



Financial risk analysis of Public-Private Partnership (PPP) projects case study on Pandaan - Malang Toll Road

Farid Arif Adi Nugroho*, Universitas Brawijaya, Indonesia

Rosid, Universitas Brawijaya, Indonesia

Muhammad Tojibussabirin, Universitas Brawijaya, Indonesia

*Email for Correspondence: faridtepus@student.ub.ac.id

ABSTRACT

Keywords:

financial risk analysis

government

cooperation projects

Pandaan - Malang Toll
Road

This study aims to analyze the financial risks faced by the Pandaan-Malang Toll Road PPP (Public-Private Partnership) project in Indonesia. Data collection techniques include semi-structured in-depth interviews with parties related to the PPP project, including the Directorate General of Infrastructure Financing, the Tolling Road Management Agency (government), and Business Entities (PT Jasamarga Pandaan Malang). The collected data will be analyzed to determine the financial risk factors faced by PPP projects and the financial controls carried out to overcome financial risks in PPP. The results show that the risk of errors in forecasting in the calculation of demand, cost, and revenue projections is a risk that almost often occurs. The Government emphasizes the importance of optimizing the role of PII (Persero) or Indonesia Infrastructure Guarantee Fund (IIGF) as an Infrastructure Guarantee Business Entity (BUPI) to ensure financial sustainability and minimize the impact of sudden shocks on the State Budget due to the provision of Government Guarantees for cooperation projects. This study provides insights or frameworks that can be applied to similar projects, helping to improve risk assessment and decision-making processes in future infrastructure developments.

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.

INTRODUCTION

Public Private Partnership (PPP) or in Indonesian Cooperation between Government and Business Entities (PPP) was initially known as the Private Finance Initiative (PFI) which began to be popular in the 1990s along with the development of New Public Management (NPM). NPM seeks to leverage managerial advantages, expertise and other advantages possessed by the private sector in order to improve efficiency in the public sector. PPP within the framework of NPM seeks to take advantage of the advantages of the private sector in the process of procurement of public goods and services by designing, financing, building, operating and managing public infrastructure during the agreement period and obtaining benefits from the users of the infrastructure (Alonso-Conde et al., 2007). Contractual agreements involving the private sector aim to transfer risk to business entities that were previously only borne by the government by providing profits from investments made by business entities (Grimsey & Lewis, 2002). In the research conducted by Ke et al. (2010) it is stated that the private sector has a better ability than the public sector in managing several risks such as financial risks, construction completion, operational risks, technology risks, asset decline risks and organizational coordination risks. In the implementation of Government-Business Entity Cooperation (PPP), the Government hopes to share risks with business entities that are considered more skilled in managing risks, of course also by providing compensation in the form of profit sharing for the infrastructure they cooperate with (Alonso-Conde et al., 2007; Bing et al., 2005). With the involvement of the private

sector, it is hoped that it can be a support in supporting the government's obligation to provide public facilities and services to the community to the maximum.

The biggest challenge faced by the government and business entities that cooperate in infrastructure development with the PPP scheme is to achieve efficient and effective construction, meet quality and be on time (Frimpong et al., 2003; Gyadu-Asiedu, 2009). Most public-private partnership projects (PPP/PPP), especially in developing countries, find it difficult to maximize returns on investment due to poor financial risk management (Aladağ & Işık, 2017; Kumar et al., 2018). The characteristics of projects with the PPP scheme have a large scope of work and capital, so PPP projects have typical agreements with a long period of time and will certainly have the potential to face various kinds of risks (Kumar et al., 2018). These risks occur at every stage of PPP from planning, preparation, transactions, financing fulfillment, construction to the commercial operation stage of the project and transfer (Lam & Chow, 1999; Sutantiningrum & Utami, 2019). Among these risks are technical risk, legal risk, political risk, economic risk, and financial risk such as long payback periods, increased operating costs and falling revenues (Grimsey & Lewis, 2002; Maharani et al., 2016; Ng & Loosemore, 2007). The biggest risk in achieving the goals of the PPP project is the financial risk of the project (Akomea-Frimpong et al., 2022). Infrastructure projects using the PPP scheme will face many risks, including financial risks. A PPP project will have difficulty in obtaining maximum returns on investment due to a lack of knowledge and readiness in dealing with financial risks (Akomea-Frimpong et al., 2022; Aladağ & Işık, 2017; Kumar et al., 2018).

In most literature that discusses cooperation projects between the Government and Business Entities (PPP/PPP), the topic of risk and financial topics are the most popular topics to research by Nurhayati & Wahyuni (2020). However, financial risk is rarely disclosed in focus and detail, usually combined with other risk factors. Financial risk needs to be researched and disclosed separately from the risks faced by other PPP projects, because financial risk is one of the biggest risks faced by PPP cooperation projects (Akomea-Frimpong et al., 2022). Understanding financial risks, and how to control finances in PPP projects is important in minimizing losses so that they can improve the financial performance of PPP projects. Akomea-Frimpong et al. (2022) stated that most of the literature on PPP project risks comes from developed countries, and suggested conducting research on the financial risks of PPP projects in developing countries because developing countries face greater financial risks in their PPP projects. In the book "Public Private Partnership Infrastructure Project Plan in Indonesia in 2022" published by the Ministry of National Development Planning/National Development Planning Agency in 2022, there are 30 PPP projects that are already operational or projects that are still in the construction stage, 20 PPP projects have been tendered, 3 PPP projects are ready to be offered, and 44 PPP projects are still in preparation. One of the PPP projects that has been operational is the Pandaan-Malang Toll Road. The Pandaan-Malang Toll Road is a PPP project with a Build Operate Transfer (BOT) scheme and is operated by PT Jasamarga Pandaan Malang. Based on the Toll Road Business Agreement (PPJT) that has been signed, PT Jasamarga Pandaan Malang has become the holder of the concession rights for the Pandaan - Malang toll road section for 35 years.

