuity balance of the project as it indicates the presence of equity content in a project that can act as cushion against adverse inflation and interest rate movements. The credit profile of a HAM project is sensitive to the bidding strategy employed, as both the extent of absolute maintenance compensation and the corresponding offset on account of inflation depends on the maintenance bid quoted by the developer. Hence, CRISIL Ratings may suitably adjust the debt to annuity ratio depending on the maintenance component in the bidding.

With respect to the revision in the MCA in 2022, the maintenance compensation is defined in the MCA itself, thereby doing away with any need for developer to quote separate maintenance bid.

Leverage = Debt / Annuity balance¹

DSCR:

DSCR is a key indicator of the ability to service debt and is critical for assessing credit quality of annuity and HAM projects. The financial risk profile of annuity projects is primarily driven by the DSCR over the loan life of the project. For HAM projects, besides the leverage assessment, DSCR assessment is carried out to assess the adequacy of cash flows to service debt.

The DSCR profile can be driven by minimum DSCR, average DSCR or a combination of both depending on variability of cashflows. The calculation shall solely be based on project cash flows, without considering parent support or debt service reserve account (DSRA).

DSCR = (Profit after tax + Depreciation + Interest) / (Interest + Repayment)

At times, the debt tenor is shorter when compared to the life of the asset and relies on refinance to meet the repayment obligation. In such situations, CRISIL Ratings may factor in the refinancing risk while arriving at the rating.

Calibrating maintenance cost and calculating DSCR in operational annuity and HAM projects

CRISIL Ratings' framework primarily focuses on the following key aspects while calibrating the costs to arrive at cash flow for computation of DSCR:

- a. Adequacy of MMR and O&M costs
- b. Ability to withstand fluctuations in inflation rate
- c. Ability to withstand fluctuations in interest rate

These aspects are covered in detail below.

¹ Sum of the balance amount of annuity to be received from the concessioning authority over the remaining concession period as on date of calculating the ratio.

a) Adequacy of MMR and O&M costs

CRISIL Ratings evaluates various factors to assess the quality of the road in order to determine the adequacy of MMR and O&M costs. State road projects, which see lesser traffic than national highways, usually entail lower MMR and O&M costs as the wear and tear of roads is lower. CRISIL Ratings also factors that high-quality roads may be able to reduce the frequency of MMR or use emerging technologies to carry out MMR at a later stage. Other project specific factors that may affect the MMR and O&M costs, such as presence of freight intensive zones, difficult terrain, and the developer's track record in maintaining operational road stretches, are also factored in.

b) Ability to withstand fluctuations in inflation

Once CRISIL Ratings evaluates provisions for maintenance cost, adequacy of inflow to support these costs despite inflation spikes is gauged. This assessment is important as timely maintenance of the road stretch is critical. Non-maintenance could lead to delay in receipt of annuities or in the worst case, suspension of payments from the concessioning authority till the quality of road is restored to the stipulated condition.

Assessment of the SPV's ability to carry out maintenance without seeking support from the sponsor is important. This helps in delinking the credit risk profile of the SPV from that of the sponsor.

In HAM road projects, benchmark inflation-linked inflows offset the cost-side inflation to a great extent. However, there still remains a possibility basis risk, and hence, sensitivity analysis is carried out to account for the extent of adverse co-movements possible in the inflation indices.

c) Ability to withstand fluctuations in interest rates

For traditional annuity projects, CRISIL Ratings analyses the adequacy of the cash flow to withstand any fluctuation in interest outgo over the concession period.

HAM road projects receive interest on annuity, linked to the bank rate, for projects awarded before 2021. The SPVs generally borrow debt linked to the MCLR of a bank. While interest received on annuity offsets interest rate risks, the two indices—bank rate and MCLR (or the index with which the borrowings are linked) —need not exactly move in tandem. This leads to residual risk, wherein the inflow may not exactly offset the outflow. CRISIL Ratings carries out sensitivity analysis on the interest rate movements to account for the residual risk arising from the movements of these indices.

