

ANALYSIS OF RISK FACTORS AND GAPS IN GOVERNMENT RISK ALLOCATION WITH PRIVATE INVESTOR RISK PERCEPTIONS IN THE TOLL ROAD SECTOR USING THE PPP SCHEME IN INDONESIA

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ABSTRACT

Infrastructure development has an important role in a country's economic growth. Based on the 2020-2024 APBN plan, the total budget requirement for providing infrastructure is IDR. 2,058tn, where the government budget is 30% of the portion of budgeted funding needs. Due to the need for infrastructure development, the government initiated Government Cooperation with Business Entities (KPBU) in various infrastructure sector to accelerate infrastructure development in Indonesia, including toll road. This research was conducted to investigate identified risks along with risk mapping analysis to find out whether there is a gap in risk allocation between the government and private investors in implementing toll road PPPs in Indonesia. The method of this research is a qualitative study with data collection methods through interviews and questionnaires. From the research conducted, it is known that there are 7 (Seven) risk categories with 17 (Seventeen) risk events that are considered important by private investors. From the research conducted, it is known that there are 11 risk allocations that are appropriate and 6 allocations that are not in accordance with the risk perception of private investors in the toll road sector with the PPP scheme in Indonesia, namely the risk of differences in interest on land bailout loans, increases in construction costs, the risk of inflation rates and interest rates, the risk of rate adjustments being lower than projected, the risk of general regulatory (and tax) changes and the risk of political force majeure.

KEYWORDS Risk, Risk Perception, Risk Allocation, Toll Road, Infrastructure, PPP.



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INTRODUCTION

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Infrastructure development is a necessity and plays a crucial role in the economic growth of a country (Delmon, 2021). President Joko Widodo has conveyed that there are at least four important reasons for infrastructure development. Firstly, infrastructure serves as a vehicle for civilization, building new skills and discipline for the society, and creating new economic points. Secondly, adequate infrastructure development impacts a nation's competitiveness, enhancing its global standing. Indonesia aims to compete effectively with other countries. Thirdly, infrastructure development embodies the fifth principle of Pancasila, signifying a shift from Java-centric to Indonesia-centric development for social justice. Fourthly, transportation-focused infrastructure is expected to unify the nation by connecting various regions across Indonesia (BPKP, 2011).

This is crucial as Indonesia comprises 17 thousand islands where connectivity through infrastructure like roads, ports, and airports is highly needed (Khurriah & Istifadah, 2019). President Joko Widodo believes that infrastructure development will lead to logistical cost efficiency, consequently boosting Indonesia's competitiveness globally (PANRB, 2023).

In 2022, Indonesia ranked 44th in global competitiveness, a decline from the previous year's 37th position. This ranking is notably lower than neighboring ASEAN countries, with Singapore at 3rd, Malaysia at 27th, and Thailand at 33rd out of 63 countries in 2022. These rankings are based on key indicators such as economic performance, business efficiency, government process efficiency, and infrastructure development (Chin et al., 2021).

Over the past eight years, the Government has consistently accelerated national infrastructure development, focusing on priority sectors to stimulate national, regional, and local economic growth (Winata & Gultom, 2023). According to the 2020-2024 State Budget plan, the total budget required for infrastructure is IDR 2.058 trillion. The government can only finance 30% (IDR 623 trillion), while the remaining 70% (IDR 1.435 trillion) needs to be absorbed outside the government budget. Private sector participation is expected to contribute actively and significantly to bridge this funding gap (Rohman, 2022). To achieve this, the government has initiated Public-Private Partnerships (PPP) to expedite infrastructure development in Indonesia, where both the government and investors collaborate through investment and operational management. The PPP scheme aims to address the funding gap in infrastructure financing (Indonesia.go.id, 2022).

In the PPP scheme, the government collaborates with investors to execute government infrastructure projects. Two interests must be considered in this collaboration: the government's interest as the project owner and the investor's interest as the fund provider. The government's focus is on fulfilling the needs of the general public, while the investor seeks profits, emphasizing economic viability (Kemenkeu, 2023).

Investors are attracted to invest through the PPP scheme if there is certainty in the expected profit level and controllable risks during project implementation (Nadia, 2016). The expected rate of return is calculated by considering measurements and return scheme calculations to ensure the return of invested capital and other costs incurred during the investment period, including operational costs, loan

interest, and the difference obtained as the expected profit margin (Kemenkeu, 2023).

