# Assessing the Potential of Private Participation in Financing the Indonesian Railway

**A Thesis Submitted in Partial Fulfilment of the Requirements for the Master of Public Policy/International Program Degree, Graduate School of Public Policy, University of Tokyo**

**HIRZI HASAN**

**51-208229**

**Academic Advisor:**

**Professor Toshiro Nishizawa**

## Abstract

The purpose of this study is to determine the potential of private financing in Indonesia's railway development under the current situation by analyzing the motive and incentives of the private sector as well as the preparedness of the public sector. Railway development has been pursued by many countries with developing economies as a means to further increase their growth. The Indonesian government has prepared a national railway master plan with the hope of it becoming one of the main drivers of the national economy. However, private actor participation in the financing is necessary to support the plan. Yet, considering private participation in Indonesia for the railway is still at its nascent stage, there are many first-time risks, uncertainty, and a low rate of return, so it may prove to be challenging to attract the private sector to be involved in the financing of railway development in Indonesia.

The thesis relies on an expert survey to understand the prospects for private railway infrastructure funding and the private sector's views on the risks and feasibility of a railway development project. It also covers the government sector and other relevant experts' views on dealing with private funding. The survey is designed to understand six different aspects, including the importance of the railway in Indonesia, the necessity of private sector participation, private sector expectations, types of private sector participation, risks considered, and public sector considerations. If any inconsistency is found in the interview, interviews are held with some respondents for further analysis.

From this research, we learned that it is currently difficult for the private sector to be involved with railway financing in Indonesia, yet there are still things that can be done to improve the situation. Some policy implication suggested in this thesis includes a way to promote non-farebox through transferrable floor area ration/land development rights, increasing private sector confidence through exposure with international companies, and for the government to suggest limitations on Availability Payment (AP) deals with private sectors in order to reduce the financial burden of both private sector and government. It is essential for the government to further seek various proper PPP schemes with availability payment which can be beneficial through analyzing the private sector roles in infrastructure development.

Keyword: Railway Development, Private Financing, Public-Private Partnerships (PPP), Availability Payment.

## Acknowledgement

This thesis submission partially fulfills the University of Tokyo's Master's degree in Public Policy requirement and would not have been possible without much support from others. Therefore, I would like to express my profound appreciation to my academic advisor, Professor Toshiro Nishizawa, who supervised my research, for his patience, feedback, and unwavering support. I would like to convey my gratitude to the Indonesia Endowment Fund for Education (LPDP) for providing the scholarship and to all GrasPP officials who assisted me during my time at the University of Tokyo. Secondly, I would like to express my heartfelt gratitude to all of the Professors taught in the Master's program, especially Professor Toshiaki Iizuka who helped me grow as a TA and Professor Roberto Orsi who guided me through the GPPN-SDG Certificate Program. They have shared their extensive knowledge and guidance in both classes and events I admitted.

Thirdly, I present this thesis to my special wife, Arin, and my wonderful family: Mom, My Late father, Aji, Nana, my in-laws, and all my other families for their unending prayers and mental support, and devotion to my study. I hope that by gaining these experiences, I could grow into a better person deserving of your support and kindness. I am also indebted to my cherished Indonesian colleagues from PT MRT Jakarta, whom I learned so much from and can always consult, Bu Mega, Mas Oka, Mas Wahid, Lina, Arsy, Irena, and other colleagues that I could not possibly mention one by one. Your support has been very meaningful for me in finishing this thesis. May God repay you for all your sincere kindness.

This research would not be available without the help and support of the respondents willing to be surveyed and interviewed voluntarily and share their thoughts and knowledge. Thank you for the guidance of Professor Soetanto Soehodho from University of Indonesia, whose both paper and knowledge guided the writing of this thesis. To the representative of JIC Transport, Mr. Seiichiro Akimura, and Mr. Gatya Gumilang, that welcomed my curiosity and provided various learning points from the Japanese railway, Jababeka Group provided me with insights on their interests as private developers, as well as representatives from the Ministry of Finance, Bappenas, Department of Transportation, and PT SMI that teaches me government views on private railway financing. I also want to thank Mr. Aditya and Mr. Sahala, who provide their consulting perspectives. I hope this work contributes to successfully promoting railway development in Indonesia through private financing.

# Table of Contents

## List of Figures



## List of Tables

Chapter I

# Introduction

## 1.1 Railway Transportation for Growing Economies of Indonesia

Indonesia is one of the world's emerging market economies, with a 5% GDP growth up to 2019, and is projected to become one of the strongest economies in the world by 2030 (Worldbank, 2022). After the country's damage due to the pandemic, the Indonesian economy is recovering at a brisk pace. The Delta variant surge slowed the economic recovery in mid-2021, but growth picked up in the fourth quarter and we can expect it to strengthen over 2022−23. The increase is expected to be back to around 5% in 2022 (S&P Global Ratings, 2022). One of its most dominant and ongoing developments in pursuing further growth is through the development of public transport infrastructure. New development, especially in railway infrastructures like MRT Jakarta, Greater Jakarta LRT, Jakarta-Bandung high-speed railway, and other railway systems that are to be developed according to the national railway master plan.

*Figure 1 Indonesia return to economic growth q2 2021*


Source: Statistics Indonesia; Haver Analytics

A well-developed transportation system has been considered essential for all modern economies. By bringing increased connectivity across locations, improving the supply chain, creating focused development areas, and reducing travel times, a transportation network will increase the productivity of a country and induce further growth necessary for the country. The railway network is one of the major transportation systems that contributes a lot to productivity through mass transporting goods and passengers all over the country.

Rail transports are a key to stimulating trade, linking production sites to the markets, promoting cross-border integration of regions, and providing access to labor markets, education, and health services (PPP Knowledge Lab, n.d.). Generally speaking, rail transport is also more energy-efficient than other modes of transport; thus, investing in rail transport is an essential element of a low-carbon transport strategy. It also provides an effective and efficient means to

move high volumes of passengers and commodities across regions (PPP Knowledge Lab, n.d.). In recent decades, railways have also been used in emerging markets to rehabilitate and rejuvenate existing general freight and passenger transportation markets.

Additionally, railway infrastructure development is well known to create substantial spillover effects in the region around the project (Yoshino et al., 2017; Wei and Li, 2018). A developed railway network will induce people to move from and around the area, leading to more focused urban activities. Having focused urban activities will inspire urban development opportunities for business owners to meet the increasing demand, either properties, food & beverage, or MSMEs. This spillover effect of the infrastructure development will increase government revenues from corporate income, and property taxes (Yoshino et al., 2017). Despite the high initial costs, railway development will induce economic growth that the government is pursuing.

## 1.2 Indonesia National Railway Masterplan

Indonesia holds the title of the world's largest island country and the 14th-largest country by area, at 1,904,569 square kilometers, with a population of more than 270 million people. In contrast, Indonesia's railway development so far has been focused on the Sumatra and Java Islands. The population distribution across the country justifies why the railway developments are so focused on the area. Java Island holds the largest population across the country with more than 55% share of the country's population, and Sumatra holds on to the second spot with around 21% of the population (Worldometers, 2022). The infrastructure that has been developed covers around 5,000 km of tracks and transports 393,268,000 passengers/year and 43,370,000 tons of goods/year, according to the statistics from 2017 (BPS Statistics Indonesia, 2017).

