

RISKS AND GUARANTEES IN BOT TENDER

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ABSTRACT: The build-operate-transfer (BOT) concept is being used increasingly by governments across a number of infrastructural sectors in their drive to privatize major public projects. Governments see BOT schemes as a method of financing the construction of urgently needed infrastructure projects without direct sovereign guarantee of the loans and with all the technical and financial risks being borne by the private promoter. This paper is concerned with the issues of risks to be retained by the promoter and the guarantees to be offered to the government in the selection process of a BOT tender. It is critical for the promoter to understand that the ability to retain risks and offer guarantees does provide the competitive advantage in being awarded the concession.

INTRODUCTION

The advent of the build-operate-transfer (BOT) concept in privatization of infrastructure projects has been a blessing to contractors in the sense that they are now able to be involved in the construction and operation of traditional public-sector projects such as tolled roads and power plants. The opportunities for profit and reward, however, do not come easy. The responsibilities are heavy and the stakes are high. Tiong et al. (1992) highlighted several constraints in successful promotion of BOT projects. The significant ones are high front-end costs, lengthy and extensive negotiations, opposition to project as well as project-development risks of losing the tender to another competitor, failure in the final negotiations for the concession, and risk of the tender proposal being rejected by the government.

Participation in the competitive tender for the BOT project, on the other hand, must be early or else the promoter will face serious disadvantages in planning the proposals. The evaluation is stringent and negotiations are tough, especially on their ability to handle the enormous risks in construction, operation, and financing of the project. Project promoters are normally expected to undertake risks and responsibilities to demonstrate their commitment to the host government throughout the construction and operating periods and to provide guarantees for the completion and operating risks (Tiong 1990).

RESEARCH HYPOTHESIS AND METHODOLOGIES

The BOT model entails a concession company providing the finance, design, construction, operation, and maintenance of a privatized infrastructure project for a fixed period, at the end of which the project is transferred free of charge to the host government (Tiong and McCarthy 1991).

In the traditional method of contracting, risk-sharing may be allowed and the contractor may be able to negotiate with the client as far as claims for cost overruns are concerned. Under the BOT method, in which the contractor is normally also the developer, this is no longer possible.

This paper addresses the issues of project risks and guarantees that are invariably encountered in the selection process for a BOT project. The hypothesis proposed for research is as follows:

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The ability to be awarded the concession in a BOT tender is strongly related to the ability of the project promoter to retain and reallocate risks and offer guarantees against risks and uncertainties.

The hypothesis is researched as part of the writer's research project, "Evaluation and Competitive Tendering of BOT Projects." The hypothesis concerns risks to be taken by the promoters and guarantees they offer to the government in their bid to be awarded the concession through competitive tenders, preemptive proposal, or privately initiated, unsolicited proposal.

The hypothesis is important because it is critical for the promoters to know that the ability to retain risks and offer guarantees provides the competitive edge in being awarded the concession. This hypothesis is analyzed using quantitative and qualitative methods through surveys, request for proposals (RFPs) (as listed in the Appendix), and the actual competition.

QUANTITATIVE ANALYSIS

Survey Responses on Risks and Guarantees

As part of the research, two sets of questionnaires were developed. One set was entitled "Evaluation of Proposals for BOT Projects" and was targeted at the government officials and their consultants. The other set was entitled "Experiences in Tendering BOT Projects" and was targeted at contractors and project promoters and their financial and technical advisors. The respondents were asked to respond to the questions with reference to a specific BOT project that they were personally involved in.

For the first survey, sent in February 1992, a total of 30 government officials and their advisors responded out of a total of 75 questionnaires mailed, giving a response rate of 40%. For the second survey, sent in April 1992, a total of 32 construction professionals and their consultants responded

TABLE 1. Country Distribution of Respondents

Country (1)	Government: Number of responses (2)	Promoter: Number of responses (3)
Australia	4	5
Canada	2	1
Hong Kong	5	4
Indonesia	2	2
Malaysia	5	6
Pakistan	2	1
Philippines	2	2
Thailand	2	2
United Kingdom	3	6
United States	3	4
[Total]	30	32

out of a total of 85 questionnaires mailed, giving a response rate of 38%. The country distribution of the government officials and promoters who responded to surveys is shown in Table 1.

