

RISK MANAGEMENT IN INDONESIA'S BOT PROJECT

Andi Nusa Patria and M. A. Wibowo

¹*Civil Engineering Department, The Islamic University Of Indonesia, Yogyakarta*

²*School of Civil Engineering, Diponegoro University, Semarang*

ABSTRACT

BOT is perceived as one of risk sensitive procurement method. Due to the limited concession time, project sponsor is expected to achieve capital payback and profit by the end of concession period. In this condition, investor have to deal with various kinds of risk, such as project failure or miscalculation of financial projections.

This paper aims to describe implementation of risk management in Indonesia's BOT projects, especially in infrastructure industry. Review on previous study targeted at experienced officials from public and private sector organizations has been conducted, to elicit industry opinions and implementations of risk management. These will be combined with literature review in the area of corporate and project finance theories, to identify major risk factor in Indonesia's BOT projects and to describe the general approach to risk management involving risk identification, risk analysis and risk response.

Indonesia's experiences shows that risk emerges significantly in some area, such as law establishment, land acquisition, construction, tariff, etc.. This formed a situation where risks tends to belong primarily to the private sponsor. Regarding to this situation, some effort has been made in allocating and mitigating risks in the projects. Yet, project sponsor still rely primarily on its managers' experiences and judgements to analyze risks.

Keywords: Risk Management, BOT project

Introduction

Uncertainty is inherent in all activities (Mawdesley, 2003 in Wibowo et al, 2005). It means that there is always a possibility to meet a different outcome compared to what is expected. Uncertainty could lead to a better or worse result than originally expected. As the complexity of activity increases, there will be more uncertainty, and the variability of the result will be much greater.

Construction projects, especially large scaled ones, are activities of a great complexity, regarding of the various components used, quantity of resources involved, and the uniqueness of every project. These characteristics usually results in a large number of unknown, unpredictable and unquantifiable problems leading to the development of various risks that could undermine the successful performance completion of a project (Wibowo, 2005).

Build-Operate-Transfer (BOT) is a risk sensitive procurement method. In BOT scheme, investor is granted concession for a right on certain period of time, along with responsibility to finance, build and

operate a facility until finally transfer it in full operated condition to the principal at no cost. Due to the limited concession time, investor is expected to achieve capital payback and profit by the end of concession period. In this condition, investor have to deal with various kinds of risk, such as project failure or miscalculation of financial projections.

Therefore, adequate knowledge and good implementation of risk management is essential to bring more successful BOT project. Asia's massive infrastructure requirements call for tapping the private sector through the build- operate-transfer (BOT) mechanism, according to the latest issue of the Asian Development Bank's bi-monthly publication, ADB Review. Since most governments and public utilities in the Bank's developing member countries (DMCs) cannot adequately meet present and future demand for infrastructure services through their own resources, the Bank will assist DMC governments in formulating and negotiating BOT projects (ADB Review in www.adb.org).

The Bank estimates that over \$1 trillion will be needed over the next decade to meet Asia's infrastructure investment. Energy and transport will require a combined total of \$450 billion, followed by telecommunications, water supply and waste disposal. Countries with major infrastructure requirements are Bangladesh, People's Republic of China, India, Indonesia, Pakistan, Philippines and Thailand, and the nations of Indo-China.

In Indonesia, the decrease of investment growth and the quality of public infrastructure serviceability after the great recession in 1997 sent a powerful message that this country's ability in financing and building its facility has been also in decrease. Decelerated economy, along with the absence of necessary knowledge and experience in latest construction technology and management has necessitated the need to draw in private partners to form a private finance initiative projects, including BOT scheme.

The aims of this paper are: (1) to identify major risk factor in Indonesia's BOT project; and (2) to describe the general approach of risk management in BOT projects.