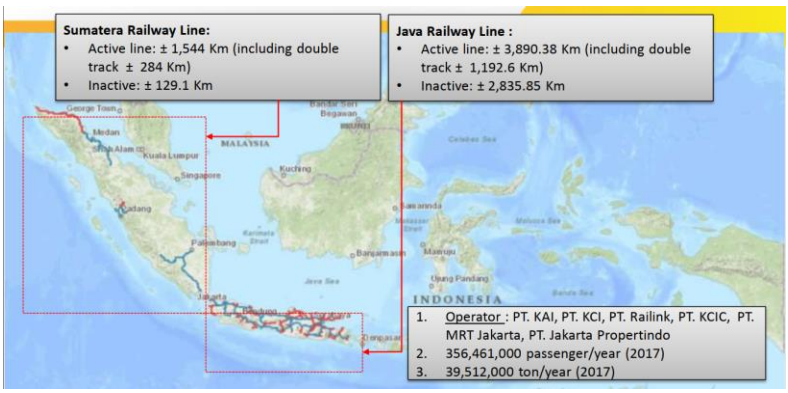


*Figure 2 Existing Railway Lines in Indonesia; Source: PII (n.d.)*

The ministry of transportation develops the national railway masterplan with the expectation of creating a backbone of freight and passenger transportation so that it can become one of the main drivers of the national economy (Ministerial Regulation, 43/2011). The development of a national railway that's integrated with other modes of transportation can improve the efficiency of the implementation of the national economy, which in the future will be able to become an essential part of the structure of the national economy.

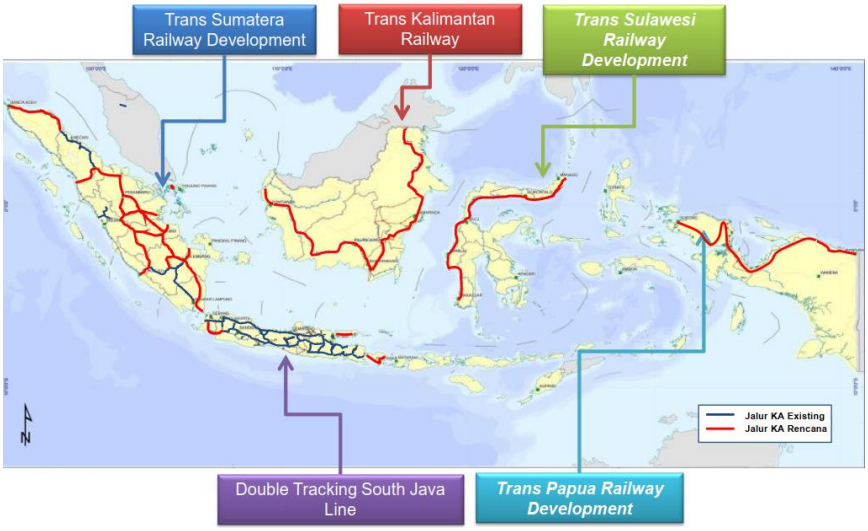


*Figure 3 National Railway Masterplan 2030; Source DGR-MoT Indonesia (2015)*

Under the Ministerial regulation 43/2011, the master plan developed by the ministry of transportations plans to expand the railway development into a 12,100 km network across the island of Java, Bali, Sumatera, Kalimantan, Sulawesi, and Papua. Some of the planned goals include the Trans Sumatra railways network, the operation of high-speed railways in Java, and building railways as a backbone of mass transportation in cities and urban areas. By 2030, it is expected that the railway infrastructure can transport 929,500,000 passengers/year and 995,500,000 tons of goods per year (MoT Regulation 43/2011).

### 1.3 Funding the Railway Infrastructure Development

The development projects specified in the national railway master plan are expected to cost around 60 billion USD and be funded by government and private funding (MoT Regulation 43/2011). Yet there are several challenges that hinders the funding of transportation infrastructure in Indonesia. The public transport operations are usually too expensive to fund solely through ticketing revenue especially considering the high reliance and accessibility of the general public in using private transport. Additionally, future railway project feasibility appraisals generally focus on revenues from fare and non-farebox revenues, time savings, and emission reduction. Nevertheless, they often lack the analysis of the fundamental motivation for investing in public

transport infrastructure, including enabling corridors and creating increased economic activity (ADB, 2021).

The fiscal situation in Indonesia also has vital importance towards funding the railway infrastructure, which makes it a fundamental need to use increasing economic output to fund the country's development plans (ADB, 2021). The Indonesian government has a relatively low level of taxation relative to other countries in the region and cannot sustain the targeted level of infrastructure investment. This is why there is a need for the government to identify alternative approaches that could increase the funding for infrastructure projects and provide improved access to larger volumes of finance (ADB, 2021).

Funding the railway infrastructure sector also became more challenging in recent years due to the limitation of the central government's role (Soehodho, 2021; ADB, 2021). According to the World Bank analysis, they have estimated Indonesia has suffered from a USD 1.5 trillion infrastructure deficit, including in the transport sector (Worldbank, 2021). Underinvestment in transport infrastructure contributes to more significant disparity among regions, inefficient and ineffective transport service delivery, and high cost to the economy, reducing its potential to develop fully. According to the ADB, the situation has deteriorated since the 1997-98 Asian financial crisis, with current investment levels standing at about 3.5% of GDP versus pre-1997 levels of 8% of GDP (ADB, 2020).

### 1.4 Role of Private Sector in Railway Development

There have been several governments published documents that highlights the importance of private participation in supporting the financing gap for both urban and public transportation. The National Railway Masterplan of Indonesia states the plan to develop 12,100 Km of the railway network under investments from private and PPP to cover 70% of the expected costs of the long-term development plan. This indeed serves as a challenge since private financing in railway development is minimal outside of the international loans Indonesia has received up until today. The master plan is in line with a document released by the Ministry of Finance in 2018 that states the program for more than 54% of railway infrastructure is to be financed by the private sector (DGSIFM, n.d). The master plan studied by JICA for the Jakarta metropolitan area also states their expectations towards private sector financing where for 2020 – 2024 the private sector is expected to cover 42% of the financing share (JICA, 2016).

As a profit-seeking entity, it is understandable that the private sector would be wary of financing a public service such as a railway. Considering both the high importance for the government to make sure that public service is accessible for as many people as possible and the high dependency on demand will make it challenging to profit through operational means alone. However, this does not mean that the railway sector will never be able to make a profit. Given a well-developed network and high demand for fast, secure, and reliable transportation, the railway can be profitable, as seen by many railway operators in Japan (Lyckle, 2016). Besides gaining profit from ticket revenue, the private sector may also profit from non-fare box revenue such as from transit-oriented developments. Several companies like JR East, Hankyu Hanshin, and Tokyu group developed railways and increased their non-farebox revenue from various sources like housing markets (Hankyu Hanshin Fiscal Report, 2021;Tokyu Fiscal Report, 2020; Omote, 2022).

Besides profits, several financial risks must be considered if the private sector is involved in the financing process, including land acquisition, political, governmental, and other unexpected risks like the pandemic. Making sure that these risks are manageable is a crucial aspect to be considered for the private sector to participate in the railway development financing (Newman, 2018). Thus, it is necessary to find a way to influence the willingness and confidence of private actors to participate in financing railway development.

