PROJECT FINANCE

# MARC RATING METHODOLOGY

# TOLL ROADS

## OVERVIEW

Toll roads are public infrastructure; however, private sector involvement in building, operating, maintaining and financing these facilities is common. This public-private partnership is a widely-adopted model for toll road development in Malaysia. The development of roads is mainly guided by the national Highway Network Development Plan which was formulated in 1993.

Public-private partnerships typically involve the government granting a toll road concession to a privately owned single-purpose entity which usually comprises a consortium of two or more companies. The private concessionaire will be responsible for the materialisation and financing of the toll road, and in return be given the right to collect toll receipts over the concession life. The Malaysian Highway Authority (Lembaga Lebuhraya Malaysia, or LLM) is the regulatory body overseeing all toll roads in Malaysia.

There are two types of toll systems: open toll and closed toll systems. In the open system, vehicles are imposed a fixed tolling charge when passing through the toll plazas according to the type of vehicle. Most of the toll roads rated by MARC are based on the open system. In the closed toll system, vehicles are charged according to the distance travelled.

In assessing the credit quality of toll roads, MARC adopts the project finance rating approach which focuses on analysing credit factors specific to toll roads. The most important

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underlying factor in our analysis of a toll road is its inherent project economics. The economics of toll road projects, in turn, is affected by their function (to catalyse development or to reduce congestion), physical characteristics (length below, on or above ground and the complexity of terrain) and traffic profile (percentage of commuter, business and recreational traffic).

While other factors may constrain or enhance a given project's overall credit quality, and thus its rating, at the core of our analysis is the question of whether the facility is or will be self-supporting.

Generally, toll roads carry moderate credit risk. However, this risk may be elevated, particularly when actual traffic during the initial or ramp-up period falls short of the forecast by a wide margin, potentially impacting the ability to meet cash flow projections.

This methodology is to be read together with MARC's master criteria for Project Finance transactions.

## PROJECT SPONSORS/MANAGEMENT

Documents related to ownership structure (i.e. articles of incorporation and shareholders' agreements), financial data and other corporate information on project sponsors will form the basis of evaluation for the following risk factors:

| Assessment | Analytical Focus |
|---|---|
| **The project sponsor's background and track record** | The project sponsor's previous involvement with toll road projects that have been built and operated successfully are positive rating factors. An assessment of the key management personnel, regarding qualifications, skills and experience, shall also be carried out. |
| **Financial strength** | The financial strength of the project sponsor is assessed in terms of the depth of its capacity and capability. The audited accounts of the sponsor for the past three to five years will form the basis of this assessment. The sponsors' credit quality is important to ensure that it will be able to meet any future obligations, particularly contingent equity requirements. |
| **Commitment** | Evidence of the sponsor's commitment to the project will be looked at in terms of allocated resources, investment and support. Significant resources and time invested in the project; higher levels of equity investments on the part |

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| | of the sponsor are considered positive factors when evaluating a project. The strategic importance of the project to the sponsor is also considered. Examples of commitment may be in the form of an undertaking to cover cost overruns, to provide liquidity support and to maintain a material interest in the project during the life of the financing facilities. |

## CONCESSION FRAMEWORK

All toll road concessions currently rated by MARC are awarded by the Government of Malaysia (GOM). These concessions are governed by concession agreements (CA) entered into between the concessionaire and the government. Thus, the CA is the first document that shall be rigorously reviewed. The CA, among other things, spells out the job scope, rights and responsibilities of both parties entering into the agreement. The CA also serves as a basis for an evaluation of regulatory risk, particularly in conjunction with the ability to increase toll rates by the agreed quantum and timeframe, as well as compensation to the concessionaires if there is an adverse amendment to the CA. The extraction of salient points within the agreement that would have bearing on the rating shall be scrutinised. This includes, among others:

### Type of concession

Normally, toll road concessions in Malaysia are based on the build, operate and transfer (BOT) model, whereby the concessionaire is responsible for constructing and operating the toll road on its own or contracting out the toll revenue collections, and/or carrying out the maintenance of the toll road during the concession period. At the end of the concession period, the toll road, including the rights to collect toll, shall be transferred back to the government. The rights, roles and responsibilities of both parties under the concession would be examined.