Review on risk management

Risk, Uncertainty and Opportunity

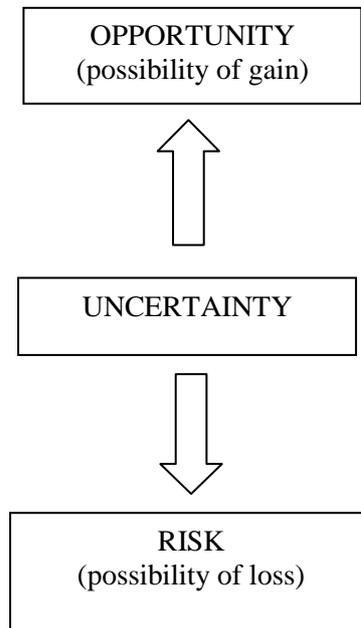
Most business making takes place on the basis of expectations about future, while the future itself is largely unknown. Decisions that has been made based on assumptions, expectations, estimations, and forecasts always involve risks. Risk is an abstract concept. It is difficult to define and, in most cases, it is hard to quantify in precision (Wibowo et al, 2005).

Definition of risk stated in the Oxford Dictionary (2000), is: "The possibility of meeting danger or suffering harm or loss". This definition propose that risk is a form of incomplete knowledge about future that could lead one to a danger of harm or loss. There is a strong relation between risk and uncertainty, where risk is a function of uncertainty.

However, some people like to distinguish between risk and uncertainty. Raftery (1994) states that risk is taken to have quantifiable attributes, whereas uncertainty does not. Risk arose when it was possible to make a statistical assessment of the probability of occurrence of a particular event. Risks, therefore, tended to be insurable.

An important question have arose: why do we expose ourselves to uncertainty that could lead to a "possibility of loss"? Dawson (1997) explains that the logical answer must be that there is the possibility of gain and this can only be achieved if we place ourselves at risk. This proposes that opportunity and risk are both functions of uncertainty. Opportunity and risk are uncertain therefore

having a probability of occurrence and outcome. Figure 1 shows that opportunity is the upside (favourable) and risk is the downside (unfavourable) of uncertainty.



Source: Wibowo et al, 2005

Figure 2.1: The relationship between uncertainty, risk and opportunity

Risk Management

Risk management is the name given to a formalized process of balancing the risks and opportunities a decision may produce, and taking action to produce an acceptable balance between the two. The way in which this process is usually performed, when using subjective experience and gut feeling, is largely unknown or person specific, but certain procedures seem to be integral to it (Mawdesley 1999 in Wibowo et al, 2005).

1. The uncertainty in the project or venture are identified.
2. The significance of each is assessed in terms of consequence and chance of occurrence.
3. The risks and opportunities are balanced to show the overall uncertainty.
4. The balance produced is judged against acceptability criteria to determine the need for actions to produce an acceptable balance.
5. The actions needed are determined with reference of the significance of each uncertainty.

Regardless of the discrepancies of the definitions of risk management provided by some experts, practitioners usually implement the process by introducing steps to fulfill specific objectives or particular requirements (Dawson and O'Reilly, 1999 and Thevendran, 2004).

Risk Management in BOT Project

As mentioned above, the BOT scheme contains large numbers of factors which may affect on the business uncertainty such as long concession period, a great number of parties involved, and the complexity of relationships among the parties in the projects itself. On the other hand, the project should run under a limited resources and conditions such as money, time, safety, quality, performance and environment.

The factors of uncertainty, combined with the limited resources and conditions have pushed managers to even harder effort to manage risks in order to bring more predicted result and protect the lifecycle of the project itself.

Private participation in Indonesia's infrastructure

The World Bank classifies an infrastructure project as a private participation project if the private entity assumes either operating risk during the operation period or both development and operation risk during the contract period. Therefore, supply and civil work, technical assistance contracts, subcontracting or contracting out and turnkey project cannot be classified as private participation. Furthermore, a project company can be referred to as a project sponsor if the company takes both market and operation risk and own at least 15% stake, except for cases of highly diversified ownership (www.worldbank.org).