Bringing the private sector into the railway sector may also bring other benefits besides filling the funding gap. A famous case we can learn from is the privatization of JR Railway. At the time, JNR (Japan National Railway) faced many issues that inflated its losses. In 1985 the government had to spend a total amount of 600 billion Yen for its subsidy. JNR was prohibited from adjusting its fares and budget due to government views of the railway as a public service that needs to be accessible by all. After the privatization, the newly developed JR could provide services more efficiently than national railways, when diseconomies of scale tend to increase in state-owned railway operations (Nakamura, 1996).

After financing the railway sector, in many cases, cooperation between the government and private sector is still deemed necessary to continue forward. Besides having PPP to cover the funding gap needed to finance a railway project, the government can also support the private sector in maintaining railway operations if those operations are deemed not profitable; this is preferable for the government since the public service will continue running. PPP cases are situational, including combining two sectors to improve revenue between parties or the

government taking a step to save a dying private rail to keep the public service up and running (Wunderlich 2017). However, despite the success we see in Japan, many PPP schemes in railway development have failed across Asia (Matsushita, 2019).

### 1.5 Indonesian Private Financing in Railway is still in Nascent Stage

While we can learn a lot from Japan's railway private financing case, it is important to link it with the local context to understand the prospect of private financing in Indonesia. For example, the railway network in Indonesia is not as developed or densely interconnected as the one in Japan, or some private actors involved in the Japanese railway are huge developer companies capable of subsidizing their loss in railway with benefit from other business sectors. Moreover, the risks to be considered may also be different due to both countries' different legal frameworks, institutions, environments, or even political conditions.

Indonesia has been actively pursuing Public-Private Partnerships in their infrastructure and development; this is also the case for the railway sector, where several railway sectors are listed for future PPP projects, including the Makassar - Parepare Railway in South Sulawesi. The Ministry of National Development Planning (BAPPENAS) issues a PPP Book annually to provide information on the PPP projects available for investment in Indonesia, including in the railway sector. The projects mentioned in this book are under consideration and have a high probability of being included in the PPP pipeline in the future after passing the evaluation and satisfying the administrative criteria. Makassar Pare-pare railway was one of the projects mentioned in this book that is under progress. The scope of work of the private partner's development of 13.7 kilometers (km) long rails and the operation and maintenance (O&M) of all four parts of the railway (ADB, 2020). The project was awarded by the Indonesian Ministry of Transportation (MoT), and the private developer will earn from availability payments based on the investment return for the project. The Indonesia Infrastructure Guarantee Fund (IIGF) is also working on a guarantee structure to cover the availability payments and termination costs.

| Project Name | Status | Investment | | Feasibility Study | Appointment of Concessionaire | Construction Start |
|---|---|---|---|---|---|---|
| | | ($ million) | (Rp trillion) | | | |
| Medan Municipal Transport | Under preparation | 891 | 12.4 | 2019 | 2020 | 2021 |
| Semarang LRT | Under preparation | 1,041 | 14.5 | 2019 | 2020 | 2020 |
| Makassar–Parepare Railway | Already tendered | 147 | 2.0 | 2018 | 2019 | 2019 |

*Table 1 Indonesia planned and ongoing PPP Project; ADB (2020)*

However, the ecosystem for PPP for the Indonesia railway is still at a nascent stage (ADB, 2020). Many aspects still need to be considered by the public and private sector in financing the railway development, some of which include the unfamiliarity with risks, insufficient legal framework, and institution preparedness. The development in Indonesia before the recent development of such as the Jakarta MRT and Jakarta-Bandung high-speed railway is highly reliant on the government funding and the state-owned company, the Indonesia Railway Company (PT KAI). Private actors have little involvement in the project, usually participating in some supporting infrastructures or as contractors under the contract. In recent years, Indonesia has also relied on foreign loans to develop their railway and invited several foreign experienced companies to work with supporting institutions that have the potential to be an essential factor in Indonesia. Companies such as the National Electronics Institution (PT LEN), Railway Industry Company (PT INKA), and others are getting more involved; this can lead the charge for future railway growth in the country. While doing this, it also provides many reforms in the legal framework and the development of institutions inside the government body to prepare and adopt private financing in the railway development.

## 1.6 Research Questions and Objective

The Indonesian government is ambitious to develop the railway sector by utilizing a vast amount of private participation in their financing. However, the private sector also considers the possibility and risks for profit generation. Thus, for Indonesia to utilize private financing, we first need to understand how private sectors see railway development as a prospect. Based on the needs above, this research is planned to be able to answer the questions below:

1. What is the existing prospect of private financing for railway development in Indonesia?
2. What policy can influence the private sector to participate in financing railway development in Indonesia?.

To answer the questions above, this research aims to analyze the prospect of private financing in helping to fill the funding gap the government needs for railway development. The author plans to explore several perspectives from the government and private sector perspectives through surveys. This survey is done to understand private sector decision-making in participating in railway development financing, including schemes for participation, risk assessment, financing schemes, government supporting policies, and profit generation potential. To fulfill the research purpose, the author also plans to learn the case of private financing in Japan as a case study through surveys, interviews, and literature reviews.

Chapter II

# Literature Review

## 2.1 Feasibility of Railway Development Projects

During the early stages, even before a railway development project planning, a feasibility study must be done to assess the practicality of the proposed plan or project. The project can be determined as financially and economically feasible by doing a feasibility study. A feasibility study can demonstrate the project's capability to result in a commercially acceptable return for funders. In contrast, for government sectors and other stakeholders, it will demonstrate how the project may achieve an acceptable social or economic rate of return (Hodgkinson, 2015). Thus, it is necessary to consider a railway project's economic and financial feasibility.

Economic feasibility analyzes the benefits and costs of the project to the whole economy. The economic analysis is done to visualize the project's worthiness in the region, considering the various costs and difficulties compared to the overall economic benefits it may provide to the region by the end of the project. Different types of railway projects will secure different combinations of economic benefits, where some are not easily measurable, such as reduced gas emissions, reduced traffic time, and reduced traffic noise.

| Economic Benefit from Different Types of Railway Projects | | | | | | | |
|---|---|---|---|---|---|---|---|
| Project Type | Relevant and Measurable Project Benefits (Economic Appraisal) | | | | | | |
| | Value of Time Saving | Reduced Transportation Costs | Reduced Road Accidents | Generated Traffic | Reduced Road Maintenance Costs | Reduced Greenhouse Gas Emission | Reduced Capacity on Existing Railway Network |
| High Speed Passenger Railway | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ |
| Urban Mass Transit Railway | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| Mixed Traffic Railway (mainly Freight) | | ✓ | ✓ | ✓ | ✓ | ✓ | |

*Table 2 Typical Economic Benefit of Railway Projects (Hodgkinson, 2015)*

Financial feasibility analyzes the project benefits and costs to the enterprise. The feasibility study is done before the project starts using a revenue forecast, financing plan, (DCF) analysis, FIRR, and NPV (Hodgkinson, 2015; Berawi, 2017). DCF will determine the project's financial viability under alternative assumptions concerning (a) revenue generation, (b) project capital and O&M costs, and (c) project financing arrangement. Positive cashflows mainly comprise revenue from collecting passenger fares or freight tariffs. Other sources of revenue might also come from supporting activities such as advertising, retail business in the station areas, and cooperation/partnership with other enterprises. Negative cashflows mainly comprise its capital and operating and maintenance costs.