The response rate was not unexpected and can be considered quite positive considering the fact that the BOT concept was new and the number of BOT projects that have been successfully implemented is small as compared to the number of construction projects let under the traditional type of government contracts. Respondents who declined to participate cited the undertaking of confidentiality of tender information. Several cited sensitivity of the information because their BOT projects are still under negotiations, and disclosure of their previous experiences in these projects may undermine their success in the final selection.

In the analysis of this hypothesis, both the governments and promoters were asked in the surveys whether they agreed or disagreed that the ability to be awarded a concession is strongly related to the ability of the project promoter to retain and reallocate risks and offer guarantees against risks and uncertainties. The results are shown in Table 2. Both parties agreed with the hypothesis by a large majority.

Comparing Views of Governments versus Promoters on Risks and Guarantees

Table 2 shows that there is a high percentage of governments and promoters accepting the hypothesis. The objective here is to test whether there is a positive agreement of views of governments and promoters in accepting the hypothesis, i.e., whether the proportions are equal, by using the two-population proportion method, which is described in statistics books such as Dietrich and Shafer (1984). For promoters, $n_1 = 32$ and $s_1 = 0.92$. For governments, $n_2 = 30$ and $s_2 = 0.86$. The null hypothesis, H_0 , is $p_1 - p_2 = 0$. The alternative hypothesis, H_1 , is $p_1 - p_2 > 0$. Reject H_0 if test statistic $z > 1.65$ for $\alpha = 0.05$. Because $z = 1.52$ (from calculations) is not greater than 1.65, H_0 cannot be rejected. There is therefore evidence to conclude that there is a positive agreement in the views of the promoter and government respondents with regard to the hypothesis.

The main reason given by the government respondents is that the retention of risks reflects on the substance of the promoter while the guarantees reflect on the achievability of the project in terms of costs, time, and the tolls to be charged. For the promoters, the reasons given are as follows. First, governments are keen to pass as many risks as possible onto the promoter/investor. They want maximum protection against risks. There is no point, for instance in a public authority allowing a private promoter to make profits while the tax payer retains the risk. Governments and public corporations can usually raise money more cheaply than private companies. If they retain project risk, they might just as well do the project "in-house." Second, the success of BOT projects is based on governments reducing their indebtedness. Therefore, it rests with the project promoter to carry the maximum risk and spread that risk down to the providers of equipment and services.

TABLE 2. Responses to Hypothesis

Responses (%) (1)	Government (2)	Promoter (3)
Yes	86	92
No	14	8
[Total]	100	100

QUALITATIVE ANALYSIS

RFP Requirement on Risks and Guarantees by Promoters

The next stage of analysis examines the following questions.

Question 1: Is the requirement for promoters to retain risks and offer guarantees stated in RFPs?

Question 2: What is the government's attitude towards risks as reflected in RFPs and during evaluation and negotiation?

Question 3: What is the promoter's attitude towards risks as reflected in their proposals and during tendering and negotiations?

Question 4: Entrepreneurial companies such as Hopewell Holdings of Hong Kong, Kumagai Gumi of Japan, Trafalgar House of the United Kingdom, Morrison-Knudsen of the United States, and Ipco Constructor of Singapore have been successful in BOT tenders. Are their successes related to their ability to retain risks and offer guarantees?

Questions 1 and 2 address the governments' attitudes towards risks as reflected in the RFPs and during evaluation and negotiations. The analysis was done by studying BOT projects in Hong Kong, Thailand, the United Kingdom, and the United States. It is important to understand each government's stance and the support that they would contribute, because the lack reflects the risks that they want the promoters to retain. Questions 3 and 4 address the ability of successful promoters to retain risks and its importance in a BOT tender.