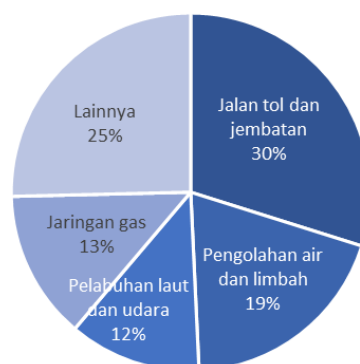
Partnerships between the government and the private sector usually involve long-term collaborations with an average duration of 25-35 years. In PPP schemes, there is a risk transfer process from the government to the private sector, including traffic risk, construction risk, and funding risk. Private sector investors then calculate the desired target rate of return and required investment value based on project analysis and risks (Kemenkeu, 2023).

There are several PPP schemes in general, one of which is the Build-Operate-Transfer (BOT) scheme where private investors are responsible for the design, construction, and operation of a collaborative infrastructure asset. The collaboration basis is generally a concession agreement (Patel et al., 2020). All income and expenditures (including investments) during the concession period become the rights and obligations of the private sector as investors (Bappenas, 2023).

The Indonesian government actively and consistently offers various projects documented in the updated PPP Book every year to inform, offer, and monitor the progress of PPP projects in Indonesia to investors, including private investors. The Directorate General of Financing and Risk Management of the Ministry of Finance (DJPPR Kemenkeu) revealed that there are currently 50 PPP projects worth IDR 241 trillion, comprising 72% central government projects and 28% regional government projects (Indonesia.go.id, 2022).

In the PPP Book for 2022, there are 67 offered projects, including 20 already tendered, 3 ready to offer, and 44 prospective projects. The offered projects cover various sectors such as toll roads, airports, waste processing, water supply systems, seaports, and other infrastructure. Mapping the PPP sectors reveals that toll road infrastructure has a significant portion available for collaboration through the PPP scheme (Bappenas, 2022).

Komposisi Proyek KPBU di Indonesia



Gambar 1.3 Komposisi Proyek KPBU di Indonesia
Sumber: Bappenas, 2022

The toll road management in Indonesia began in 1978 with the operation of the Jagorawi toll road, connecting Jakarta, Bogor, and Ciawi. The construction of this toll road was carried out by the government, funded through foreign loans entrusted to PT Jasa Marga. Private sector participation in toll road investment started in 1987 as toll road operators. Until 2007, there were 553 km of toll roads, with 76% operated by Jasa Marga and 24% by private entities.

However, improvements and further collaboration between the government and businesses are needed for the project implementation to run smoothly and be mutually beneficial. According to the Secretary of the Indonesian Toll Road Association (ATI), the performance of Public-Private Partnership (PPP) projects has not been satisfactory due to slow private sector participation. Consequently, state-owned enterprises still dominate toll road projects. Robust planning and a blueprint for national infrastructure projects need meticulous preparation by the government, enhancing project feasibility through various fiscal and monetary support.

The impact of this sluggishness can be seen in the limited role of the private sector in Indonesia's toll road industry, reflected in their market share being relatively small compared to state-owned enterprises. As of October 2019, toll road companies with private control operated only 327 km, equivalent to 18.81% of the total operational toll length of 1,735 kilometers as of October 2019 (Maulana, 2019).

Based on the experience of implementing PPP projects in Indonesia, it is evident that the alignment of risk allocation significantly influences the success of PPP projects. Inaccurate risk mapping in PPP projects can lead to unmet goals in terms of improving service quality and price efficiency. From the private sector's perspective, proper risk allocation instills confidence that the investment made can yield reasonable returns. From the government's standpoint, appropriate risk distribution secures the national budget by considering the measurable and well-controlled coverage of PPP project impacts (Ministry of Finance, 2016).

The research problem stems from the significant difference between the private sector's contribution targets and their actual contributions to infrastructure projects. One factor contributing to low private sector participation is the perception that risk allocation in toll road projects does not align with the risk appetite of private sector investors. Therefore, this research aims to explore the gap between government risk allocation and private investor risk perceptions in toll road projects using the Public-Private Partnership (PPP) scheme in Indonesia. The research questions involve identifying risks in these projects based on government risk allocation, assessing risks deemed important by private entities, and determining whether there is a gap between government risk allocation and private investor risk perceptions. The research objectives include risk identification, investigating risks deemed important by private investors, and exploring the gap between government risk allocation and private investor perceptions. The benefits of this research include contributions to knowledge regarding PPP projects, guidance for government project implementation, references for banks/financing institutions, and a guide for investors. The study has limitations, focusing on toll road projects with the PPP user charge scheme in Indonesia, government-initiated solicited projects, and interviews with private investors as the primary sources.