The most common form of revenue in a railway service is through operational tariffs for passenger or goods transportation services; however, due to a common conundrum between price and demand, it is usually tricky for a railway service to gain profit through tariffs alone. In most cases, a railway network also develops a way to provide a separate Transit-Oriented Development (TOD) as a non-fare revenue source, such as retails inside the area, advertisements, and other deals with neighboring companies or land owners to add to the lack of tariff income. In the planning stage, income from a TOD is usually not included in the financial feasibility study. This is because TOD is usually considered a different business process, separate from the railway operation services (JIC Transport, personal interview, May 2022).

## 2.2 Focused Urban Activities and Spillover Effect

In terms of area development, there are generally two reasons for developing a railway network in specific areas; the first is to create new attractions and generations of people moving across the region. This is done to develop new areas of development in the suburbs, creating generation in the forms of housing and real estate and creating the effect of attraction areas in the form of malls, offices, and schools. The second reason is to function as a supplementary transportation method in an already high-traffic network. In this case, traffics are usually already developed, and transportation will then follow to reduce the existing traffic.

If we take the case of Japan as a case study, they have piqued the interest of private actors through the land value potential of developing a railway and how it can be utilized, including the transferable Floor Area Ratio (FAR). The railway development will generally increase the land value of the area around it (Worldbank, 2014), creating profit for owners and developers. Some railway company also utilizes the development of the railway to increase the land value of their real estate, increasing their profit from housing and railways. Some railway developers could not utilize the FAR given by the law due to station design or landscape changes. However, in Japan, there have been practices where the FAR can be sold to the developers around the area to increase their maximum FAR—making owning the FAR in a railway area similar to property business and increasing owner/developers' profit.

As we can see from the figure on the right about the Den-en-Toshi line in Japan, an increase in the rail business profit is accompanied by an increase in real estate business profit growth for the company. During Japan's high economic growth period, there has been a rise in income level, and a widespread using loan system from public institutions (JTTRI, n.d.). Acknowledging this phenomenon, railway companies took initiatives in the land readjustment program and strategically promoted the real estate business through unified brand concepts. By developing the residential areas along the railway line, they increase the railway demand, and in the end, they increase the land price of the land they own (JTTRI, n.d.). However, due to the complex mechanism, the contribution of transportation development investment to land value increase is hard to be precisely determined.

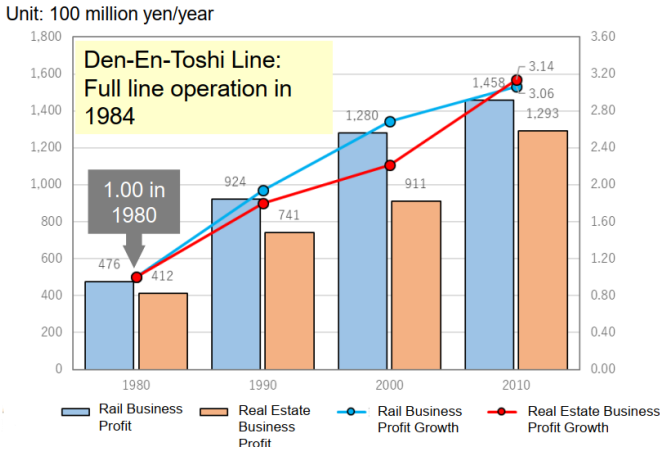


*Figure 4 Den-en Toshi Line Growth*

Source: JTTRI, n.d.

### 2.2.1 Accessibility Benefits

Accessibility can be described as the degree of access to which citizens may reach a variety of opportunities for employment and services (Wachs and Kumagai, 1973). Accessibility is essential in determining a region's functions and performance. Accessibility is often addressed from trip generation and attraction, such as homes to offices, schools, and other sites people may need to go to achieve their necessities. Thus, bearing all things equal, households and businesses tend to prefer to be located around accessibility nodes of urban and regional transport networks, including railway stations and interchanges, making the willingness to pay for the location with higher accessibility and increasing land values increase.

### 2.2.2 Agglomeration Benefits

Agglomeration benefits arise when a spatial concentration of economic activity gives rise to increasing returns in production that are external to the market (Graham and Dender, 2009). Agglomeration addresses the increases in economic productivity of single or combined workers and firms due to a higher density of economic and social activities created by location advantages. Due to the higher densities, events like the increased shared consumers' services

and amenities, increased inputs like labor pools and production processes, as well as information spillovers through face-to-face communication due to the area's high density.

TOD, which creates articulated densities around transit hubs by locating amenities, employment, retail, and housing nearby—is one of the most effective ways to achieve sustainable urban development. Collaborative efforts of municipalities, transit agencies, developers, landowners, and communities can maximize land value increase. In this joint value-creating and sharing exercise, municipalities and transit agencies can contribute significantly to value creation through zoning changes (FARs and land use) or transit investment. The rapid population increase and robust economic growth in rapidly growing cities in developing countries, particularly in middle-income countries, are undoubtedly favorable for development-based Land Value Capture (LVC).

### 2.3 Type of Private Sector Participations

Depending on the project feasibility and the private sector's capability, the kinds of participation they offer might differ. The rail sector is a specific network industry that usually results in a monopoly situation requiring regulations (Weber and Hans, 2010). In the railway sector, there can be railway infrastructure companies that own the network and the railway service operating companies that run either passenger or goods railway transportation services. Thus, there can be a natural monopoly situation held by the railway infrastructure companies since there are significantly more railway service operating companies than railway infrastructure companies.

The two functions of infrastructure and service ownership may be integrated and performed by the same company or two or more companies. Various organizational model, including hybrid form, exists all over the world. Some examples include Deutsche Bahn AG of Germany and JR East in Japan, which are responsible for the network infrastructure and operations. However, Deutsche Bahn is wholly owned by the German Government, while JR East has been a privately owned company since 1987. France, by contrast, has a formal separation between infrastructure and operating companies where the Government owns both. At the same time, the UK has experienced a similar separation but was privatized to promote market ownership.

Even though railway companies are usually publicly owned, several companies have been privatized and operate as stock corporations (Weber and Hans, 2010), including in Indonesia. The government commonly act as the infrastructure owner to remove the

monopolistic nature of the railway network infrastructure to a certain extent by separating the network and railway operation service functions. For the private company, there have been several cases of private sector involvement in the railway sector competing in the railway operating services, and some major private international providers even offer rail services throughout the world like MTR Hongkong.

In that account, we can also see Public-Private Partnership (PPP) in the railway sector on different cooperation scheme like Build Operate Transfer (BOT) or Design Build Finance Operate and Maintain (DBFOM) (Weber and Hans, 2010). A strong government presence in the program reassured other partners that they could rely on the Government to provide resources and funding for program implementation. Acceptable policies, regulations, frameworks, fiscal and nonfiscal support, communication, and government engagement were necessary to hold partners accountable and minimize risks. PPP can also fill as an in-between conventionally tendered government projects and complete privatization (Darrin Grimsey, 2005). Government budget constraints have invigorated them to look for various private sector involvement in delivering railway infrastructure under various models. The concept is to principally allocate part of the investment from the Government to the private sector through the PPP mechanism.