This study was conducted to analyze the financial risks faced by the Pandaan-Malang Toll Road PPP project. The research contribution of the study based on the given sentence is the analysis of financial risks in the context of the Pandaan-Malang Toll Road PPP (Public-Private Partnership) project. This contribution is valuable for stakeholders involved in infrastructure projects, particularly in understanding and managing financial risks associated with PPP projects. The study likely provides insights or frameworks that can be applied to

similar projects, helping to improve risk assessment and decision-making processes in future infrastructure developments.

METHOD

The method used in this study is a descriptive case study with a qualitative approach. This study aims to obtain an overview of the financial risks faced and the financial controls carried out to overcome financial risks in the Pandaan-Malang Toll Road PPP project through detailed and in-depth analysis. Data collection techniques include semi-structured in-depth interviews with parties related to the PPP project, including the Directorate General of Infrastructure Financing, the Toll Road Management Agency (government), and Business Entities (PT Jasamarga Pandaan Malang).

Secondary data was obtained through documentation studies, including documents related to risk management, such as a risk register from PT Jasamarga Pandaan Malang. The Risk Allocation Reference document for PPP Projects can be obtained from PT Penjaminan Infrastruktur Indonesia. The collected data will be analyzed to determine the financial risk factors faced by PPP projects and how the Government and Business Entities control financial risks in PPP projects in Indonesia.

RESULTS AND DISCUSSION

Result

Based on the research that has been conducted, the researcher concluded that financial risks such as investment feasibility risk, financing risk, forecast error risk, inflation risk, government support risk, tender risk, renegotiation risk, construction cost overrun risk, operational and maintenance cost overrun risk, service user decline risk, and tariff risk occur in PPP projects, especially in the Pandaan-Malang Toll Road project. The risk of investment feasibility is the risk that determines whether or not PPP projects are attractive for the private sector to participate in. The feasibility of PPP project investment can be increased with support from the Government. With high investment feasibility, PPP projects are widely targeted by Implementing Business Entities and lenders so that the risk of financing fulfillment is small and the risk of tenders can be minimized.

The risk of overrun of construction costs is also a risk that has a wide influence. The construction cost overrun can be caused by several reasons, including economic risks (fluctuations in interest rates, inflation), forecast errors, technical problems, design changes, and construction delays. The increase in construction costs directly affects the tariff risk because the Business Entity will try to fulfill its obligations to investors and lenders so that the tariff charged to users will be greater. With the high tariff charged to users, the risk of user decline will be higher so that the income earned will certainly decrease.

To overcome these problems, the Government has offered several supports both to improve the feasibility of PPP projects such as the construction of part of construction, VGF (viability gap fund), PDF (Project Development Facility) and to overcome construction cost overruns such as land bailout funds and the implementation of SPM (Minimum Service Standards). It is hoped that the support from the Government can reduce the financial risks faced by the PPP Project Implementing Business Entities.

Discussion

Investment Feasibility Risk

In planning a development, the Government has the responsibility to provide infrastructure that can provide benefits to the community. Meanwhile, Business Entities have an interest in obtaining dividends/profits as well as the ability to fulfill loan obligations.

However, in certain circumstances, the PPP project is considered not to meet the level of financial feasibility if from the Investor's side it is unable to provide a profitable rate of return on investment which is usually calculated based on the Net Present Value (NPV), Payback Period, and Internal Rate of Return (IRR) even though it is economically feasible, so that the Business Entity is reluctant to participate in the PPP project cooperation.

Therefore, in planning PPP projects, it must meet economic feasibility and financial feasibility by ensuring that risk transfer has been carried out in a rational and cost-effective manner and still maintaining effective competition. The government carries out market sounding with the aim of obtaining information related to fairness and capturing input and desire from investors so that PPP projects remain attractive to investors. When PPP is economically and financially unfeasible, the Government will look for ways to make PPP projects beneficial to the community and remain attractive to investors. The way it is done is to look for potential expansion of the scope so that there is an increase in investment value that is expected to meet the expected profits of investors.