### Concession period

The duration of the CA is normally long term (30 to 55 years) as there is a relatively long gestation period before the shareholders would realise any return on the investments. The concession period can usually be extended under certain circumstances, such as in the event that the concessionaire has to carry out required additional works on the infrastructure of the toll roads.

### Availability and form of government support

Clauses indicating strong government support, such as an extension of back-ended government support loans, are positive rating factors. The strategic importance of a particular toll road to the overall development of infrastructure in Malaysia to support economic growth is also

considered. Strong evidence of government involvement may mitigate non-completion or delay risk of certain projects. The timeliness of such support would also be an important consideration.

Other forms of support include minimum traffic growth guaranteed by the government, termed as the Support Traffic Volume (STV). This form of support is viewed positively in assessing market risk.

If the actual traffic volume falls below the STV, the concessionaire will be compensated by the government. In return for the traffic guarantee, the concessionaire will share an agreed percentage of the excess with the government if the actual traffic volume exceeds an agreed growth rate (the first threshold toll income).

### Termination provision

Like in any other similar agreements, the termination provision is a normal provision in a CA. The analyst would look at the events of defaults, force majeure (events that are beyond the company's control), terms and conditions relating to termination as well as the subsequent compensation. It is important to address how the CA protects the bondholders as a result of terminations.

In the case of most toll roads rated by MARC, if the government terminates the concession, the government must pay the financiers within six months of termination the aggregate amount owing to the financiers at the date of payment. However, the government's liability to lenders is usually subject to a certain limit.

### Conditions for extension

There are instances where the concession period is extended as part of the compensation package provided by the government due to expected loss of earnings for the remainder of the period resulting from lower revised toll rates compared to the agreed toll rates as per the CA. The analyst will assess the impact of the extended concession period and the lower toll rates on the project's cash flow projections and the consequent ability to service debt obligations during the bond tenure.

### Toll Rate revision mechanism

For the purpose of toll rate administration, the concession period is usually divided into sub-operating periods with the corresponding scheduled toll rates as agreed between the concessionaire and the government. MARC will study and analyse the provisions of the toll rate setting mechanism. A notable consideration is that an increase in toll rates may have a negative impact on traffic volume for a period of time after the increase. The effect on revenue would thus need to be factored in as part of MARC's sensitivity analyses. Given the public sensitivity of any toll rate revision, it can be expected that the approval

process would be somewhat time-consuming, and thus is also factored into MARC's sensitivity analyses.

### Toll compensation mechanism

MARC's analyst would assess the mitigating factors if the gazetted toll is lower than the agreed toll. For example, toll-pricing approval risk is mitigated by the condition in the concession agreement that if the gazetted toll is lower than the agreed toll (e.g. toll hike deferrals), the government shall compensate for any reductions in the toll collections calculated based on a certain formula. In the event compensation is payable, the timeliness and the magnitude of such sums is evaluated.

## CONSTRUCTION RISK

Construction risk is the risk that the toll road project is not completed on time, within the scheduled budget and up to the required performance standards. In reviewing these risks, MARC takes into consideration various factors, including the appointed contractors, construction complexity, projected costs, delay risk and other terms of the construction contract. The opinion of the project's independent consulting engineer (ICE) shall be the main point of reference.

### Turnkey contract agreement

The turnkey contract agreement governs the contractual relationship between the concessionaire and the turnkey contractor, and outlines the scope of work, rights and responsibilities, the construction period during which the contractor is responsible to design, construct, complete and commission the highway as well as the turnkey contract price. A lump sum fixed-price contract would be viewed favourably, especially when there is sufficient protection against changes in price of materials, cost overrun and delay risk.

### Design-build or other contracts

Concession contracts are normally on a "design, build, operate and maintain" basis. Typically, an independent consultant is appointed to undertake the detailed design. MARC shall assess the track record and experience of the consultant in related projects and whether the contractor has given a performance guarantee for the design, and the period covered by the guarantee.