Government Positions on Risks and Guarantees

Hong Kong BOT Projects

For Hong Kong's projects, the government's policy is that there would not be any government financial guarantees. For the Eastern Harbour Crossing (EHC) tunnel project, the government even shielded the Mass Rapid Transit Corporation (MTRC), the government agency that would benefit from the rail crossing, from any financial risks that may be associated with the construction of the project. It protected MTRC's payment obligations by stipulating that the financing proposal for the rail portion should avoid project cash-flow deficits throughout the term of the concession on the basis of projections derived from assumptions relating to projected rail-traffic demand and operating costs. The proposal should also minimize the effect of the payment obligations on the balance sheet of the MTRC.

On equity participation, the government refused to inject any equity investment for the first project, i.e., the EHC. For the second project, the Tate's Cairn project, the government decided to participate in the equity investment. It changed the policy towards equity investment because the Tate's Cairn project would be a more profitable project and it wanted to have a share in the revenues during the operational years.

Thailand BOT Projects

For Thailand's BOT projects, which include the Skytrain project, the Second Stage Expressway, and the Light Rail Transit system, it is a standard stipulation by the government in the RFP that there will not be any financial guarantees for projects. In addition, it limits its equity contribution to 25% of the total equity investment so that it can participate in the revenue sharing of the project.

U.K. BOT Projects

In the United Kingdom, the government's position towards BOT projects is that there will be no guarantees by the gov-

ernment on the financing of projects or on loan repayment. In terms of financial support, there will also be no equity participation by the government. The burden is on the promoters to prove to the financial markets the robustness of the traffic and the financial viability of the proposal. Should the project fail, the promoter will be responsible to pay off all the debts and the government is under no obligation to bail out the promoter. In fact, the government will have the first charge to possess the facility that is under completion if it fails to be completed. The government is thus protected against all risks.

For the *Channel fixed link project*, the government specifically stated the following in the RFP:

1. It rules out all support from public funds or government economic or financial guarantees.
2. The government will not complete the project for the promoter if it fails.
3. It cannot guarantee the passage of any necessary legislation. Promoters should therefore understand that any commitments entered into before the treaty is ratified and legislation is enacted in the United Kingdom and France are entered into entirely at their own risk and will not in any way be subject to government undertakings.

The successful promoter, at the same time, is required to agree to the following conditions: (1) to give all assurances as far as financial and technical feasibility are concerned; (2) to pay for any road infrastructure required to link to the project; and (3) to carry all construction and operation risks.

For the *Dartford bridge crossing*, the RFP stated the following: (1) that the government will not underwrite traffic forecasts in order to provide a guaranteed minimum return; and (2) that promoters are to propose who will bear costs of approach roads. For the promoters, the RFP asked them to negotiate the ownership of the existing tunnels and to pay off any debt that may be outstanding.

In the *Second Severns bridge*, the government imposed similar conditions in that it could not guarantee debt of existing bridges, which have to be shouldered by the promoter, and that it could not guarantee the level of traffic.

U.S. BOT Projects

In U.S. privatized infrastructure projects, the state governments were equivocal in stating that there would not be any state funds for the financing of the projects. In Florida and Texas's high-speed-rail projects, this was even written into the legislation, which means that the government officials involved had no room to maneuver during evaluation and had to stick strictly to this condition.

The risks are therefore on two fronts: one is that the government may not be convinced that the private sector is able to raise all the funds and reject the proposals, and the other is that the financial markets may be skeptical of the financial viability of the projects and therefore unwilling to provide any commitments or needed funds during construction.