One of the private participation arrangement that has been widely used in infrastructure provision is Build-Operate-Transfer (BOT), whereby a private developer builds a new facility at its own risk, owns, and operates the facility at its own risk, and then transfers ownership of the facility to the government at the end of the concession period (Wibowo, 2005). The government usually provides revenue guarantees through long term take or pay contracts for bulk supply facilities or minimum traffic guarantee (for transportation facility projects).

Target and Orientation of Infrastructure Investment

Infrastructure is known as one of generator for a region or country's economic growth. Efforts has been made to accelerate its development, as a main target in order to generate regional economic growth. To achieve 6% of economic growth as targeted for the next 5 years (2005-2009), Government of Indonesia (GoI) can only finance 58% of the fund needed for the infrastructure development which costs 600 trillion IDR (Summit Infrastructure Meeting, 2005). Thereby, a strong synergy between

public and private is needed to deliver a hybrid project, whereby public entity takes only marginal part, while private takes more significant role. Although this kind of arrangement has been conducted in a relatively long time, there are still many constraint on the implementation.

Constraint on Drawing in Private Potency

In order to maintain the sustainability of its business, it has become the private entity's nature to pay much attention on every cents they have invested. Therefore, realistic and profitable investment project have to be created by government as a precondition to attract private's capital. Indonesia's main constraints is the lack of infrastructure project with adequate return for private investors. Other constraints which may obstruct private investor's involvement in Indonesia's BOT projects are (Tedjokusumo, 2005):

Economic and Financial Feasibility

As being indicated above, infrastructure development involving private investors should not rely on government's economic interest alone, but also on investor's financial interest. It means that every infrastructure development have to be justified as financially and economically feasible. Investment should be targeted to achieve both. Nevertheless, in a circumstance where one of the aspect (usually financial) can't be fulfilled, then special funding schemes need to be arranged.

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Tariff & Risks

For the same reason -business sustainability- tariff setting have to be able to give adequate revenue for private investor, not just on capital return, but also satisfying profit margin. Rate of return on this infrastructure project must be able to compete other capital opportunity.

As for risk, private proponent tends to avoid high risk which can threat its business continuity, and wants the risks to be at government's side. This should be understood by government as a business nature, not by skeptical point of view seeing private entity as an egoistic institution only care for its own interest. It has become government's obligation to arrange an acceptable risk level to attract more private's capital inflow.

Land & Resettlement Programs

Land acquisition and resettlement is inevitable at most of infrastructure development. They have to be conducted under a specified program arranged by government. Private institution will not be able to work on these without government's support.

Risk management in Indonesia's BOT projects

BOT scheme are among the most suitable to implement in a developing country such as Indonesia, as it needs a large amount of funding to cover its infrastructure development budget, while government is in the short of fund. But on the other hand, as a country with an unfavourable reputation of legal and political condition, investor have to deal with even higher risks. Unsatisfactory law enforcement, unpredictable regulation changes and unstable economic condition has become a specific variable to be considered more carefully by investors. However, infrastructure investment in Indonesia still provide an interesting opportunity regarding to government's commitment in developing more private participation on the provision of public facility.

Therefore, implementation of risk management in Indonesia's BOT projects is essential to bring a successful infrastructure development for this country, towards a higher economic growth. Below are summarized examples of risk identified, analyzed and allocated in several toll roads and mass transportation facility projects in Indonesia using BOT scheme.

Risk Identification

Political, Regulatory and Legal Risks

Political risks are among the most difficult to avoid in most developing countries. Research by Andreas Wibowo (2005) on Indonesia's BOT Toll Roads suggests that traditional political risks includes nationalization / expropriation risk, concession revocation risk, transferability / availability / convertibility risk, and changes in law risk.

a. Nationalization/expropriation risk

Governments in all countries normally reserve the nationalization and expropriation right. This makes all private business organizations are subject to such right. In practice, these rights are governed and declared by the law in the country's legal system. In Indonesia, for example, the Law No. 1/1967 governs the rights of expropriation/nationalization of private assets.