Another way to ensure financial feasibility is by extending the concession period. This is an important factor in BOT projects because in the event of a revenue shortfall, the duration of the concession period can be increased so that the concessionaire can cover all costs (Kumar et al., 2018). The long concession period is also one way to be able to increase investor interest as well as reach the community's ability to use the cooperation infrastructure. To increase investor interest in participating in PPP projects, the Government has a role to provide support/incentives so that it can increase the financial feasibility of PPP projects that are less attractive (Maharani et al., 2016). The support provided to Business Entities by the Government, such as construction assistance, procurement, and supply of raw materials, has a significant influence on the cost and profitability of PPP projects (Aladağ & Işık, 2017). The Viability Gap Fund (VGF) is a financial support scheme provided by the Government for PPP projects that were previously economically feasible but not yet financially feasible to become economically and financially feasible.

Financing Risks

Financing risk refers to the risk related to the ability to secure, maintain, and manage financing sources for PPP projects (Xenidis & Angelides, 2005). Financing risk is related to access to financing, financing structure, and adequacy of obtaining funds within a predetermined time. In project financing, financing usually comes from a combination of debt and equity, where the portion of debt dominates around 70 to 80% of the total project cost (Purwanto, 2023). The fulfillment of financing/financial close sought by the Business Entity must be fulfilled within a period of 12 months from the signing of the PPP agreement and can be extended 2 times, each for 6 months through an extension application that will be verified by the PJPK. Delays in financing fulfillment will directly affect construction schedules and result in increased costs (Xenidis & Angelides, 2005). The financial structure of a BOT project is very complex, mainly due to the large number of stakeholders involved and the various financial agreements that are made. Usually, financing does not come from just one organization; There are several lenders, and the sponsors are insured separately by several insurance companies. This complex financial structure, although described in detail in the agreement, can be a source of risk, especially in situations when cash inflows cannot meet all needs or when cash outflows exceed initial estimates and stakeholders are unwilling to bear additional costs (Xenidis & Angelides, 2005). In fact, there are a lot of PPP projects that have difficulty in fulfilling financing/financial close on time, although none have been declared failed because they did not achieve financial close.

Generally, a PPP project is considered bankable if the lender is willing to finance it or if the sponsor can convince the lender to support it or in other words the PPP project is financially viable. A project is considered bankable if the project company has the ability to pay the principal and interest of the loan. In addition, lenders can accept the possible risk of default by the borrower (Zhu & Chua, 2018). When a PPP project implements market funding, the thing that needs to be considered is that there is a guarantee for the project, especially by the Government, one of which is through PT. Indonesian Infrastructure Guarantee (PT. PII). In addition, the existence of feasibility assistance such as the value gap fund (VGF) and other assistance from the Government is also a consideration for lenders to provide loans to PPP projects. The payment scheme from the user is also one of the considerations of the lender, it is said that the PPP project with the availability payment (AP) scheme provides more guarantees to lenders than with the user charge scheme because the risk of revenue fluctuations will be much smaller so that the Business Entity can fulfill its obligations to the lender properly. that the financing risk of PPP projects in Indonesia is still high, there are still many PPP projects that have not been able to complete the fulfillment of financing/financial close in a timely manner. Basically, the stability of the project structure, business plan, and convincing revenue projections are the main factors that make lenders willing to provide financing for PPP projects (Zhu & Chua, 2018). In addition, the investment value of the project is still inadequate, the risk of a reasonable rate of return is still high, the lack of guarantees provided, difficulties in fulfilling licensing documents, the unavailability of land, and the feasibility of Business Entities are some of the criteria that can affect the financing of a PPP project.

Risk of errors in forecasting

Errors in Forecasting refers to inaccuracies in predicting various important aspects of a project, such as service requests, construction costs, operational costs, and revenue. Although there has been no research on the risk of forecast inaccuracy carried out in Indonesia, this problem often occurs in PPP projects in Indonesia. that at the planning stage to the management of PPP, there are still often inconsistencies with the actual situation so that the risk of miscalculation is quite high. that there is no alignment of regional development planning or infrastructure that supports the infrastructure of PPP projects, while the development plan is outside the scope and responsibility of PPP projects. As a result, the Business Entity will face the risk of declining users and decreasing operating income due to the inaccuracy of the forecast.

This estimation becomes part of political rhetoric that aims to show the public that there are actions that project planners and politicians are taking to strategically manipulate and exaggerate the estimated user demand of a project in order to gain public support, gain approval, and start the project, rather than to describe the most likely outcome (Flyvbjerg et al., 2005; Siemiatycki & Friedman, 2012). Flyvbjerg et al. (2005) in his research, to reduce the inaccuracy of forecasts, namely forecasts must be carried out openly and communicatively, carried out participatory and democratic, and carried out rationally and not based on power.

Inflation Risk

Inflation risk is one of the reasons that indirectly affects the increase in construction costs, where this inflation causes an increase which initially due to the delay in land acquisition which is delayed and then the increase in inflation goods occurs, causing an increase in construction costs. Inflation risk has an impact on the adjustment of toll rate increases, when inflation affects toll rate adjustments. The adjustment of the toll tariff

increase is carried out on average within two years, where the nominal adjustment of the toll tariff is not the same nationally but adjusted according to the inflation in the area. And the nominal decision on the adjustment of toll tariffs is also determined by the government.