For Caltrans projects, the government's policy is that the development risks are to be totally shouldered by the private sector. The projects must be performed and completed at no cost to the state. In addition to all other proposal-development costs, promoters for the four proposals ultimately selected for such development will be responsible for Caltrans costs that are related to protection of the state's interest. Typical costs of this type would be those associated with proposal selection; review of right-of-way acquisition; project-design and construction oversight activities; review of maintenance programs; and auditing of development, construc-

tion, and operational costs. The state's policy is to recover full costs whenever goods or services are provided for others.

Cases on Risk Retention and Guarantees by Successful Promoters

This section analyzes the successful promoters' strategies towards risk retention and guarantees in different BOT projects. Specific analysis is made of entrepreneurial companies mentioned in question 4.

Kumagai Gumi Projects in Australia, Hong Kong, and Thailand

Kumagai Gumi was the successful tenderer in the Sydney Harbour Tunnel Project, the Bangkok's Second Stage Expressway, and Hong Kong's Eastern Harbour Crossing. It was unsuccessful in the Tate's Cairn tunnel. It initiated but later failed in the Very Fast Train project in Australia. It was also involved but later withdrew from Florida's High-Speed-Rail project competition.

In the three successful BOT projects, Kumagai took the commercial risks as developer, investor, and constructor. In Eastern Harbour Crossing, it made the preemptive proposal, but was not granted the exclusivity to negotiate. The Hong Kong government opened the competition to other consortia and it was keenly contested. The route for EHC was not the most ideal for motorists, because they preferred the central cross-harbor tunnel, and traffic forecast became a critical element in analysis.

Although the other promoters' traffic forecasts were conservative, Kumagai was very optimistic about the traffic at early years of operation and believed that the long-term traffic volume would increase significantly. It was therefore willing to take the risks, and guaranteed the government the lowest tolls. Financially, it also guaranteed that funds would be available if there was any cost overrun. Technically, it assured the government of the shortest construction period and costs. Contractually, it agreed to transfer the facility back at the shortest time as compared with the other promoters.

For the Sydney Harbour tunnel project, Kumagai Gumi, together with its joint venture partner, Transfield Construction, assumed risks and responsibilities for cost and time overruns by offering a turnkey, lump-sum construction contract and by providing a performance bond of \$23,000,000. The government can draw on the bonds if the company abandons the work or if there is more than an 18-month time overrun (Tiong 1990).

Hopewell Projects in China

Hopewell's successful involvement in BOT projects has been the \$550,000,000 2 × 350 MW coal-fired Shajiao "B" power plant in the Quangdong Province, China, and the \$46,000,000 200 MW coal-fired power plant in the Philippines, both of which are currently operational. It has also won concessions for the Shajiao "C" power plant, the super highway in China, Bangkok's road/rail project, and another power plant in the Philippines.

When Hopewell proposed the Shajiao "B" project to the Chinese government, it was a previously unknown name in power generation. It was very difficult for the Chinese government to believe that a Hong Kong property-development company, without any prior experience, could build a power plant to solve its electricity shortage. Hopewell, realizing that the Chinese government was skeptical and at the same time themselves averse to risk, gave the assurance that the project would be completed in record time of 33 months without any state funds or guarantees on load repayments. All the loan

repayments would be paid by the revenues from the sale of electricity to the electricity board at a fixed rate that was lower than the electricity imported from Hong Kong (Wu 1991). It also agreed to shorten the concession period from 12 to 10 years.

On construction and operating risks, Hopewell undertook to build the plant under a fixed-price, turnkey contract, thus establishing one-source responsibility. It then negotiated a turnkey contract with a consortium of equipment suppliers and subcontractors on fixed-price, fixed-schedule, and mutually agreed-on quality standards.

Ipco Projects in Sabah, Malaysia

Ipco was successfully involved in two BOT projects in Sabah: the Labuan water supply and the Labuan electricity supply. Both projects were privately initiated by Ipco. Commercially, it took risks as investor, developer, constructor, and operator.