b. Concession revocation risk

Revocation risk refers to the possibility that the host government may revoke the granted concession. This risk has been evident in Indonesian toll road industry. In 2001, the Government of Indonesia (GoI) revoked the concession awarded to PT Marga Nujuasmo Agung (MNA), the project sponsor of the Surabaya-Mojokerto toll road project and the concession awarded to PT Citra Ganesha Marga Nusantara (CGMN), the project sponsor of the Cikampek-Padalarang toll road. These concession revocations caused legal disputes between GoI and both project sponsors.

c. Transferability / availability / convertibility risk

Convertibility risk arises when there is a possibility that a firm may be prevented from exchanging local for foreign currency. Lack of convertibility is created if the government adopts a political action to restrict access to the foreign exchange market. Transferability risk occurs when the government limits the ability of firms to take foreign exchange out of the country. Availability risk refers to a possibility of lack of foreign currency available in the local market.

d. Changes in law risk

Changes in law or regulation can severely affect project cash flows and threaten project viability. This kind of risk is -unfortunately- mostly unforeseeable. Wibowo (2005) classified these into general changes, discriminatory changes, and specific changes. General changes are those that affect all business organizations regardless of type and sector in the same way (e.g., adoption of a new tax regime). UK's Private Finance Initiative (PFI) defines discriminatory change as a change in law whose terms apply expressly to (a) the project only and not of similar project procured under PFI; (b) the Contractor and not to other persons; and (c) PFI Contractors and not to other persons. A specific change is any change in law that specifically refers to the provision of a service [the same as or similar to the service] or to the holding shares in companies whose main business is providing a service [the same as or similar to the service].

Economic and Financial Risks

Economic and financial risks are among the risks outside the project elements which may not be controllable within the elements of a concession projects. These risks start with the bidding process and increase with time. However, for example, bidding risk includes design costs, consultancy and legal fees, runs until the contract is signed (Lemos et al, 2001). This risk is ranked by Akintoye et al (1998) as one of most ten significant risks in PFI projects from viewpoints of all parties. Major economic and financial risks are foreign exchange risk, interest risk, and inflation risk. During the period of crisis that severely struck Asia's economic, these risks resulted in catastrophe. Because many firms were highly leveraged, many were forced into bankruptcy. In Indonesia, an estimated 75 percent of all businesses were put into distress, while in Thailand close to 50 percent of bank loans became non performing (Stiglitz, 2002).

a. Foreign exchange risk

Foreign exchange risk is associated with unexpected currency movements that have an adverse impact on the project cash flows (Wibowo, 2004). There are many examples of problems arising from foreign exchange risk. In Indonesia's toll road industry, the extreme devaluation of IDR against USD during economic crisis 1997-1998 caused PT Citra Marga Nusaphala Persada (CMNP) to run into difficulty in paying its foreign currency denominated bonds. In 1998 CMNP had difficulty in paying interest on the 125 million USD issued under 144a Eurobond. Additionally, it had to pay for the floating rate note, issued in 1995 with a face value of 175 million USD that matured in 1998.

b. Interest risk

An interest rate movement can create uncertainties in association with the future cash flows emanating from or relating to the financial assets and liabilities of a corporation (Andersen and Hasan, 1990 in Wibowo, 2005). The risk is particularly relevant to a privately financed public facility in which a bulk of project financing takes on the form of debt. As a result of the extreme devaluation of IDR during 1997-1998, the hard currency portion of project debts suddenly increased by a factor or as much as 6 or 7s (World Bank and The Ministry of Construction of Japan, 1999 in Wibowo, 2005).

c. Inflation risk

A high and volatile inflation rate reflecting economic instability is one of factors that discourage the private sector from committing its resources to commercial activities (Ferreira and Khatami, 1996 in

Wibowo, 2005). Indonesia's domestic inflation rates increased from 19% to 60% pa in 1998. After 2000, the economic stabilized and managed to hold the inflation level on one digit. But along with the increased oil price in 2005, year on year inflation is expected at about 18%. High rates of inflation tends to transform long-term nominal interest loans into short-term loans, making them unsuitable for financing a long-term investment, such as infrastructure development.