Lack of Government Support

This government support is related to the existence of government guarantees, government subsidies, government involvement and government programs that can theoretically reduce the cost of capital and increase return on equity so that it can increase the financial feasibility (creditworthiness) of PPP projects (Wibowo, 2016). Irwin & World Bank (2003) explained that there are several forms of support that can be provided by the Government in supporting PPP projects, including output-based cash subsidies, in-kind grants, tax breaks, capital contributions, and guarantees of risks. In PPP projects in Indonesia, the government provides several forms of support ranging from the planning stage to the operational stage of the project. Support is provided in the form of Project Development Facility (PDF), viability gap fund (VGF), partial construction, availability payment (AP), land acquisition support, government guarantees and long-term financing.

The government support mentioned above is given not only to PPP projects with government proposals (solicited) but also to PPP projects with their own proposals (unsolicited). However, the provision of feasibility support is not given to PPP projects with their own proposals (unsolicited) because unsolicited PPP projects are considered to be in accordance with the government's plan and meet economic and financial feasibility when the project is proposed by a Business Entity so that feasibility support such as PDF, VGF or partial construction support is not required.

The mechanism for granting VGF is regulated through the Minister of Finance Regulation number 223/PMK.011/2012 and clarified by PMK number 143/PMK.011/2013 as a guide. The amount of VGF is limited so that it must not dominate the construction costs of cooperation projects. This support can only be provided as a last resort after all other alternatives, such as tariff increases, concession term extensions, or changes in scope to reduce investment costs, have not succeeded in improving the feasibility of the project as expected.

Partial construction grants are also a form of financial feasibility support provided by the Government to PPP projects, to reduce investment costs by building part of the infrastructure (toll roads, water networks) using the State Budget including foreign loans and then disbursed to Business Entities so that they can be fully operated. Some examples are on the Ngawi-Kertosono toll road project, Cileunyi-Sumedang-Dawuan, Balikpapan-Samarinda, Manado-Bitung and Trans Sumatra Toll Road.

The provision of guarantees for the financial obligations of the Person in Charge of Cooperation Projects (PJPK) is organized by the Government which is carried out by the Minister of Finance through the Infrastructure Guarantee Business Entity (BUPI). The Indonesian government has established PT. PII (Persero) or Indonesia Infrastructure Guarantee Fund (IIGF). The scope of guarantee implemented by BUPI only covers infrastructure risks sourced from PJPK and the Government.

On the other hand, the provision of government guarantees for PPP projects creates contingency obligations in the state budget. Therefore, in order to maintain fiscal sustainability related to the contingency obligations and for the Government's efforts to ring fencing contingency obligations and minimize the impact of sudden shocks on the State Budget due to the provision of Government Guarantees for cooperation projects, the Government emphasizes the importance of optimizing the role of PT PII as a state-owned enterprise formed to provide infrastructure guarantees.

High Risk of Tenders

Tender risks include high bidding costs (feasibility study fees, expert consultations, administration, bid guarantees), uncertainty of tender requirements, changes in project scope, and the risk of long tender times (Xenidis & Angelides, 2005). Tender risks that can arise in the PPP project selection process are related to qualifications, especially for unsolicited projects (initiatives of Business Entities), because the PPP project proposal comes from a Business Entity and not from the Government, the determination of infrastructure qualifications set by the proposing Business Entity is too high with the intention that only the Business Entity can implement it. This causes unfair business competition, therefore the Government, in this case the Working Group team, needs to research and adjust the qualifications of the proposals of the proposing Business Entity so that the selection of PPP projects can be followed by other Business Entities. It is necessary to carefully evaluate and benchmark the initiative of the Business Entity in accordance with the reasonableness of the construction of similar buildings that have been built.

The high risk of tenders is also due to the long time in the tender process. The existence of a long time is caused by the absence of business entities that participate in the selection of projects until the specified time.

There is a Contract Renegotiation

Renegotiation risk refers to the possibility that the terms of the initial contract agreed between the government and a private entity need to be changed or renegotiated during the contract period. Renegotiation usually occurs due to policy changes, design changes or extension of construction time due to land acquisition constraints.

Renegotiation is divided into two types, namely first, renegotiation where adjustments need to be made to the contract; For example, payments made to conceivors and/or toll/tariff rates charged to users, without changing the risk-sharing structure (Fernandes et al., 2019). The second type, renegotiation, involves structural changes in the contract's risk-sharing structure and is generally triggered by unilateral decisions that are political. Examples of renegotiation with a change in the risk sharing structure are the change of shadow toll to real toll, the change of the PPP scheme of user charge to availability payment.

According to (Ruiz Diaz & Ruiz DIAZ, 2015) there are three groups of factors that may explain the high frequency of renegotiation in contracts, i) factors related to project design and contract awarding process, especially the extent of contract completeness, complexity, and incentive schemes; ii) factors related to events during the performance of the contract which are largely caused by the lack of fulfillment of contractual obligations; iii) other factors related to resources allocated for contract supervision.

In the PPP project in Indonesia itself, the process of renegotiation after the signing of the agreement contract often occurs, especially renegotiation without changing the risk-sharing structure. The change occurred because the PPP agreement is dynamic so that it can be amended according to the agreement between the Government and the concessionaire Business Entity. The existence of this renegotiation was also experienced by the Pandaan-Malang Toll Road PPP project, marked by 6 amendments regarding changes in construction costs, changes in construction implementation schedules, operational schedules, and others.