Given this overview, the researcher intends to further investigate risk factors and risk allocation in the toll road sector by comparing the government's risk allocation with that perceived by private investors. As the foundation of Public-Private Partnerships (PPP) implementation, the application of PPP schemes and their variants prioritizes risk allocation. Risk allocation is used at each stage of the partnership contract, including planning, construction, and operation. Moreover, the risk allocation underlying the partnership contract serves as a guide for investors to manage the project transparently, measurably, and efficiently. This is expected to enhance the confidence of the private sector and financing institutions in investing and financing Indonesia's infrastructure initiatives. Risk allocation is crucial, considering that investors running PPP projects in the long term need to make detailed calculations related to project valuation estimates and expected return rates based on the potential risks in the offered projects. Based on this exposition, the researcher will conduct a study titled "Risk Factor Analysis and Discrepancy Between Government Risk Allocation and Private Investor Perception in Toll Road Projects with PPP Scheme in Indonesia."

RESEARCH METHOD

This research involves four main stages: issue and problem identification, preliminary stage study, research preparation, and data collection as well as analysis. Issue and problem identification are conducted through the analysis of secondary data from news, journals, and official government information. The researcher is interested in exploring risk allocation in public-private partnerships (PPP) in toll road projects in Indonesia. The preliminary stage study involves setting goals, determining the scope of the research, and using qualitative research methods (Akinyode & Khan, 2018). The methods include descriptive analysis, the use of questionnaires, and in-depth interviews. Research preparation includes a literature review and data collection preparation, focusing on the risks of toll road projects with PPP schemes (Ngulube, 2015). Data collection is carried out through questionnaires and interviews with private investors with more than 5 years of experience in toll road PPP projects in Indonesia. Data verification is done with four criteria: credibility, transferability, dependability, and confirmability (Elliott, 2018). Data analysis is done qualitatively, involving data collection, condensation, presentation, and drawing conclusions. This process refers to the data analysis framework by Miles and Huberman (Miles & Huberman, 1994).

RESULT AND DISCUSSION

Risk Identification and Risk Events

The Government, represented by the Ministry of Finance through PT PII, issues guidelines for the reference allocation of risks in the 2022 Risk Allocation Reference Document for Government Cooperation with Business Entities (KPBUE) in Indonesia. In this document, the Government identifies 11 risk categories and 77 risk events. Based on previous research studies and in-depth interviews, the researcher narrows down the research focus to 8 risk categories and 39 risk events. Analysis of Risk Factors and Gaps in Government Risk Allocation with Private Investor Risk Perceptions in the Toll Road Sector Using the PPP Scheme in Indonesia

The focus risk categories in this study are (i) location risk, (ii) design, construction, and operational testing risk, (iii) financial risk, (iv) operational risk, (v) revenue risk, (vi) network connectivity risk, (vii) political risk, and (viii) force majeure risk.

Data Analysis Mechanism

The researcher distributed questionnaires to respondents, asking them to rate on a scale of 1-5, where 1 represents the lowest risk level and 5 represents the highest risk level. Respondents then filled in the mapping of the ideal risk allocation.

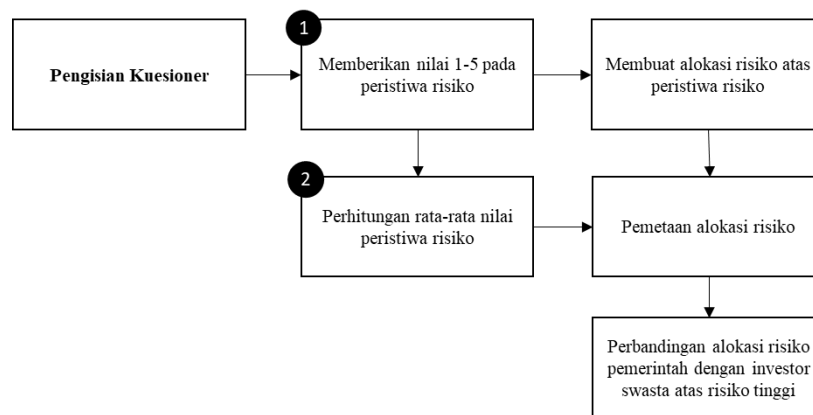


Figure 4.1 Data Analysis Process

Source: data analysis (2023)