Land Acquisition Risk

Land acquisition can be a major source of project risk if not handled carefully. In Indonesia, private sector is often confronted with hard and difficult negotiation on land pricing. The problem is aggravated by the fact that the land prices tend to be higher if the negotiation is protracted (Wibowo, 2005). Land prices were believed to have increased by significant percentage as the land acquisition process delays. The GoI typically uses the sale value of taxed object (NJOP= nilai jual objek pajak) as the basis of cost estimation, but land owners base the land price on the market prices, which is often two or three times higher than the NJOP. Difficult negotiation has proven to cause delay in the completion of the 4 km Pondok Pinang-Ulujami section of Jakarta Outer Ring Road (JORR). Based on the the NJOP price, the land was estimated at 700,000-1,000,000 IDR per m² while land owners insisted on at least 2,000,000 IDR per m² (www.kompas.com).

Force Majeure Risks

Force majeure events are outside the control of both the public and the private party. Therefore, obligation that results from the occurrence of such risks must be set forth in the contract.

Construction Risks

An infrastructure investment typically involves a large construction project. The natures of construction project are dynamic and risky due to its various resources involved and the uniqueness of every project, yet promising a great reward. Majid and McCaffer (1998) stated that poor performance in terms of cost and time overruns is commonplace in the industry. Time overruns can be attributed to many factors, such as delays in granting right of access or site possession, delays in obtaining approval/permits, work suspension, change order, delay in material delivery, lack of experience, poor coordination, poor productivity, etc. Cost overruns can be caused by design deficiencies and complexities, change order, unforeseeable sub-surface condition and site difficulties, improper construction methods, etc.

Organizational and Contractual Risks

Relationship among parties in the project's organization can be risky as its complexity rises. Difficulties has arose in Jakarta Monorail project following the disputes between the two financing companies that had founded PT Jakarta Monorail as a management and operation sponsor of the project. The two joint companies are Omnico Singapore and PT Indonesia Transit Central (ITC). Omnico was to exit the consortium as the joint companies cannot accomplish an agreement on the technology to be used in the project (www.i-transitcentral.co.id). This brought Jakarta Monorail into unexpected delay and shortage of funds to run the project.

Contracts can also be source of risk. It often use too general and vague phrases or soft wording. For example the use of phrases "best endeavor", "to the maximum possible extent", "substantially", "importantly", etc. In many respects, these terms seem to depend on interpretation and are difficult to quantify and, therefore, less enforceable.

Risk Analysis

Risk analysis process is the vital link between systematic identification of risk management (Al-Bahar and Crandall, 1990). Once a list of uncertainties has been compiled, these must be analyzed. The analysis involves qualitative and quantitative techniques. Regarding qualitative techniques, decisions are made subjectively, based on the experience, judgement and intuition of managers. On the other hand, a quantitative analysis has variety of techniques, mostly mathematically based (Wibowo et al, 2005). These includes: PERT, Analytical Hierarchy Process (AHP), Monte Carlo Simulation and Sensitivity Analysis.

Typically, risk in Indonesia's infrastructure projects analyzed based subjective considerations of managers. However, Wibowo (2005) conducted risk analysis on several toll road project in Indonesia, which is based on results of stochastic simulations with the Latin Hypercube sampling technique. This simulation shows that risk, from the perspective of the project sponsor, is highly concentrated during the early phase of project life cycle, with the initial traffic volume and the land acquisition cost being the most significant risky variables if tariff risk does not exist. Under high traffic risk scenario, which is taken as the expected four-year delay in adjusting tolls, both the project sponsor and the creditor face high risk of having Net Present Value (NPV) being negative. Simulation results also that the adoption of the 2001 toll regulation had a negative impact on the project sponsor because it limits the project sponsor's ability to raise tolls and the periodical reviews is extended from two years to three.

Risk Response

Risk response is the reason of performing the first two stages of risk management (identification and analysis) so it is considered as the most important phase of risk management. After risks are understood by undertaking analysis and simulations, some response have to be made by managers. Theses are the responses that commonly undertaken in BOT projects. First, risk that are significant but transferable, can be shifted to parties that can best bear them. Second, remaining risks are transformed or mitigated. Finally, residual risks are embraced by sponsor.