### Variation order and additional work processes

The analyst shall examine the circumstances which warrant the contractor to be compensated if there are additional works requested by the government or necessitated by the contractor's default or variation arising from amendments to the approved design.

## Performance bonds, guarantees, insurance policies and liquidated ascertained damages

In the event of failure to complete the project by the specified date, the contractor may have to pay liquidated ascertained damages (LAD) computed on a daily basis; the maximum amount allowed under the contract is normally 5% of the turnkey contract price. Apart from the LAD, MARC shall examine the requirement for the contractor to deposit a performance bond equivalent to 5% of the contract sum.

The performance bond is usually assignable to the government for the contractor's due obligations to perform under the CA during the construction period as well as during the defect liability period specified under the contract. Similar to other projects of this nature, construction works are insured against any loss or damage during the construction period up to the end of the defect liability period. The turnkey contractor is responsible for procuring and maintaining, among others, the contractor's all risks insurance policy, workmen's compensation and third-party liability insurance.

Basically, the turnkey contract shall ensure that the concessionaire is protected against any cost overrun and delay risks, as these risks have been passed to the turnkey contractor through the back-to-back LAD arrangement in the turnkey contract. The analyst shall ensure that there are cash reserves and credit lines available to cover instances of cost overruns or delays.

## Extension of time and early completion

The analyst shall look at the provision for an extension of time and when the LAD shall be effective in the event of any delays. There are instances where the turnkey contract also provides for an early completion incentive to the turnkey contractor if any section of the works is completed before the date of completion for the works. For example, a bonus incentive equal to 50% of the Net Toll Revenue attributable to the section of work for the period between the scheduled completion date and the actual early completion date.

## Site or terrain risks and land acquisitions requirement

It is important to address which party will be or is responsible for making available to the concessionaire the land required in relation to the concession area and costs involved in the land acquisition. Another question which needs to be addressed is which party will bear the costs for the removal and resettling of squatters or occupiers and the compensation for each squatter family. Ideally, the land status shall be free of encumbrances. MARC shall also look at the compensation payable by the government to the concessionaire if the former fails to make land available, resulting in delay.

### Major contractors

MARC shall evaluate the experience and track record of the major contractors in related toll road projects, as well as their financial profile, including profitability, shareholders' funds and the list of projects completed. The qualification and experience of the management of the construction company would also be examined.

### ICE's report, progress report, scheduled timeframe and project costing

During the construction period, MARC shall monitor the construction progress of the toll road by examining the construction progress report prepared by the ICE, who is responsible for overseeing and monitoring the construction progress of the toll road on behalf of the concessionaire and its financiers. The ICE would act as the supervisory engineer ensuring that construction works are executed in strict accordance with the turnkey contract. The presence of the ICE provides independent surveillance on the construction progress. MARC's analyst shall note the construction's scheduled timeframe, which includes the period when construction shall begin and end, the beginning of the defect liability period and the expiry of this period.

### Other considerations

Other considerations include the contractor's plan for acquiring sufficient equipment, labour and materials necessary to complete the project, the local labour situation with respect to strikes and labour laws, and rules that could affect the project and any dispute settlement or resolution processes with contractors and subcontractors. MARC shall also look at any requirements for controlled disbursement of construction funds.

## OPERATIONAL RISK

Operational activities include the operation of the toll collection system, traffic management and emergency and recovery functions. Maintenance is broadly classified into routine maintenance and major repairs. Routine maintenance consists of works which are generally repetitive in nature, such as grass-cutting, roadway clearing, desilting and drainage system cleaning, while major repairs consist mainly of road resurfacing, equipment replacement and heavy maintenance. MARC will assess the experience of the toll road operator, the operator's defined responsibilities during the concession period, and the requirement to produce periodic financial reports.