Using this mapping, the researcher calculated the average for each risk event and compared the risk allocation mapping with the government's perspective. Based on questionnaires and in-depth interviews, it was found that from the investor's perspective, there are seven risk categories and 16 risk events considered important with an average value above or equal to 3.5, namely (i) location risk, (ii) design, construction, and operational testing risk, (iii) financial risk, (iv) revenue risk, (v) network connectivity risk, (vi) political risk, and (vii) force majeure risk.

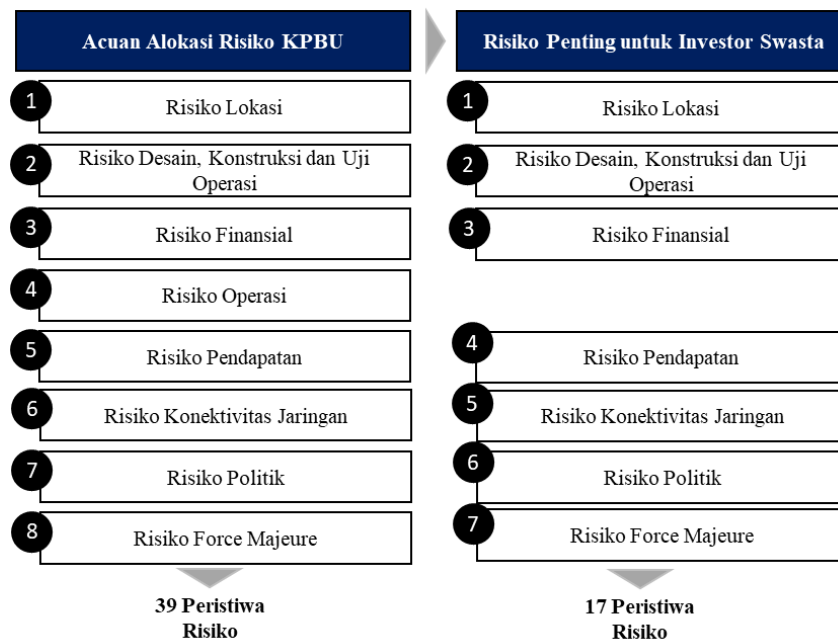


Figure 4.2 Risk Factors and Risk Events

Source: data analysis (2023)

From the government's perspective, specific risks for the toll road sector are location risk (land acquisition), demand risk (such as demand and tariff risk), and network risk (such as connectivity and competitor route issues). Based on the questionnaire and in-depth interviews conducted, it was revealed that from the perspective of private investors, the risk category and risk events considered to have the highest risk are: (Patel et al., 2020)

1. Location Risk: Risk of delays and cost increases in land acquisition and the Risk of differences in loan interest for land guarantee funds (cost of fund).
2. Design, Construction, and Operational Testing Risk: Risk of construction cost increases, contractor performance risk, and risk of changes in job scope after contract signing.
3. Financial Risk: Risk of failing to achieve financial close, risk of delayed government support (incentives, subsidies, etc.), risk of returning land guarantee funds, and risk of inflation interest rates.
4. Operational Risk: Based on questionnaire data analysis, there were no operational risk events considered as high risk.
5. Revenue Risk: Risk during the initial operation period (ramp-up period), changes in demand volume projections, leakage of tariff payment collection, failure to request periodic tariff adjustments, delayed periodic tariff adjustments, and lower tariff adjustment rates than projected.
6. Network Connectivity Risk: Risk of road and transportation network connectivity, risk of competitor facilities.