PPP can be done under solicited and unsolicited cooperation. Solicited projects are initiated by the Government, including the identification, planning stage up to project transactions, while unsolicited project proposals are done by business entities without a government sector that covers the activity on the project identification to the planning stage (Soehodho, 2021; Bappenas Regulation No. 4, 2015; World Bank, 2017). The fundamental difference between the two schemes is that the private sector cannot obtain support from the Government in the unsolicited projects, meaning that the project must be financially viable. However, the current PPP eco-system in Indonesia for the railway sector is still in its nascent stage. There is no experience in executing projects in this sector, so it is difficult to avoid taking first-of-a-kind risks.

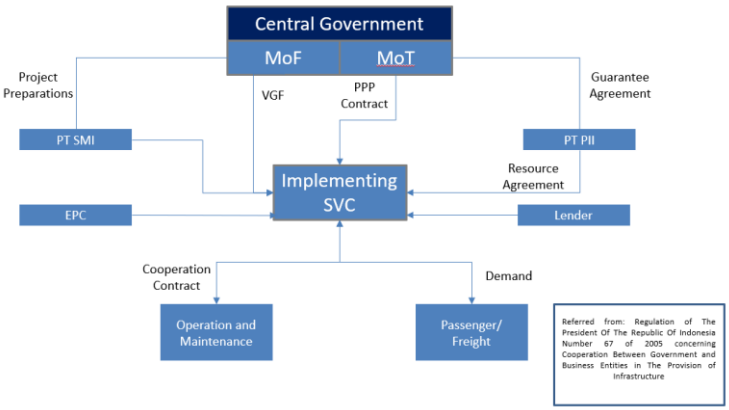


*Figure 5 Current Railway PPP Scheme in Indonesia; DGSIFM, n.d.*

## 2.4 Availability Payment (AP)

To compensate for the lack of dedicated funding, public sectors have turned to availability payments to provide the framework to pay the costs of an infrastructure development contract such as BOT and DBOMF in digestible increments over the contract's life (DGSIFM, n.d; Soehodho, 2021). The concept of Availability Payment is to shift the demand risks from the hand of the private sector to the government sector. This situation satisfies the concept of risk-sharing in PPP, where institutions should handle the risks they are most capable of handling. In this case, the private sector avoids the risks of financial losses from the operations, and the government would cover those risks by giving them a fixed amount of return, while the government ensures the private sector keeps the availability of the infrastructure. Availability payments are given to the private sector irrespective of demand as long as there is pure availability (usable lanes) and constructive availability (safe, clean, well-lit facilities).

Availability payment is a kind of investment return regulated on Bappenas Regulation 4/2015. It is a binding contract between the government contracting agency and the business entity to provide the public service for a periodic payment based on its performance. AP is also regulated in the Indonesian Presidential Regulation Number 38/2015 regarding Public-Private Partnership as an instrument that can be used to return the investment in public infrastructure provision.

Availability payment can be divided into two types (DGSIFM, n.d.); Central and regional availability payment. Central Availability Payment is defined in the Ministry of Finance (MoF) Regulation 260/2016, where the central government budget shall provide central availability payment to PPP projects that fall under several criteria below:

1. Infrastructure projects must provide significant economic and social benefits for the public users.
2. The investment return should not come from the tariff charged to the users, and the government contracting agency cannot consider the revenue included in the AP for the Implementing Business Entity (IBE).
3. The procurement process for the Implementing Business Entity shall be done through a tender process.

Regional Availability Payment, on the other hand, is regulated on the MoHA 96/2016 derived from the Regional State Budget (APBD), the type of return on investment for IBE in

the implementation of Regional PPP may be in the form of Regional AP provided by the respective local government (DGSIFM, n.d.). Regional Budget (APBD) is being allocated in each budgeting year by Government Contracting Agency for AP Payment upon the construction period and the start date of the operation period. Besides that difference, it is also required for the infrastructure projects to provide significant economic and social benefits for the public users, and the return on investment from the project does not come from the users (tariffs) (DGSIFM n.d.).

## 2.5 Key Factors and Risks in Railway Infrastructure Financing

Infrastructure financing has several key factors that drive its financial performance (Chan et al., 2010). In the case of railways, the most vital parameters affecting financial performance are related to the tariff set under the government agreement. The status of the railway as a public service also leads to other risks such as a license to operate, political pressure, and difficulties in exiting the market later on. Other risks to be considered are common in infrastructure financing, which may include: the management of the equity capital, political and currency risks, the costing, and potential revenue streams.

### 2.5.1 Tariff Settings and Passenger Ridership

A tariff is the amount of fare to be charged for the service by the railway service operator to the user and is managed in the Government Regulation 72/2009. Under the Government Regulation, the ministry shall formulate tariff calculation guidelines according to the intended railway service's operational and maintenance costs, revenue, and capital. Based on the type of services, there are two types of tariffs that can be implemented in Indonesia:

a. Passenger Transport Tariff

   Passenger Transport Tariff is the service charge for passenger railway services for each person for every kilometer of travel. The tariff is determined by the railway service operator using the guidelines given by the ministry based on a ridership study. The tariff is then proposed to either the local or central government that provides the license to operate. Thus, the local or central government has the right not to provide a license to operate if the tariff calculation is not according to the set guidelines.

   The local or central government may also decide their own tariff level to secure welfare for the public when and if the public cannot afford the proposed tariff. In this case, the government is responsible for covering the gap between the proposed tariff and the intended new tariff in the form of public service obligations. This is done to

secure the welfare necessary to induce local growth while ensuring the railway service operator can still operate with the necessary tariff to cover the costs.

b. Goods Transport Tariff

Goods Transport Tariff is the service charge for goods railway services for each ton of weight and every kilometer of travel. The tariff can be determined by the railway service operator or through appropriate negotiations with service users according to the guidelines designed by the ministry. The goods transport tariff can be divided into several forms: general goods transport, special goods transport, hazardous substances transport, and hazardous waste transport. The rate will differ depending on the further negotiations between the users and railway service operators.

Control of tariffs gives the government substantial control over the revenue component of the profitability equation, affecting both current earnings and the potential for growth in earnings over time. Establishing clear, objective, reliable, and compensatory tariff regulations could mitigate investors' perception of this risk. In Indonesia, tariff regulation is managed in the Government Regulation 72/2009, which will be further explored later in this thesis.

Tariffs are calculated based on the ridership survey of potential users and their willingness to pay. Generally, tariff decision-making aims to get the highest amount of revenue possible based on each tariff scenario. In Indonesia, the government can have a say in the tariff value and propose a lower value. Usually, this is done to increase the number of users willing to use the transport despite ending up with lower revenue. In this case, the government is required to provide a subsidy to cover the loss from a lower tariff.

Ridership can be optimized by placing the service line near the residential area and by accessibility improvement to the nearby station (Soehodho, 2021). Another method to increase ridership is through mode integration, which increases ridership's possibility of mutual relationships within the transport networks. It is necessary to consider the integration concept in planning a new railway service with existing networks in the pursuit of increasing ridership (Soehodho, 2021).

Private sector can also propose different policies on tariffs price to fulfill the public demands with the government permission. Price discrimination policies are prevalent in transport. They can be categorized by type (students or elderly tariffs), the number of consumers (group discounts), type or volume of freight (cargo rebates for some goods) or by, time in the day or season (peak-load prices), and the use of two-part tariffs (Campos, 1999).