The operations and maintenance (O&M) costs shall be ascertained during the bond tenure, as well as a reasonable escalation rate for these costs to be used in the cash flow projections.

| Assessment | Analytical Focus |
|---|---|
| **O&M contract** | This is to achieve a clear understanding of the operator's relationship with project owners, the scope of work, and the relevant parties' rights and responsibilities. MARC shall look for measures to cover instances where the operator's performance is below the required performance standards, perhaps in the form of a performance guarantee and the ability to be replaced, if necessary. For example, a maintenance bond with a maximum value of RM1,000,000 as security against the performance of the company in maintaining the structural overlay obligations is to be provided pursuant to the CA. Upon full completion of the highway, a maintenance bond with a cap of RM3,000,000 shall replace the previous bond, to be maintained throughout the concession period plus one year thereafter. |
| **Ability to contract out** | If the O&M activities are to be contracted out, MARC takes note of the arrangement to manage the sub-contractors involved. If the contractors are in default of their obligations set out in the CA, compensation in terms of amount and timing shall be assessed by MARC. For example, a sum of 5% of all fees and receivables in the last 12 months preceding the date of termination of the toll operation contract shall be compensated, if it is due to default by the contractor. |
| **Experience of operator** | MARC shall assess the experience and track record of the operator in operating similar toll road projects as well as its latest financial position. |
| **Toll revenue and its legal capacity** | The party actually handling toll revenue and its legal capacity in respect of toll collections shall be clearly defined. |
| **Other factors** | The operator's ability and experience in handling new technology associated with toll collections, carrying out traffic surveillance and control systems, and communication network to manage the toll roads effectively and efficiently. |

## REGULATORY RISK

MARC will continually monitor the government's policies on road infrastructure, ownership and usage of cars and political sensitivity associated with toll rate increases. Toll roads are subject to regulatory pressure, particularly given the concessionaire's ability to increase toll rates by the agreed quantum and timeframe as allowed under the CA. Some CAs have been amended or supplemented, resulting in a lower quantum of toll rate increase, with longer intervals than initially agreed upon due to public resistance.

## TRAFFIC RISK

Traffic risk is considered the major input factor in analysing a toll road's project economics. In assessing the demand risk of a toll road project, an independent traffic study report is required as the first point of reference to assess the toll road's traffic profile, competitiveness and the service area fundamentals. MARC would request a copy of the independent traffic study report as well as any updates or revisions of such reports from the client.

### Traffic profile

#### *Traffic count surveys*

In establishing an area's traffic characteristics and existing traffic patterns, the consultant would conduct onsite data collection as well as review related literature. Along with the roadway and land use surveys, the traffic consultant would conduct a traffic count survey to gather primary traffic data. The objective of the survey is to ensure that future traffic demand projected by the traffic consultant is realistic and comparable to existing traffic demand. Other than relying on primary data, secondary traffic data is also obtained from reliable sources to give the consultant a more comprehensive view. The traffic count arising from this survey will normally form the base case to the revenue variable in the cash flow projections.

#### *Traffic forecast*

Traffic forecast remains a key input in the determination of credit quality. Traffic forecast may be less critical if the existing traffic and revenue can by itself support the financing facilities. Traffic studies look at regional origin-destination patterns, trip purposes, trip frequency, and relevant employment and housing growth forecasts, as well as motor vehicles ownership growth trend, which are good predictors of traffic growth patterns.

Using the assumptions and parameters derived from information (please see the salient points under "Competitiveness" and "Service Area

Fundamentals") such as growth trend, demographic analysis and inflation rate, the traffic consultant prepares the traffic forecast scenario. The average daily tollable volume of vehicles over the tenure of the finance facility is estimated by the consultant. For example, three different traffic forecast scenarios are produced: a base case for the most likely scenario, a high case forecast for an optimistic estimate and a low case forecast incorporating a conservative growth scenario.

Factors that may influence a future scenario include the uncertainty of the proposed development in the region or vicinity, possible late construction of key feeder roads leading to the toll road, early construction of competing roads, implementation of measures such as high occupancy vehicle lanes following improvements to the public transport system and construction/upgrading of another competitive public road. The traffic forecast is an important variable in our analysis of the project's cash flow projections.

## Competitiveness

### *Study area network*

The consultant's report specifies the area network involved in the study which offers the most potential in providing the necessary traffic demand for the highway. The average traffic volume (normally reported as passenger car unit, or PCU) is estimated for each travel corridor. The alternative roads available in the vicinity of the toll road project are also considered. Possible deviation from other congested roads in the area would normally be analysed and highlighted in this report.