Construction Cost Overruns

In PPP projects, the construction phase is considered the riskiest period in project execution (Kokkaew & Chiara, 2010). The cost of the project is one of the largest costs that must be borne by the concessionaire, so it needs to be estimated optimally by considering all

uncertainties (Kumar et al., 2018). One of these uncertainties is cost overrun, a situation where the construction cost of a project exceeds the budget that has been set at the initial stage (estimated cost) during the implementation of the project, causing significant losses to the contractor (Remi, 2017). In the case of PPP projects, inflated construction costs cause the project to become more expensive to be developed by the concessionaire, profits are reduced, the credibility of the Enterprise is threatened, project financing is affected, and consequently conflicts between the lender and the main developer of the project can occur (Xenidis & Angelides, 2005).

The overrun of construction costs can be caused by several reasons, including economic risks (fluctuations in interest rates, inflation), forecast errors, technical problems, design changes, and construction delays (Aswanto & Wibowo, 2022; Santoso et al., 2012). The length of time required from the preparation and fulfillment of financing to the construction of the project can be completed is also one of the reasons for the swelling of construction costs.

As explained by Santoso et al. (2012) delays in construction are also often caused by unprepared soil. The protracted procurement process actually causes land prices to continue to increase. Previous experience shows that many infrastructure projects end up failing because land is not successfully provided (Wibowo, 2016).

In addition to the delay in the construction process, the overrun of construction costs is also caused by design changes. Cost overruns are one of the main risks at the construction stage of PPP projects and are generally caused by design changes proposed by the Government (Aladağ & Işık, 2017; Santoso et al., 2012). Design changes usually arise from the addition of new elements to a project or modification of existing elements, which requires additional time input from architects and engineers, as well as additional time and costs from contractors and additional materials (Aladağ & Işık, 2017). Changes in the design/scope that occurred in the Pandaan-Malang Toll Road PPP project with a total of 16 points of change are listed in the Minutes of the 3rd Amendment to the Pandaan-Malang Toll Road Business Agreement. The changes that occurred caused an increase in the value of investment costs of IDR 388,969,000,000.00 from the original IDR 5,970,055,000,000.00 (PPJT in 2016) to IDR 6,359,024,000,000.00 (5th Amendment to PPJT in 2021). With this change, several things must be adjusted so that the profit projection can be maintained, such as the rate per kilometer. In the Pandaan-Malang Toll Road PPP project, the adjustment of the change in investment costs is made to the toll tariff for group 1 according to PPJT 2016 is Rp 750/Km based on the calculation with the new investment value due to the change in the scope obtained from the initial toll tariff of Rp 898/Km (value in 2019).

Overruns: Operational and maintenance costs

Operational and maintenance cost risk relates to the possibility that the costs of operating the project and maintaining and maintaining assets in the form of infrastructure in the project will be higher than anticipated. Its main operating and maintenance costs include salary costs, other costs, and maintenance costs (Xenidis & Angelides, 2005; Yun et al., 2009).

Operational and maintenance costs are estimated to be too low, the project may face a shortage of funds for adequate maintenance and operation. This can lead to a decrease in the quality of service and the potential for increased costs in the future for repairs. However, if operational and maintenance costs are estimated to be too high, the rates charged to users may become too high, which can reduce demand and ultimately affect project revenue and profitability.

One of the causes of high operational and maintenance costs is the result of the acceleration of project construction (Xenidis & Angelides, 2005). Contractors' concerns due to the acceleration of the construction process lead to the use of inappropriate materials and methods, which has a negative impact on the quality and durability of the infrastructure built.

Every activity related to operation and maintenance has specific performance standards that ensure the quality of the products or services offered and compliance with agreements. The existence of a Minimum Service Standard (SPM) agreement between the owner (Government) and the Business Entity not only ensures service quality but also can keep operational and maintenance costs from swelling.

Demand Risk

Demand Risk refers to a decrease in the level of demand or use of services provided by the project. This risk is particularly important because the volume of traffic directly affects the revenue from the project, as in the case of toll roads where the revenue comes from the tariff paid by the user (Kim et al., 2019). The volume of traffic on a certain section of road is the result of complex decisions such as route choices, transportation mode choices, and decisions to travel (Kim et al., 2019). Alternative modes of transportation can significantly reduce the number of users.

This demand risk is closely related to the risk of forecast errors. For toll projects, the two most frequently cited causes for inaccurate traffic forecasts are uncertainty regarding road needs data and land use development (Flyvbjerg et al., 2005). Road demand data is based on traffic volumes as well as demographic and geographic data. This kind of data is often outdated and incomplete.

Meanwhile, land use development is related to the development of new residential areas or industrial areas around toll road projects as a wake-up call for an increase in users in PPP projects. The non-implementation of these revival developments causes user growth not in accordance with existing forecasts, so that the growth of traffic volume is not achieved, resulting in low revenue on toll roads.

Tariff Risk

Tariffs are a major source of revenue in many PPP projects, particularly in sectors such as transportation (e.g., toll roads) and utilities (such as water or electricity). These tariff risks include issues such as tariff determination, tariff suitability with market capabilities, and tariff adjustment processes.