These mechanisms ensure more flexible ways for railway companies to raise their revenues further without much affecting their costs even though their social acceptability and the information requirements of their potential users stand to limit the extent of their application (Campos, 1999.). The most common price control regulations in rail concessions are the rate of return regulation and price cap mechanisms.

### 2.5.2 License to Operate

A license to operate is a permit given by the ministry of transportation to manage the performance of the railway service operator to secure the predetermined standards intended by the government. In Indonesia, licenses to operate are divided into 2, license to operate the infrastructure and license to operate the rolling stock. Even though up till now, infrastructure is owned by the government, railway service operators must also own both licenses to operate and run a serviceable railway line. To be given a license to operate, the railway operating company must fulfill the requirement given by the government while needing approval for the railway operation scheme and report operation activity regularly.

License to operate rollingstock is regulated under the MoT regulation 20/2021, while license to operate railway infrastructure is regulated under the MoT Regulation 22/2021. To acquire these licenses, the company must have done a feasibility study, rolling stocks and infrastructures that have been certified by the ministry through tests, and commitment to having a safety management system. Their railway operation procedure and operating lines also need to be approved by either the ministry of transportation or the local government. The government gives these licenses to operate to secure service level and public welfare for civilians while ensuring control over the railway operation as a public service.

### 2.5.3 Market Exit Risks

Due to a railway system's unique characteristics, another unpopular risk is that if the company would later fail to profit, it is not easy for them to exit the market. In the unfortunate event that a privately operated railway cannot gain revenue in the foreseeable future, it would be complicated for them to exit the market. Even if they stop the railway operations to prevent running costs, they would still stand as liabilities as no companies would be willing to buy a non-profitable railway business. In that sense, the company would have to rely on government support to either provide financial benefit in the form of subsidy or for the government to transfer the ownership to the public sector partly or fully. This is also the case of the UK private railway, which was eventually brought back to the public ownership. This can also be seen in

how several private companies that struggled are either taken over by the government or supported through cooperation scheme like PPP (Wunderlich, 2017).

### 2.5.4 Other Financial Risks and Concerns in Infrastructure Investments

Besides demand risks, other financial aspects exist in every infrastructure investment project, such as asset depreciation, inflations, currency risks, and other liabilities. Railway projects cover several parts, including trackwork, civil structures, electronics, and other assets that can be impaired and depreciate over time, human resources costs, insurance, and other necessary measures in infrastructure development.

These financial considerations can be influenced by the situation of political stability in the country. A country with a more frequent civil dispute, anarchic demonstrations, or even the potential of war, either domestic or international, will increase the risks exponentially for a future investor. Support from political aspects is also critical in various railway projects and is considered one of the project's most important success factors (Smith and Gannon, 2008; Chang et al., 2019). Currency risks are also often considered for private sectors, as payment in fluctuating and even depreciating values can make things difficult for private sectors that need loans (Lawrence & Ollivier, 2014).

## 2.6 Other Relevant Regulations on Railway Financing

Prior to discussing private investment in the railway, it is necessary first to understand the current state of regulation and laws in Indonesia that governs how the railway sector works, how to manage the financing system, and cooperate with the private sector.

### 2.6.1 Modality of Railway Sector

According to Indonesian Law No. 23 of 2007 on Railway, the Railway operator must pay a “Track Access Charge” (TAC) to Railway Infrastructure Implementer to use the infrastructures. However, according to MoT Regulation No. 62/2013 and MoT Regulation No. 84/2016, the Track Access Charge is only allowed to be imposed by the government, making them the sole Railway Infrastructure Implementer, owning the trackways across Indonesia. Railway tracks must be registered as state assets before implementing them by the railway facilities implementer to regard the track access charge as non-tax state income (PNBP). There has been no provision under the current regulations that enable private entities as the railway infrastructure implementer or enable track access charges to be imposed by private entities.

### 2.6.2 Foreign Investment Limitation

Limitations on foreign shareholdings in different sectors are regulated on the Presidential Regulation No. 44 of 2016. Maximum equity investments by foreign owners for the railway sectors are limited to 49% according to the lists from Standard Indonesian Business Field Classifications (KBLI) regulated by the Indonesia Central Bureau of Statistics regulation 95/2019. The government also offers Public-Private Partnership (PPP) scheme for developing infrastructure projects stated under the Presidential Regulation Number No. 38 of 2015 (PR 38/2015) alongside other regulations.

### 2.6.3 Private Sector Scope of Work through Concession or Cooperation

MoT Regulation 15/2016 regulates what scopes of railway infrastructure and facilities implementation may be delivered through a concession scheme or other cooperation forms as detailed below:

- Construction, operation, maintenance, and/or business of new public railway infrastructure
- Operation, maintenance, and/or business of existing public railway infrastructure
- Procurement, operation, maintenance, and/or business of railway facilities
- Operation, maintenance, and/or business of train depot
- Utilization of public railway infrastructure by public/special railway implementers
- Operation, maintenance, and/or business of railway special equipment
- Management and business of train station that has been built/developed and/or operated (existing)
- Special railway that serves activities for public interest in certain circumstances
- Special railway changing status to public railway

### 2.6.4 Government Contracting Agency (GCA)

MoT Regulation 58/2018 states that the Minister of Transport is the GCA for any project in the transportation sector. Based on Law 23 of 2007, the Minister of Transport's role in the railway sector is described as follows:

- Formulating the National Railway Masterplan
- Determining Railway Alignment
- Issuing Railway Business License
- Issuing Railway Development and Operation License

For railway projects, the said regulation allows the Minister of Transport to delegate the authorities to act as GCA to the Directorate-General of Railways. Exclusive to the Jakarta Metropolitan area, the Minister of Transport through MoT Reg. 66/2016 has delegated the implementation of railway infrastructure in the Jakarta Metropolitan area to the Jakarta Metropolitan Area Transportation Management Agency (BPTJ), including the delegation of the role mentioned above.

Chapter III

# Methodology

## 3.1 Research Procedure

To answer the research questions, the author would like to study the current prospect of private railway infrastructure funding through surveys to understand private sector views on the risks and feasibility of a railway development project and the government sector as well as other relevant experts' views on dealing with private funding. Expert surveys are a method that has been used for measuring concepts that permit researchers to create comparable indicators across diverse contextual settings. Surveys with political actors, government institutions, academics, and various kinds of experts have provided scholars with a trove of information about political institutions, processes, and local contexts (Cherie, 2016). This research will be done in several stages to construct a better and more organized concrete understanding:

1. Early stages

   In the early stage of the research, it is essential to understand the current situation and existing potential through literature studies. The author would focus on organizing the research structure, research question, and how the objective of this research can be achieved. By doing so, the survey can also be developed to be aligned with the research objectives. The survey was made using a Likert scale online to make it easier for respondents to fill due to distance difficulties.

2. Surveys

   After the survey are established, the author will survey experts from several local actors in Indonesia with relevant importance towards the railway development. The respondents will consist of experts who stand as their company's representatives in their field or a consensus agreement made by the company's relevant division. By surveying local experts, the author hopes to understand various aspects of private financing in railway development in Indonesia, including incentives, risks, and concerns from both government and the private sector.

3. Results, Interviews, and Discussions

Having received the survey results, the author will then try to analyze the prospect of private financing in railway development from different aspects stated in the survey questionnaire and analyze possible policy implications that may be necessary for Indonesia.