Risk Allocation/Transfer

Some risks can be allocated to the parties that suffer least for their effects or considered to be able to handle them best. In Indonesian experiences, force majeure, change in law, delay in land acquisition, change in scope of work, and land acquisition cost overrun allows the project sponsor to ask for a concession duration extension. In this case, project sponsor transfer those risks to the concessionary.

Risk mitigation may take form of institutional guarantee, insurance, or other arrangements such as forward contract for international interest rates.

Government as concessionary for Mass Rapid Transit projects usually provides guarantees for certain kinds of risks. These guarantees include sovereign guarantee, payment guarantee, ridership guarantee, and currency risk guarantee (Syukur, 2005). In Jakarta Monorail case, GoI cannot provide such guarantee, instead it committed to give its best effort to help in case of financial problems occurs.

Guarantees also provided by The World Bank to finance many types of projects, especially in infrastructure (World Bank, 1997). Two types of guarantees are a partial risk guarantee that covers specified risks and a partial credit guarantee that covers all risks during a specified period of the financing term.

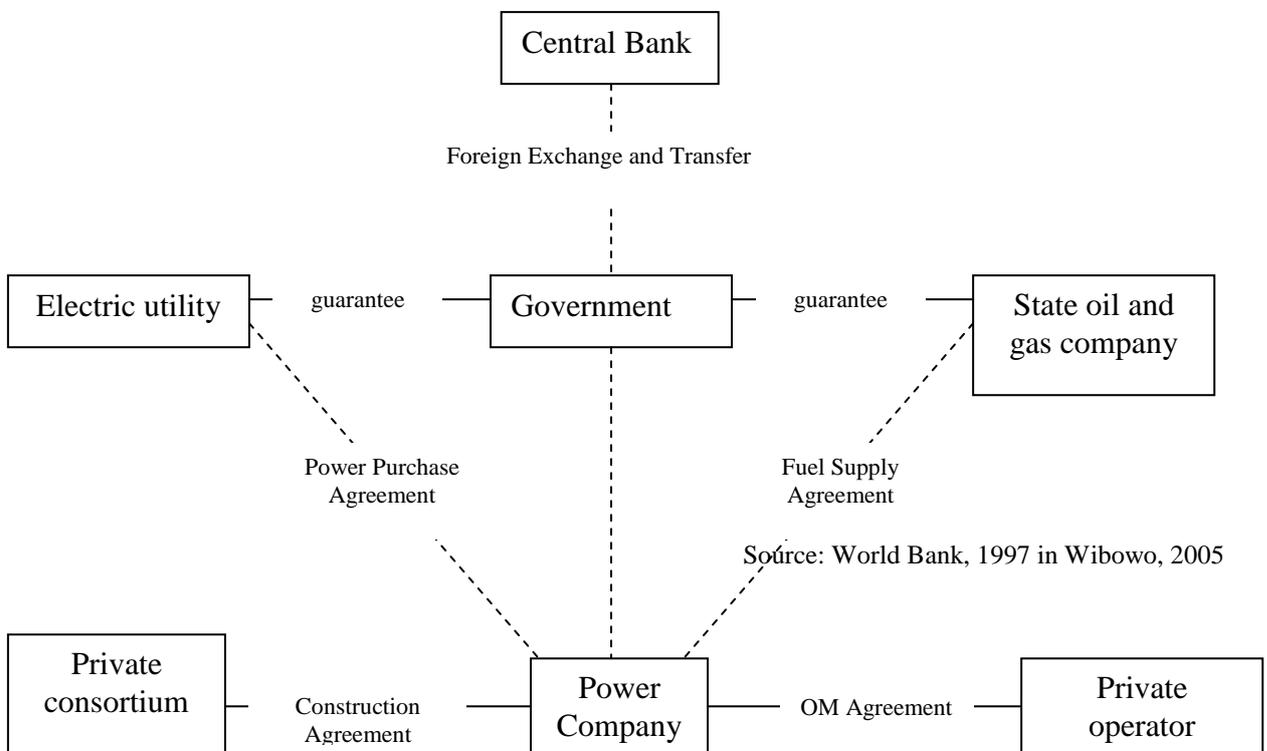
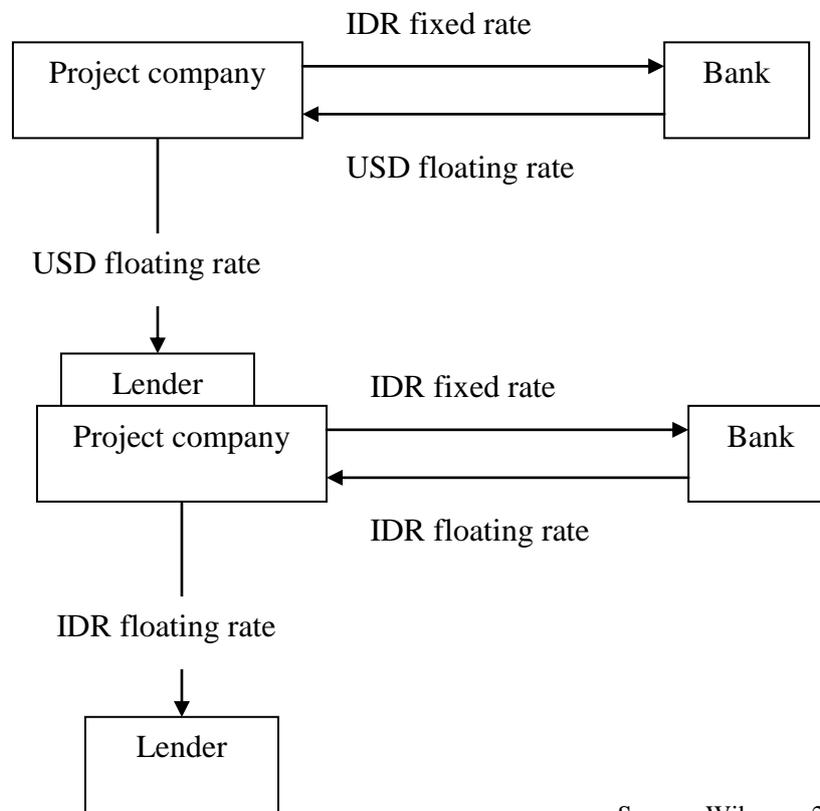