Based on Law of the Republic of Indonesia Number 38 of 2004 Tariffs on Roads Article 48, it is stated that the determination of toll road tariffs is based on a number of things, namely the ability to pay toll road users, the amount of operating cost profits, and the feasibility of investment.

that toll rates from time to time will increase following the rate of inflation. However, the maximum amount of toll tariff increase is determined by the committee that ensures toll tariffs with considerations according to the intended consumers. One of the causes of the increase in toll road tariffs is regional inflation. However, the increase in toll rates is not decided by PPP, but the government decides whether or not to increase toll rates with macro and micro considerations owned by the government

Risk Mitigation Strategies

In overcoming existing risks, both the Government and Business Entities carry out mitigations with the intention of reducing the occurrence and impact of financial risks on PPP Projects. The risk of investment feasibility is the cause of the low interest of the private

sector to participate in PPP projects, which is an indication that the PPP projects proposed by the Government are considered to lack added value for investors. This can be a concern for investors because the financial risks involved may not be proportional to the potential returns obtained. Therefore, in planning PPP projects, it must meet economic feasibility and financial feasibility by ensuring that risk transfer has been carried out in a rational and cost-effective manner and still maintaining effective competition.

The government needs to know what Business Entities really want to participate in PPP projects. Therefore, in the process of preparing PPP projects, the Government conducts public consultation and market sounding, with this it is hoped that the Government can capture the needs of the public and obtain responses, inputs and interest in PPP from potential investors, banks, insurance and other stakeholders as well as test the reasonableness of the calculation of the feasibility of PPP projects so that the private sector's attractiveness to PPP projects remains high.

It is unlikely that the risk of return on capital for investors is small because PPP projects have been structured with financial feasibility and economic feasibility in mind. When PPP is economically and financially unfeasible, the Government will look for ways to make PPP projects beneficial to the community and remain attractive to investors. In PPP projects in Indonesia, the government provides several forms of support ranging from the planning stage to the operational stage of the project. Support is provided in the form of Project Development Facility (PDF), viability gap fund (VGF), partial construction, availability payment (AP), land acquisition support, government guarantees and long-term financing. This form of government support will continue to be developed, such as MRG (minimum revenue guarantee) and CDS (cash deficiency support) which are currently still in the review stage. In addition to reducing the risk of lack of investor interest, the provision of support by the Government also proves that the risk of lack of government support has been well anticipated.

The Government's support for PPP projects will also reduce financing risks. Providing support for PPP projects so that PPP projects become financially feasible will make PPP projects considered bankable. If the PPP project is feasible and bankable, the lender will be willing and confident to provide loans to the PPP project. In addition, government guarantees are also needed to increase investor and lender confidence in PPP projects. The provision of Government guarantees is carried out through PT. PII (Persero) or Indonesia Infrastructure Guarantee Fund (IIGF) as an Infrastructure Guarantee Business Entity (BUPI) to the Implementing Business Entity to guarantee financial risks arising related to the Government's financial obligations.

The risk of errors in forecasting in the calculation of demand, cost and revenue projections, as well as risk assessment in PPP projects is a risk that almost often occurs in PPP projects. (Flyvbjerg et al., 2005). Therefore, to control the risk of forecast errors, the Government needs to carry out more detailed planning and involve 3rd parties who are considered experts and capable in planning and preparing PPP projects. Risk control is also carried out by market sounding to obtain opinions and input from potential investors, lenders and the public as well as to test the reasonableness of the PPP project plan.

Tender risks that can arise in the PPP project selection process are related to qualifications. especially for unsolicited projects (initiatives of Business Entities), because the PPP project proposal comes from a Business Entity and not from the Government, the determination of infrastructure qualifications set by the proposing Business Entity is too high with the intention that only the Business Entity can implement it. Therefore, in order to maintain healthy business competition, the Government, in this case, the Working Group team needs to research and adjust the qualifications of the proposing Business Entity and

benchmark on similar PPP projects so that the selection process for PPP projects can be carried out fairly, effectively and efficiently.

The high risk of tenders is also due to the long time in the tender process. The existence of a long time is caused by only one Business Entity participating in the project selection until the specified time. So it requires additional time and tough negotiations. This risk is closely related to the risk of investment feasibility. The form of control carried out by the Government in overcoming the length of tender time is by establishing procedures and time limits for the tender process for PPP projects through the Regulation of the Government Goods/Services Procurement Policy Institution (LKPP) number 29 of 2018 concerning Procedures for the Procurement of Business Entities Implementing the Provision of Infrastructure through Government Cooperation with Business Entities on the Initiative of Ministers/Heads of Institutions/Regional Heads.