The survey uses a Likert scale to show agreement towards each respondent's statement, with '1' being 'strongly disagree' to '5' 'strongly agree.' The survey is created considering the length and complexity to ensure honest and concrete answers from the respondents.

The survey is described as the table below:

| No. | Topics | Statements | Note | Relevant Literature |
|---|---|---|---|---|
| 1 | Importance of Railway Development in Indonesia | Railway development is essential to improving traffic in the area and will result in a reduced travel time | | Newman (2017) |
| 2 | | Railway development provides amenities that create urban development opportunities | | Newman (2017) |
| 3 | | Areas with railway development make land development plans more efficient due to the more focused urban activities. | | Newman (2017) |
| 4 | | Railway development improves an overall nation-wide productivity. | | Newman (2017) |
| 5 | | Railway development is essential to promoting Indonesia's economic growth. | | Newman (2017) |
| | | | | |
| 6 | Necessity of Private Actors' Participation for Railway Development in Indonesia | It is difficult to cover the cost of railway development solely by government funding. | | DGSIFM (n.d.)<br>JICA (2016) |
| 7 | | Private actors' participation is necessary to achieve the railway development target plan. | | Rahman (2019) |
| 8 | | Private actors' financing can fill the funding gap for railway development projects. | | DGSIFM (n.d.)<br>JICA (2016) |
| 9 | | Private actors can provide higher efficiency through their market-oriented approach to railway service provision than the "welfare approach" by the government. | | Campos (1999) |

| | | | | |
|---|---|---|---|---|
| 10 | Private Actors' Participation for Railway Development in Indonesia | The fact that railway transport is a public service irrespective of its profitability makes it difficult for the private sector to take part in financing. | | Campos (1999) |
| 11 | | Rail freight transport is more feasible for the private sector to finance than passenger rail transport. | | Campos (1999) |
| | | | | |
| 12 | Private Sector Expectation in Indonesia | Financial return and profits are the most important objective for the private sector to pursue when participating in railway development. | | Lawrence & Olivier (2014) |
| 13 | | Private actors would be more willing to participate if the transportation network has already been developed. | A developed railway transportation is when several transportation modes are interconnected to make passenger travel easier from their origin to their destination | Lawrence & Olivier (2014) |
| 14 | | Without an inherent profit potential in railway development, private actors may look for a potential land values increase as a source of future profit. | | Worldbank (2014) |
| 15 | | Private actors would expect financial support from the government if they are to participate. | Financial support may include subsidy, guarantee, and other support to help cover the costs | Lawrence & Olivier (2014) |
| 16 | | Private actors would expect legal support from the government if they are to participate. | Legal support may include adjustment in regulations and policies | Lawrence & Olivier (2014) |
| | | | | |
| 17 | Types of Private Sector Participation | The provision of rail assets and services by private actors may significantly help railway development. | Provision of rollingstock as an asset, and service to operate and maintain the assets. | Lawrence & Ollivier (2014)<br>Worldbank (2014) |
| 18 | | Public-Private Partnership (PPP) can attract private actors due to its potential financial and legal support from the public sector. | | Lawrence & Ollivier (2014)<br>Worldbank (2014)<br>Rahman (2019) |

| | | | | |
|---|---|---|---|---|
| 19 | | The railway with operational profits can mobilize additional private-sector financing from the capital market (bond and equity). | | Lawrence & Ollivier (2014)<br>Worldbank (2014) |
| 20 | | Privately-owned railway projects can be a feasible option if they are expected to be profitable in the foreseeable future. | | Newman (2017) |
| 21 | | Privately-owned railway projects are a feasible option if they have another source of revenue from a future business potential or land value increase through transit-oriented development. | | Newman (2017) |
| | | | | |
| 22 | Risk Considered by Private Actors in Railway Development in Indonesia | Private actors in Indonesia are already familiar with risks in financing a railway project. | | |
| 23 | | Private actors consider tariff setting and ridership levels a high risk for them to earn sufficient returns in the form of interests or dividends. | | Lawrence & Ollivier (2014)<br>Campos (1999) |
| 24 | | License to operate (what operators can and cannot do) issued by the government will limit the flexibility for private railway operations to gain revenue. | | Campos (1999) |
| 25 | | Asset depreciation or impairment is considered as a high risk for maintaining asset value. | | ADB (2014) |
| 26 | | High costs of operation, labor, technology (or lack of), insurance, and safety measures are risks to be considered in financing railway development. | | Campos (1999) |
| 27 | | Land Acquisition during construction is considered as a high risk in financing railway development | | ADB (2020) |
| 28 | | Political risks such as demonstration, civil conflict or war, and market risks such as currency fluctuations are | | Newman (2017) |

| | | | | |
|---|---|---|---|---|
| | Risk Considered by Private Actors in Railway Development in Indonesia | risks to be considered in financing railway development. | | |
| 29 | | The current pandemic is creating financial obstacles for private actors in financing railway development projects | | ADB (2021) |
| 30 | | In the unfortunate case that the railway fails to generate profit in the long run, there is a risk that private actors would need to rely on government support to survive or exit the market. | | Wunderlich (2017) |
| 31 | | Private actors are willing to invest in railway development even if the operation is not inherently profitable but there is potential future profit and 'manageable risks'. | | Newman (2017) |
| | | | | |
| 32 | Public Sector Consideration in Accommodating Private Actors' Participation | In a PPP railway project, government subsidy is essential to gain operational revenue. | | Lawrence & Ollivier (2014)<br>Worldbank (2014)<br>Rahman (2019) |
| 33 | | Privately-owned railway would make it difficult for the government to secure public welfare. | | Campos (1999) |
| 34 | | License to operate given by the government should secure operational levels to satisfy the welfare the government intended to achieve. | | Campos (1999) |
| 35 | | License to operate by the government would be more difficult to enforce towards privately-owned railway. | | Campos (1999) |
| 36 | | The existence of privately-owned railways leads to a more difficult process in expanding the railway network and connectivity due to their competitive nature. | | Campos (1999) |
| | | | | |

*Table 3 Questionnaires*

Survey results are collected using a google form developed by the author based on the table shown above. The surveys are shared through e-mail to each institution's representatives, and the response is collected directly from the google form answer sheets. If any inconsistency from the literature is found within the survey, for further analysis, interviews are also held with some of the respondents that are available and willing to learn more about their points of view.

## 3.2 Respondents Profiling

### 3.2.1 DGSIFM – Ministry of Finance

The Directorate of Government Support and Infrastructure Financing Management (DGSIFM) is a directorate under the Ministry of Finance (MOF) responsible for planning infrastructure financing, especially through private financing. The role of DGSIFM is to boost PPP development by giving government support, undertaking PPP awareness campaigns, and providing capacity building to the Government Contracting Agency (GCA) and other relevant stakeholders. To encourage the use of PPP schemes in these six sectors, the DGSIFM seeks to actively promote the use of PPPs to the Government Contracting Authorities (GCAs) to guide them in developing their project pipeline (DJPPR Webpage). To support this endeavor, the DGSIFM plans to develop a comprehensive and systematic sectoral manual for planning, preparing, and bringing PPP projects to transaction "Manual," which is also being used as a reference for this Thesis (DGSIFM,n.d.).