Fig.4.1: Example of a Partial Risk Guarantee

Political risks are tends to be insured. This kind of insurance provided by some institutions such as The Multilateral Investment Guarantee Agency (MIGA), European Bank for Reconstruction and Development (EBRD), Asian Development Bank (ADB), Inter American Development Bank (IADB) and Overseas Private Investment Corporation (OPIC).

A forward contract is also available for the interest rate, known as Forward Rate Arrangement (FRA). If two firms or individuals enter into FRA, they agree to pay and receive a fixed interest rate that is previously specified for a certain period. Interest swap arrangements can also be used to hedge interest risk.



Source: Wibowo, 2005

Fig.4.2: Interest Exchange Rate Swap

Conclusion

Government of Indonesia has opened the opportunity of private financing in infrastructure industry, especially with BOT arrangement. Nevertheless, the program has not progressed as expected and attracting private participation in the sector remains problematic. This is associated with relatively high risk in Indonesia's infrastructure project. These risks include change in law, land acquisition delay, construction failure, tariff adjustment, etc. The absence of government's guarantee may also increase risks in some projects. Guarantees are provided by several institutions, but at a very significant cost. This formed situation where risks tends to belong primarily to the private sponsor.

In this risky situation, private sector need to apply more comprehensive risk management. Indonesia's experience tells that some effort has been made in allocating and mitigating risks in the projects. However, risk analysis were made primarily based on the managers' experience, judgements and subjective intuitions.

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