Renegotiation risk refers to the possibility that the terms of the initial contract agreed between the government and a private entity need to be changed or renegotiated during the contract period. This risk is important because renegotiation can affect the stability, financial viability, and sustainability of the project. Renegotiation is also carried out by the Pandaan-Malang Toll Road PPP project caused by external events (such as unavailability of land, restrictions on mobilization due to the covid pandemic) or unilateral changes by the concessionaire (such as changes in design/scope), which are managed through a balance budget to determine the compensation needed to restore the internal rate of return (IRR) or debt ratio. Cost overrun, cost overrun is a situation where the construction cost of a project exceeds the budget that has been set at the initial stage (estimated cost) during the implementation of the project, causing significant losses to the contractor (Remi, 2017). The overrun of construction costs can be caused by several reasons, including economic risks (fluctuations in interest rates, inflation), forecast errors, technical problems, design changes, and construction delays (Aswanto & Wibowo, 2022; Santoso et al., 2012). Delays in construction can be caused by risk factors that are under the control of the government, such as delays in issuing permits, land acquisition, and design changes (Santoso et al., 2012).

To ensure the availability of land that supports the continuity of development projects, the government issued Law (UU) Number 2 of 2012 concerning land acquisition. This law authorizes the government to acquire privately owned land in a certain way for the public interest. Therefore, Presidential Regulation 38/2015 stipulates that land procurement for PPP projects is carried out by the Government, and business entities can reimburse part or all of the land acquisition costs when PPP/PPP projects are considered financially feasible. In addition, to overcome obstacles in the land acquisition process, the Ministry of Finance established the State Asset Management Institution (LMAN) under the Directorate General of State Assets (DJKN) which is given the mandate to carry out land acquisition funding for national strategic projects (PSN), including PPP projects.

The government introduced a land bailout scheme to speed up the compensation process for landowners. Bailout funds are temporary funds provided by third parties (banks or financial institutions or business entities) to cover the payment of compensation to landowners. The increase in construction costs that occurred in the Pandaan-Malang Toll Road PPP project due to the delay in land acquisition and changes in scope was overcome by changes/amendments to the Toll Road Business Agreement (PPJT) because these risks are risks that are the responsibility of the Government so that the actual construction costs do not exceed the predetermined budget.

The construction cost overrun can be easily overcome in the Pandaan-Malang Toll Road PPP project because the PPP project is a design and build project, so that construction costs have been identified in detail since the auction process, risks and field conditions have

been well captured, and construction changes can be flexibly adjusted. Construction projects with a design and build scheme have a balance budget orientation where the total cost budgeted for the project is equal to the total funds available for the project.

CONCLUSION

Based on the description above, it can be concluded that financial risk is the main challenge in the PPP project as well as in the Pandaan-Malang Toll Road PPP project. By understanding and managing these risks, projects can better achieve their financial and operational goals. To improve the success of the Pandaan-Malang Toll Road PPP project, it includes the development of a comprehensive and sustainable risk mitigation strategy, the involvement of the public and potential investors through public consultation to obtain valuable input, increased government support to ensure the financial feasibility of the project, and the preparation of flexible contracts while maintaining the interests of all parties. With these steps, the project is expected to run more smoothly and achieve the goals that have been set.

Further research can be focused on developing more effective risk mitigation models and case studies on other PPP projects in Indonesia to obtain a more comprehensive picture of financial risks in this sector.

REFERENCES

- Akomea-Frimpong, I., Jin, X., & Osei-Kyei, R. (2022). Criticality analysis of financial risks of public-private partnership projects in a Sub-Saharan African country. *IOP Conference Series: Earth and Environmental Science*, 1101(5). <https://doi.org/10.1088/1755-1315/1101/5/052026>
- Aladağ, H., & Işık, Z. (2017). Role of Financial Risks in BOT Megatransportation Projects in Developing Countries. *Journal of Management in Engineering*, 33(4). [https://doi.org/10.1061/\(asce\)me.1943-5479.0000527](https://doi.org/10.1061/(asce)me.1943-5479.0000527)
- Alonso-Conde, A. B., Brown, C., & Rojo-Suarez, J. (2007). Public private partnerships: Incentives, risk transfer and real options. *Review of Financial Economics*, 16(4). <https://doi.org/10.1016/j.rfe.2007.03.002>
- Aswanto, A., & Wibowo, A. (2022). Eksplorasi Interdependensi Faktor - Faktor Risiko pada Proyek KPBU Jalan Tol menggunakan Interpretive Structural Modeling. *Jurnal Teknik Sipil*, 29(3). <https://doi.org/10.5614/jts.2022.29.3.11>
- Bing, L., Akintoye, A., Edwards, P. J., & Hardcastle, C. (2005). The allocation of risk in PPP/PFI construction projects in the UK. *International Journal of Project Management*, 23(1). <https://doi.org/10.1016/j.ijproman.2004.04.006>
- Fernandes, C., Oliveira Cruz, C., & Moura, F. (2019). Ex post evaluation of PPP government-led renegotiations: Impacts on the financing of road infrastructure. *Engineering Economist*, 64(2). <https://doi.org/10.1080/0013791X.2018.1559384>
- Flyvbjerg, B., Skamris Holm, M. K., & Buhl, S. L. (2005). How (In)accurate are demand forecasts in public works projects?: The case of transportation. *Journal of the American Planning Association*, 71(2). <https://doi.org/10.1080/01944360508976688>
- Frimpong, Y., Oluwoye, J., & Crawford, L. (2003). Causes of delay and cost overruns in construction of groundwater projects in a developing countries; Ghana as a case study. *International Journal of Project Management*, 21(5). [https://doi.org/10.1016/S0263-7863\(02\)00055-8](https://doi.org/10.1016/S0263-7863(02)00055-8)
- Grimsey, D., & Lewis, M. K. (2002). Evaluating the risks of public private partnerships for infrastructure projects. *International Journal of Project Management*, 20(2). [https://doi.org/10.1016/S0263-7863\(00\)00040-5](https://doi.org/10.1016/S0263-7863(00)00040-5)