Technically, it took the risks that its costs would be one-half of the government's estimates. It guaranteed the government that the risk of cost overruns would be shared by the shareholders. It also guaranteed a faster completion time, 18 months as compared to the original and revised estimates of 32 months and 24 months, respectively, for the government's own designs (D. Rabinowe, lecture notes; Nanyang Technological University, Singapore, 1992).

Contractually, it was willing to accept a lower concession period of 13 years instead of originally proposed 15 years. In the Labuan water-supply project, the government minimized its risks of over payments by guaranteeing to pay a minimum level of water demand that was lower than the projected demand. If the demand were higher (which turns out to be the case), the concessionaire has to deliver more water at no extra profits, other than reimbursement of chemical and energy costs. Ipco therefore promised the government a cheap project at low water tariffs. This essentially reduced the attractiveness of the project, because its upside profit potential was limited, and it increased the developer's risks.

Trafalgar House in U.K. Projects

The leading construction company that is involved in U.K. BOT projects is Trafalgar House. The company has worked closely with financial advisors such as Bank of America and Kleinworth Benson in providing innovative packages to the U.K. government. It was altruistic to the government's concerns, and its strategy was to address those concerns through bold risk retention and guarantees. Its financial risk analysis enabled it to break new ground in devising innovative financial packages.

For the Dartford crossing project, Trafalgar House made the winning proposal against six competitors by proposing a bridge rather than a tunnel, which is the more expensive solution favored by the other promoters. The successful proposal was a classic case of risk analysis. It was the first project of its kind to be based only on nominal equity of £1,000, the first in which the contractor shouldered all the ground risks, the first to which London City insurance companies made direct loans, and the first time that a project had been launched with fixed-rate loans from financial institutions. As a result, it could offer the government the promise that the facility would be transferred back to the government as soon as the debt is repaid or in 20 years at the maximum.

Morrison-Knudsen in U.S. Projects

In the United States, Morrison-Knudsen has launched an "innovative and bold" business plan of focusing on large,

complex privatization projects such as high-speed and other tolled transportation projects that would require substantial project-development capital. Its winning proposal for the Honolulu rapid-transit-system project was judged to be superior to the competition in terms of the proposed trains, structures, aesthetics, fixed-price design-build bid, operating cost, management ability, and financial strength. In its winning proposal for the Texas high-speed-rail project, it undertook not to seek any state funds or credits for the support. Instead, it agreed to raise \$170,000,000 worth of equity commitments, \$30,000,000 in cash by December 1992, \$30,000,000 equity invested by June 1993, and the remainder of the finance raised with tax-exempt debt. The company, however, was unable to raise the \$170,000,000 by the December 1993 deadline, and the project was subsequently abandoned.

Raising of Finance

In the evaluation of any proposal for a public-sector project, the ability of the promoter in both the technical and financial aspects are considered. Under the BOT model, however, it is the commercial and financial considerations, rather than the technical elements, that are likely to be the final determinants for governments to award the BOT concession. It is the financial package that provides the financial-cost advantage that would differentiate it from the competing proposals, and the issue of raising of finance is particularly important in a BOT tender in developing countries. This is because there is a clear distinction between the financial instruments available in the financial markets of developed economies such as the United States and United Kingdom and an economy in a developing country that may not have the markets in sufficient depth.

In a developed country, if the project is financially viable, a significant amount of equity can be raised for BOT projects from investors in the domestic market, either by means of floating the project company on the stock market or through the raising of private-investor funds through bonds (Syrett 1987). In developing economies, however, the difficulty of promoting BOT projects to the host government under the BOT schemes is compounded by the absence of this type of risk-taking capital market. This means that the amount of equity is limited for new projects, and therefore debt instruments play a far more significant role.