### *Comparative rates for similar toll roads within the region or area*

MARC's analyst shall review and analyse the comparative rates for similar toll roads within the region or area and assess the consequent public acceptance of any increase in toll rates. Generally, public acceptance and thus usage of toll roads are inversely correlated to the presence of alternative routes. The toll road may have to compete with a free alternative road, unless the toll road offers a shorter travel distance or time, less congestion or a safer route. Alternatives also include other modes of transportation.

## Service area fundamentals

### *Demographics*

Population density, motor vehicle ownership trends and employment growth rates are among the factors incorporated in the traffic study report. Key growth drivers such as matured and proposed commercial and residential development areas which serve as catchment areas are also highlighted in the report. For example, in projecting the growth in traffic volume, three main drivers have been identified: the growth in

background traffic with economic growth, i.e. gross domestic product (GDP) as a proxy; the impact of toll increases; and developments along the highway areas. A toll road that is heavily used by commuters or commercial traffic would be rated higher than a road that depends on recreational traffic, due to the discretionary nature of that type of traffic.

### *Historical traffic growth rates in the area*

The consultant's report also tracks the historical traffic growth rates in the area. The growth pattern is highlighted and reasons for the movement in annual traffic growth are cited in the report. Traffic growth rates are normally subject to socioeconomic factors, namely population growth as well as growth in motor vehicle ownership by the population in the affected areas.

## FINANCIAL RISK

For pre-operational toll road projects, the financial risk analysis would centre on the cash-generating ability of the project and the robustness of the cash generated under adverse scenarios to meet the debt obligations. For operational toll roads, besides the cash flow coverage analysis, MARC's analyst shall also assess the profitability of the toll road companies, particularly their operating margins.

Toll road projects do not normally require constant heavy capital expenditure as heavy maintenance works such as road resurfacing are only required after five to seven years. The main critical factors that have a negative impact on performance usually arise from top-line items such as lower-than-expected traffic volume and toll rates which result in lower-than-expected revenue and operating profits. Investment-grade operational toll roads generally maintain strong operating profit margins of above 40%.

| Assessment | Analytical Focus |
|---|---|
| **Profitability/ Earnings** | The main profitability measures analysed include revenue, profit before tax, profit after tax, operating profit margin, interest paid, and operating profit interest (finance cost) coverage. The profitability measures are benchmarked to that of other MARC-rated toll road projects to ascertain the appropriate risk scoring. |
| **Cash flow coverage** | MARC shall assess the earnings and cash flow projections of the toll road project over the tenure of the financing facility, based on the financial forecast of the project, including the assumptions underlying the forecast (e.g. inflation, interest rates, tax rates and planned capital expenditure).<br><br>The financial forecasts shall be sensitised under several scenarios, including worst case and best case scenarios. The |

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| | sensitised cash flow projections are then matched against the debt repayment schedule of the project to ascertain the debt or finance service coverage ratio. The objective is to determine how much revenue is needed to cover debt service and operating expenses. The debt service coverage under each scenario and the year in which the least or minimum coverage occurs would be noted and explanation obtained for the trend observed.<br><br>In performing the sensitivity analyses, a number of variables would be sensitised. First, MARC would consider the ramp-up period which is the initial period of attracting road users to the newly built road and the development process of user acceptance. The ramp-up period can be slow and difficult. In view of this, it is better to provide for a conservative traffic volume and growth in the ramp-up period in order to avoid a cash crunch in the early years of project operations. |
| | Ramp-up risk may be less of a concern if the targeted users of the new facility are already using other toll roads, and there is traffic congestion in the area or there are few free competing alternatives to the new toll road. It is also noted that marketing and developing public awareness can positively impact the length and nature of a ramp-up.<br><br>Another pertinent variable to be considered in the sensitivity analyses is the frequency of toll rate increases. MARC shall determine the effect of any delays or postponement of toll rate increases as well as delays in any compensation payments due thereafter on the cash flow.<br><br>The traffic growth over the period of the facility shall be discounted under a worst case scenario (for example, discounts ranging from 10% to 20%) bearing in mind the assumptions made in determining the traffic growth given the long gestation period of a highway.<br><br>As mentioned earlier, for existing toll road financing, MARC would also analyse past financial reports and carry out the variance analysis against the forecast financial results. A time series analysis is conducted to reveal any significant trends. The analyst would determine the historical finance service coverage ratio (FSCR), CFO interest coverage and CFO debt coverage of the company.<br><br>In particular, MARC shall request for confirmation of the FSCR calculation from the monitoring accountant of the facility which has been verified by the client, and MARC's analyst |