- Gyadu-Asiedu, W. (2009). Assessing construction project performance in Ghana: Modelling practitioners and clients perspectives [Master Thesis]. In *Technische Universiteit, Eindhoven* (Issue december). Technische Universiteit, Eindhoven.
- Irwin, T., & World Bank. (2003). *Public money for private infrastructure: Deciding when to offer guarantees, output-based subsidies, and other fiscal support*. World Bank. <https://books.google.co.id/books?id=S26hNmkCrCYC>
- Ke, Y., Wang, S. Q., Chan, A. P. C., & Lam, P. T. I. (2010). Preferred risk allocation in China's public-private partnership (PPP) projects. *International Journal of Project Management*, 28(5). <https://doi.org/10.1016/j.ijproman.2009.08.007>
- Kim, K., Cho, H., & Yook, D. (2019). Financing for a sustainable PPP development: Valuation of the contractual rights under exercise conditions for an urban railway PPP Project in Korea. *Sustainability (Switzerland)*, 11(6). <https://doi.org/10.3390/su11061573>
- Kokkaew, N., & Chiara, N. (2010). Modelling completion risk using stochastic critical path-envelope method: A BOT highway project application. *Construction Management and Economics*, 28(12). <https://doi.org/10.1080/01446193.2010.521755>
- Kumar, L., Jindal, A., & Velaga, N. R. (2018). Financial risk assessment and modelling of PPP based Indian highway infrastructure projects. *Transport Policy*, 62. <https://doi.org/10.1016/j.tranpol.2017.03.010>
- Lam, K. C., & Chow, W. S. (1999). The significance of financial risks in BOT procurement. *Building Research and Information*, 27(2). <https://doi.org/10.1080/096132199369552>
- Maharani, Y., Palupie, R., & Yuniarto, H. A. (2016). *Alokasi Risiko Proyek Infrastruktur Dengan Skema Kerjasama Pemerintah dan Badan Usaha (KPBU) : Suatu Tinjauan Literatur*. UGM Press.
- Ng, A., & Loosemore, M. (2007). Risk allocation in the private provision of public infrastructure. *International Journal of Project Management*, 25(1). <https://doi.org/10.1016/j.ijproman.2006.06.005>
- Nurhayati, E., & Wahyuni, E. T. (2020). Tinjauan Topik-Topik Penelitian Dan Kajian Tentang Proyek Jalan Tol Di Indonesia Dengan Skema Kerjasama Pemerintah Badan Usaha (KPBU). *Jurnal Sosek Pekerjaan Umum*, 12(April 2020).
- Purwanto, E. A. (2023). *Siapa yang Membiayai Proyek pada Skema KPBU? KPBU Kemenkeu*.
- Remi, F. F. (2017). KAJIAN FAKTOR PENYEBAB COST OVERRUN PADA PROYEK KONSTRUKSI GEDUNG. *Jurnal Teknik Mesin*, 6(2). <https://doi.org/10.22441/jtm.v6i2.1187>
- Santoso, D. S., Joewono, T. B., Wibowo, A., Sinaga, H. P. A., & Santosa, W. (2012). Public-private partnerships for tollway construction and operation: Risk assessment and allocation from the perspective of investors. *Journal of Construction in Developing Countries*, 17(2).
- Siemiatycki, M., & Friedman, J. (2012). The Trade-Offs of Transferring Demand Risk on Urban Transit Public-Private Partnerships. *Public Works Management and Policy*, 17(3). <https://doi.org/10.1177/1087724X12436993>
- Sutantiningrum, K. H., & Utami, S. R. L. (2019). Strategi mitigasi risiko proyek kpbu pembangunan spam regional: studi kasus spam regional Wosusokas Provinsi Jawa Tengah. *Prosiding Seminar Nasional Unimus*.
- Wibowo, A. (2016). Perkembangan Terkini Dalam Pembiayaan Infrastruktur yang Melibatkan Partisipasi Badan Usaha. *Konferensi Nasional Teknik Sipil*.

- Xenidis, Y., & Angelides, D. (2005). The financial risks in build-operate-transfer projects. *Construction Management and Economics*, 23(4). <https://doi.org/10.1080/01446190500041552>
- Yun, S., Han, S. H., Kim, H., & Ho Ock, J. (2009). Capital structure optimization for build-operate-transfer (BOT) projects using a stochastic and multi-objective approach. *Canadian Journal of Civil Engineering*, 36(5). <https://doi.org/10.1139/L08-134>
- Zhu, L., & Chua, D. K. H. (2018). Identifying critical bankability criteria for PPP projects: The case of China. *Advances in Civil Engineering*, 2018. <https://doi.org/10.1155/2018/7860717>