Hopewell's Shajiao "B" project

For Hopewell's Shajiao "B" project, it was very difficult for the lenders to accept that there would not be government guarantees on loan repayments, because this was the first privately financed power-plant project, not only in China, but also in Asia, that would be let under the BOT concept. Hopewell addressed the government's lack of foreign exchange and the eagerness of the government for foreign investment in China as well as the lenders' concern by taking upon itself the task of raising the finance offshore and by capitalizing on the interest of the Japanese banks in investing in China. The company commenced the civil-engineering works for the project and then brought the foreign lenders to visit the site when it was in substantial progress. The lenders were very much impressed with the commitment by Hopewell. As a result, the company was able to raise \$500,000,000 offshore.

Ipco's BOT Projects

For Ipco's Labuan projects, there was the financial risk that the funds might not be available locally for the previously untried BOT concept of not having government guarantees on traditionally public-sector projects in Malaysia. Moreover,

the country was in recession at the time when the projects were negotiated. Should Ipco fail to raise the debt and equity portions of the finance of, for instance, the Labuan water-supply project, its development effort of four years in feasibility studies and negotiations and expenditures of MR\$1,000,000 would go down the drain without any compensation and the concession award might be withdrawn. The company strategically sought the financial backing of several prominent local corporations. As a result, the group was able to inject a substantial equity of MR\$30,000,000 and attracted other banking institutions to provide the debt finance for the project.

Sydney Harbour Tunnel Project

In Australia, the availability of a risk-taking financial market paved the way for the Sydney Harbour tunnel project being financed by an innovative financial package. The central financing instrument was the \$280,000,000 30-year tunnel bonds, which were placed privately with Australian institutional investors and contained some unusual features that proved to be attractive to the investors: (1) the extended maturity, longer than the usual maturity of 10 or 20 years in the Australian capital market; (2) repayments of principal with quarterly interest installments; and (3) yield of about 6%, indexed to inflation.

Dartford Bridge Crossing

For the Dartford bridge in the United Kingdom, the financing was similar to the Sydney Harbour tunnel in that all the funds were raised locally. Other features were, however, totally different. The project company was capitalized with a purely nominal equity of £1,000. The project was financed by subordinated loan stock and a syndicated bank loan. The equity:debt ratio was thus, effectively, 0:100. This was possible because the project was an estuarial crossing and the concession company was able to obtain concession to operate the existing tunnels. As a result, the lenders were satisfied with the credit risk of the project. The key to Trafalgar's success in the tender for this project was that even though the equity risk was essentially borne by the subordinated loan-stock holders, there was no equity profit. The nominal equity attracts no dividends. Thus, the concession could revert to the government once sufficient surpluses have accrued to meet the cost of all debt.

CONCLUSION

It is clear from the analyses that governments are averse to risks and do not wish to provide any financial guarantees that will assure successful promoters excessive profits or high returns. At the same time, the promoters are expected to provide guarantees against completion risk, cost overrun risk, performance risk, and financing risk. It is very important for promoters to demonstrate to the governments that they are able to take all the risks that the government are apprehensive about. "Unpredictability" is the kiss of death in BOT project financing, and promoters must aim to minimize the unpredictable elements, identify the residual risks, and provide the guarantees to government concerns. By doing so, the governments would find it attractive to enter into the concession agreements with the promoters.

Each of the successful promoters of BOT projects as mentioned in this paper has exhibited unique strategies and capabilities in risk retention and guarantees. They are able to address the government needs and concerns without relying on state funds, by breaking new grounds in devising innovative financial and contractual proposals, and by retaining

the technical and commercial risks. At the same time, they did not press the governments for unreasonable financial guarantees or support that will upset governmental policies and accountability to the public.

The ability to achieve this depends on the strength of the consortium. To be awarded the concession, it is very important that experienced financial and technical consultants and other investors, i.e., stakeholders that are best able to shoulder such risks through their experience and expertise and past track record, are brought into the consortium to share the risks. This will enhance the credibility of the promoters and therefore the attractiveness of their proposals. This will go a long way in winning over the government to their ideas and offers.

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