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| | would ascertain whether the FSCR is in compliance with the minimum FSCR requirement in the financial covenant. |
| **Capitalisation /Financial Flexibility** | For pre-operational toll roads, the capital structure is an important consideration. In MARC's experience, greenfield toll road project financing is usually structured on a finance-to-equity (FE) ratio of between 2.0 times to 2.5 times. The equity requirement is to ensure commitment on the part of the project's sponsors. Projects with high equity participation will have greater financial flexibility, because dividend payments can be deferred during stressful times compared to a fixed repayment schedule for debt service. The issuance of subordinated debt to enhance the rating of the senior debt of the project company is not uncommon in toll road projects. In this case, MARC shall assess the features of the subordinated debt and the extent of the credit enhancement, if any, in respect of the senior debt of the project.<br><br>Subordinated debts, including shareholders' advances and hybrid equity such as redeemable preference shares, are usually classified as equity under the definition of project gearing. The analytical approach taken by MARC to analyse a particular subordinated debt or hybrid security and assign equity credit is to place the instrument on a debt-equity continuum. MARC notches down subordinated and hybrid debt ratings from a senior rating or issuer rating to reflect the particular risk characteristics of these instruments.<br><br>A favourable capital structure would comprise a relatively lower level of senior debt which should significantly reduce the probability of default risk, particularly in the initial operating years. The debt-to-equity (DE) ratio is an important indicator of the capitalisation structure to be monitored by MARC against the maximum DE ratio set out in the financial covenants.<br><br>For details of MARC's approach to rating subordinated debt or hybrid securities, see the criteria report "Equity Credit and Notching Approach for Corporate Subordinated Debt and Hybrid Securities". |

## ISSUE STRUCTURE RISK

Structural analysis plays an important role in default risk assessment. While the stability of the revenue stream is heavily dependent on toll-collection performance, the structure provides the framework that will define conditions placed on cash flow available for debt service. For example, several reserve accounts may be incorporated to mitigate delays in achieving full operation or during the ramp-up period, depending on the extent and nature of the risks against which each reserve account is designed to buttress.

The issue structure spells out the principal terms, conditions and covenants of the debt facility, such as repayment, security, and designated accounts. Terms, conditions and covenants under the issue structure are directed towards ensuring the solvency of the project and the requirement of the project concessionaire to manage its cash flow and service its debt obligations.

| Assessment | Analytical Focus |
|---|---|
| **Refinancing risk** | This refers to the risk of the issuer's ability to refinance existing debt issue. Refinancing risk is usually mitigated by the payment structure of the bonds, with staggered repayments or redemptions spread over the bond tenure. The first serial payment would normally take effect after the highway has been commissioned and the base level of traffic has been achieved. |
| **Liquidity risk** | This risk is somewhat mitigated through the requirement to maintain a minimum amount equivalent to six months to one year of the profit or interest in a debt reserve account throughout the tenure of the financing facility. |
| **Investment risk** | The risk of capital loss in respect of the investment of funds in the designated accounts is mitigated by the requirement to restrict investments to liquid assets, government-issued instruments or capital market instruments with a minimum rating of AAA or AA with maturity dates matching the debt obligation dates. |

MARC has refined its methodology for rating Toll Roads and it should be read in relation to its "Project Finance" methodology which is available on the website at www.marc.com.my. This methodology partly amends and supersedes MARC's "Toll Roads Project Financing" published in 2015.

## Disclaimer



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