7. Political Risk: Risk of general regulatory (and tax) changes, risk of failure/delay in obtaining approvals and permits.
8. Force Majeure Risk: Risk of natural disasters

Comparison of Government Risk Allocation with Private Investors

Location Risk

Location risk events that become important for private investors are delays and increases in land acquisition costs and the difference in land bailout loan loans (*cost of funds*). The mapping of risk allocation from a private investor's point of view on these risks is as follows: (Phang, 2007)

Table 4.1 Risk Assessment and Location Risk Allocation

From the analysis conducted, it is known that the allocation of risks for delays

Risk Events	Average rating	Government Risk Allocation Reference	Private Investor Risk Allocation View	Analyzes
1. Location Risk				
Delays and increases in land acquisition costs	4.60	Public	Public	Suitable
Cost of Fund interest difference)	3.60	Shared	Public	Not suitable

and cost increases in land acquisition is appropriate, as this risk is allocated to the government. However, it is identified that the risk of differences in interest rates for land guarantee funds is not suitable because, in the government's risk allocation reference, this risk is allocated as a shared risk, while from the private perspective, this risk event is allocated to the government.

Through in-depth interviews, it is revealed that land provision for public infrastructure is a crucial stage and falls within the government's domain. In its implementation, if there is a difference in interest rates received between business entities and the funding bank with business entities and LMAN, it may be considered to include this component as an investment component.

Design, Construction, and Operational Testing Risk

Important risk events for private investors in the design, construction, and operational testing phase include the risk of construction cost increases, poor contractor/subcontractor performance, construction completion delays, and changes in job scope after contract signing (Wirahadikusumah et al., 2018). The risk allocation mapping from the private investor's perspective for these risks is depicted in Table 4.2

Table 4.2 Risk assessment and allocation of design, construction and test operations

Risk Event	Average Value	Government's Risk Allocation Reference	Private Investor's Risk Allocation Perspective	Analysis
2. Design, construction, and operational testing risk				
Construction cost increases	3.80	Business Entity	Shared	Not suitable
Poor contractor/subcontractor performance	3.80	Business Entity	Business Entity	Suitable
Construction completion delays	3.60	Business Entity	Business Entity	Suitable
Changes in job scope after contract signing	3.60	Shared	Shared	Suitable

From the analysis, it is found that the allocation of risks for poor contractor/subcontractor performance and construction completion delays is suitable between the government and private investor perspectives, i.e., borne by the business entity. The risk of changes in job scope after contract signing is also considered suitable between the government and private investor perspectives, i.e., shared. However, for the risk of construction cost increases, it may be considered to allocate this risk as a shared risk. In its implementation, this risk may arise if the prepared technical design is inaccurate.

Financial Risk

Important financial risk events for private investors include the risk of delayed government support (incentives, subsidies, etc.) and the risk of inflation and interest rates (Wirahadikusumah et al., 2014). The risk allocation mapping from the private investor's perspective for these risks is illustrated in Table 4.3.

Table 4.3 Assessment and Allocation of Financial Risks

Risk Event	Average Value	Government's Risk Allocation Reference	Private Investor's Risk Allocation Perspective	Analysis
3. Financial risk				
Delayed government support (incentives, subsidies, etc.)	4.20	Public	Public	Suitable
Risk of inflation and interest rates	3.80	Business Entity	Shared	Not suitable

From the analysis, it is known that the allocation of the risk of delayed government support (incentives, subsidies, etc.) is suitable, where this risk is allocated to the government. However, for the risk of inflation and interest rates, there is a difference in risk allocation perspective from private investors, where, in the field implementation, this risk is shared. The government reviews and approves the business plan submitted by business entities, making the toll road business plan a jointly agreed-upon plan. If there is a deviation from the proposed business assumptions, the business entity will communicate this to the government for further consideration.

Operational Risk

Based on questionnaires and in-depth interviews, it is found that there are no operational risks with high risk from the perspective of private investors. Risk events such as industry action, local social and cultural risks, project management failure, project monitoring failure, O&M cost increases, technology and information system unreliability, and traffic accidents are considered moderate risks.

From in-depth interviews, it is known that, considering investors acting as business entities act as toll road operators, operational risks can be identified from the beginning and risk treatment can be done quickly and accurately. Risk mitigation measures are taken to reduce the impact of risks, including thorough business plan preparation and technical planning, improving the organization's capabilities and quality, and implementing operational implementation according to standards.

However, from in-depth interviews, it is known that there is a significant potential risk for the unreliability of technology and information services if there is a government-initiated change in toll road system usage decided by the government, where the determination of this decision is beyond the control of the investor. An example of risk that may arise in this case is the implementation of Multi Lane Free Flow (MLFF) for all toll road entities in Indonesia.