If the SPV has raised debt at a fixed interest rate, CRISIL Ratings' analysis of the cash flow factors in the fixed obligations against fluctuating inflow.

For projects where the interest calculation – both on the inflow and outflow side – is pegged to the same index (e.g. MCLR), this risk does not arise.

Liquidity assessment: Creation of adequate DSRA/ liquidity buffer

In an operational annuity or HAM project, as the concessioning authority is generally a government or a government-controlled entity, the risk of incomplete payments is low and solvency is rarely an issue. However, there could be delays in annuity payments, which could adversely affect the borrower's ability to service debt on time. Hence, presence and adequacy of liquidity cushion is looked into. Besides, time gap between the repayment date and date of annuity receipt is also taken into account, which indicates ability to withstand delays in receipt of annuity.

CRISIL Ratings also considers the strength of the counterparty in deciding adequacy of liquidity. Having a larger quantum of DSRA in case of counterparty with higher payment risk would be critical whereas relatively lower DSRA levels would suffice for a project having counterparty with low risk.

For HAM projects in particular, a liquidity buffer may be required to take care of cash flow mismatches arising from differential movement in indices.

CRISIL Ratings also evaluates whether liquidity/DSRA is maintained in the form of cash or bank guarantee or if there is a counter guarantee from the sponsor.

Operational risk

Track record of receipt of annuities

Typically, SPVs have to obtain certifications from various authorities to achieve the project commercial operations date (PCOD). Delays resulting from these procedural aspects can push back annuity payments by the concessioning authority. Even after receipt of PCOD, it is important to look at the track record of timely receipt of annuities to establish the stability of the process. Hence, a track record of timely receipt of annuities becomes a critical factor in evaluating operational annuity and HAM road projects.

Track record of maintenance

CRISIL Ratings looks at whether the required maintenance (both O&M and MMR) expenses have been incurred. Any shortfall in this can lead to additional wear and tear, thereby affecting road quality. This may lead to a breach of the terms of the concession agreement, leading to non-receipt of annuity. A sustained track record of maintenance is, therefore, critical.

Sponsor track record in managing operational road stretches

CRISIL Ratings looks at the history of the sponsor in managing operational stretches. A consistent track record indicates ability to maintain the road as per the agreed requirements. This also highlights the sponsor's ability and willingness to absorb any unforeseen expenses/losses and keep the project operational. Furthermore, CRISIL Ratings looks at the creditworthiness of the sponsor managing the operational road projects. Weak credit risk profile of the sponsor may form a critical factor in evaluating the credit risk profiles of operational road projects, especially in higher rating categories.

Management risk

CRISIL Ratings' evaluation involves assessment of the management in three broad categories: integrity, risk appetite and competency. For details please refer to CRISIL Ratings' article titled 'Rating criteria for manufacturing and services sector companies' available on www.crisilratings.com. However, CRISIL Ratings also notes that compared to a typical manufacturing company, management intervention will be limited for passive infrastructure projects such as annuity and HAM.

Credit enhancement

Credit enhancement in the form of guarantee or other tools may be factored appropriately in the rating.

Sponsor support

Sponsor support refers to financial support from a creditworthy sponsor to account for any delay in annuity or liquidity crunch. CRISIL Ratings analyses the possibility of sponsor support based on the stated intent and track record of supporting projects, credit profile of the sponsor, whether it is economically beneficial for the sponsor to support the SPV and to what extent, and the status of other projects of the sponsor.

Conclusion

CRISIL Ratings' methodology for rating annuity and HAM projects involves extensive analysis of all the risk factors pertaining to these projects. The analysis focuses on the assessment of leverage and adequacy of cash flow for debt servicing after factoring in the required maintenance costs. The rating methodology also takes into account the liquidity cushion maintained to mitigate the risks arising from cash flow mismatches and delayed annuity payments. In addition, CRISIL Ratings may factor in parent/group support or external credit enhancements in the form of guarantees (partial or full) while assigning ratings to the debt instruments.

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