Revenue Risk

Important revenue risk events for private investors include risks during the early operation period (ramp-up period), changes in demand volume projections, and lower tariff adjustment rates than projections. The risk allocation mapping from the private investor's perspective for these risks is presented in Table 4.4.

Table 4.4 Assessment and Allocation of Revenue Risks

Risk Event	Average Value	Government's Risk Allocation Reference	Private Investor's Risk Allocation Perspective	Analysis
5. Revenue Risk				

Risk during the early operation period (ramp-up period)	4.00	Public and/or Business Entity	Public and/or Business Entity	Suitable
Changes in demand volume projections	3.80	Business Entity	Business Entity	Suitable
Lower tariff adjustment rates than projections	3.80	Public	Business Entity and/or Shared	Not suitable

From the analysis, it is known that the allocation of risks during the early operation period (ramp-up period) and changes in demand volume projections is suitable, where these risks are borne by the government. However, for the risk of lower tariff adjustment rates than projections, especially after tariff indexing and rebasing, private investors see that the risk allocation in its implementation is borne by private parties and/or jointly. Thus, the allocation is not suitable in its implementation.

Network Connectivity Risk

Important financial risk events for private investors include risks related to road and transportation network connectivity and competitor facility risks. The risk allocation mapping from the private investor's perspective for these risks is outlined in Table 4.5.

Table 4.5 Assessment and Allocation of Network Connectivity Risks

Risk Event	Average Value	Government's Risk Allocation Reference	Private Investor's Risk Allocation Perspective	Analysis
6. Network Connectivity Risk				
Road and transportation network connectivity risk	4.00	Publik	Publik	Sesuai
Competitor facility risk	3.80	Publik	Publik	Sesuai

From the analysis, it is known that the allocation of risks considered important by investors is suitable. From the in-depth interview process conducted, respondents expressed the view that meeting connectivity assumptions is a crucial factor in fulfilling growth assumptions according to traffic demand assumptions. Toll road networks created must be connected to public roads for easier user access. Government failures in building and maintaining connecting road networks will have a significant impact on toll road demand realization. Additionally, it is known that the risk of competitor infrastructure facilities is also a high-risk factor in the

toll road industry because the development of competitor facilities can have a significant impact on toll road demand realization.

Political Risk

Important financial risk events for private investors include general changes in regulations (and taxes) and the failure/delay in obtaining approvals and permits. The risk allocation mapping from the private investor's perspective for these risks is depicted in Table 4.6.

Table 4.6 Assessment and Allocation of Political Risks

Risk Event	Average Value	Government's Risk Allocation Reference	Private Investor's Risk Allocation Perspective	Analysis
7. Political Risk				
General changes in regulations (and taxes)	4.40	Business Entity	Public	Not suitable
Failure/delay in obtaining approvals & permits	4.20	Public	Public	Suitable

From the analysis, it is known that there is a mismatch in risk allocation for the risk event of general changes in regulations (and taxes). From the government's risk allocation reference, it is stated that this risk can be considered a business risk, while from the investor's perspective, this risk can be allocated to the government.

Force Majeure Risk

Important force majeure risk events for private investors include natural disasters and political force majeure. The risk allocation mapping from the private investor's perspective for these risks is outlined in Table 4.7.

Table 4.7 Assessment and Allocation of Force Majeure Risks

Risk Event	Average Value	Government's Risk Allocation Reference	Private Investor's Risk Allocation Perspective	Analysis
8. Force Majeure Risk				
Natural disasters	3.60	Shared	Shared	Suitable
Political force majeure	3.60	Shared	Public	Not suitable

From the analysis, it is known that there is a mismatch in risk allocation for the political force majeure risk event, where the elements of this risk are events of

war, riots, and disruptions to public security. The government allocates this risk as a shared risk, while investors see this risk as a government risk.

CONCLUSION

The results of the study concluded several main points. First, the government has issued risk allocation guidelines for the toll road sector, focusing analysis on 8 risk categories consisting of 39 risk events. Second, from the perspective of private investors, there are different views on operational risk, with seven risk categories considered significant. Third, there are risk allocation gaps, for example in site risk and design-construction-test operation risk, which need to be addressed to maintain certainty in investing.

However, this study has several weaknesses, such as restrictions on PPP schemes with user charges, focus on certain risk factors, and a limited number of respondents. Therefore, it is recommended that future research broaden the scope of PPP schemes, consider other risk factors, and involve a larger number of respondents.

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