### 3.2.2 Bappenas (Ministry of National Development Planning)

BAPPENAS, the Ministry of National Development Planning, Republic of Indonesia, is an Indonesian central government institution responsible for formulating a national development plan and budgeting (annual, five-year, and long-term). BAPPENAS is also responsible for coordinating international development (bilateral, unilateral, and multilateral) cooperation. The functions of Bappenas include planning, funding allocation, development management, and acting as an enabler for development projects. For this study, a representative from the Directorate of Development Funding Expansion is tasked to cooperate, synchronize policy actions, monitor, evaluate and control, and compose a cross-sectoral development strategy involving private institutions.

### 3.2.3 DKI Jakarta Department of Transportation

The Railway network is most developed in the Jakarta metropolitan area, making the experience and knowledge of DKI Jakarta department of transportation in the railway development risks and private financing very relevant to learn. As discussed in the literature

review, certain key factors are specific to the railway sector, such as the study, planning, development, and decision of tariffs and other regulations that may influence the business process of a railway company. Department of Transportation in DKI Jakarta has been involved in the planning and cooperation regarding private financing for transportation.

### 3.2.4 PT. Jababeka – a Private Real Estate Developer Company

PT Jababeka is one of the industrial estate developers in Indonesia that offers a wide range of industrial, commercial, and residential real estate along with their complementary infrastructures. They have also experienced massive developing infrastructures to support the business of the estates, such as developing a dry port in Kota Jababeka to facilitate import, export, and domestic distribution activities by occupants of the estate. Similar conditions may also be applied in the railway sector; the railway is also a supporting infrastructure that has a significant power to benefit the real estate business, as previously explained in the literature review of this Thesis. Thus, developing a railway sector that goes through or crosses a real estate area would highly increase its demand and value, providing additional motivation for real estate developers to participate in financing the railway development. PT. Jababeka has also experienced working together with the government sector and has the capabilities of managing a large project such as the railway sector.

This research uses surveys with a representative from the Jababeka group to represent the private sector interests. While their opinion may not necessarily represent other private sectors in Indonesia, I expect that they share similar interests and concerns with other private sectors on private sector financing in railway development.

### 3.2.5 JICA – Japan International Consultants for Transportation Co., Ltd. (JIC) Experts

JICA has been immensely involved in developing a transportation plan in Indonesia, specifically on the Jakarta metropolitan area master plan under the JABODETABEK Urban Transportation Policy Integration (JUTPI) Project Phase 2. They have made several paramount involvements in the development and decision-making of several new railway developments. Their contribution goes beyond railway planning and includes spatial planning, transit-oriented development planning, and integrated urban transportation plans. The JIC experts who participated in this study were involved extensively in developing the JUTPI Phase 2 as an expert. This experience makes the experts involved in the projects understand the case in both Japan and Indonesia, making their views invaluable for this study.

### 3.2.6 Other Consulting Companies – Transportation Experts

Consulting companies often asked for their guidance in deciding on investment opportunities in an infrastructure project. Consultants are often asked to analyze the financial feasibility study through assessments such as the demand forecasts and Discounted Cashflow. The consultants surveyed are experienced in the railway development project. They have experience working with the local government of DKI Jakarta to develop a PPP scheme in a public service infrastructure project.

### 3.2.7 PT Sarana Multi Infrastruktur Indonesia

PT Sarana Multi Infrastruktur Indonesia (SMI) is an institution under the supervision of the Ministry of Finance with the task of providing funding services in the infrastructure development sector. PT SMI tasks comprise supporting the financing, providing consultation services on funding sources and business plans, and helping in PPP project development. PT SMI has experience in accompanying the financing scheme for the BRT – LRT Medan and Halim to Soekarno Hatta Airport PPP Railway project. They also helped the LRT Jakarta project and the elevated loop railway through unsolicited PPP.

## 3.3 Survey Result Processing

Survey result collected from the Google Form is then viewed on spreadsheets and processed using Microsoft excel by the author to provide an easy distinguish output graph. Since there are several respondents with different backgrounds of expertise and viewpoints, it would be unwise to combine them into one data and get the average results since they represent different importance. Thus, it is necessary to interpret the data into three different views, from the private sector, government sectors, and other experts, as they all carry different perspectives in viewing the private sector funding for railway development

Chapter IV

# Results and Discussions

## 4.1 Survey Results

### 4.1.1 Importance of Railway for Indonesian Economy

| Importance of Railway Development in Indonesia | Private Sector | Experts | Experts | Experts | Experts | Government inst. | Government inst. | Government Inst. | Government Inst. |
|---|---|---|---|---|---|---|---|---|---|
| | Jababeka Group | University of Indonesia | Deloitte | Ernst & Young Indonesia | JIC Transport | PT Sarana Multi Infrastruktur (Persero) | Jakarta Transportation Agency | Bappenas | Ministry of Finance |
| Q1 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 3 | 5 |
| Q2 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 4 | 5 |
| Q3 | 5 | 5 | 5 | 5 | 3 | 5 | 4 | 3 | 5 |
| Q4 | 3 | 5 | 5 | 5 | 5 | 3 | 4 | 3 | 5 |
| Q5 | 4 | 4 | 5 | 5 | 5 | 5 | 4 | 3 | 5 |

*Table 4 Importance of Railway Development in Indonesia Survey Results*

The first section is developed to understand whether related parties have a similar understanding of the benefit and importance that a railway system may bring to Indonesia's economic development. From the survey results, it can be inferred that most relevant institutions agree with the benefits of railway development to the country's economic development. The result of this survey is consistent with the literature review of how railway development will induce economic growth by supporting domestic transportation in goods and passenger services.

However, some respondents argue that railway development may not necessarily create more focused urban activities in the area of development. This answer seems not to match the literature. However, it can be perceived as accurate due to many planned urban railway networks in the master plan being in an already well-developed area with high traffic and dense urban development. Although it might be true that retail and other small businesses may appear in the newly developed rail network, significant activities such as offices and malls are already widespread. Thus, new urban activities may not grow that much in the area. Instead, many railways are often planned to cover areas with high travel attractions such as those mentioned above.

### 4.1.2 Necessity of Private Actors Participation for Railway Development

| Importance of Private Actor Participation for Railway Development in Indonesia | Private Sector | Experts | Experts | Experts | Experts | Government inst. | Government inst. | Government Inst. | Government Inst. |
|---|---|---|---|---|---|---|---|---|---|
| | Jababeka Group | University of Indonesia | Deloitte | Ernst & Young Indonesia | JIC Transport | PT Sarana Multi Infrastruktur (Persero) | Jakarta Transportation Agency | Bappenas | Ministry of Finance |
| Q6 | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 | 5 |
| Q7 | 5 | 5 | 4 | 4 | 5 | 5 | 4 | 4 | 5 |
| Q8 | 2 | 4 | 5 | 4 | 3 | 3 | 4 | 4 | 5 |
| Q9 | 5 | 4 | 4 | 4 | 3 | 5 | 4 | 3 | 5 |
| Q10 | 4 | 4 | 3 | 2 | 3 | 5 | 2 | 4 | 5 |
| Q11 | 5 | 2 | 5 | 3 | 3 | 3 | 4 | 2 | 4 |

*Table 5 Importance of Private Participation on Railway Development Project Survey Results*

Having understood the economic benefit that the railway sector brings to this country, this section is developed to understand relevant parties' thoughts on private financing in railway development and whether they are necessary and beneficial to the current state of the railway development market. All parties agreed that it is difficult to finance the railway development solely through government funding and that private sector participation is vital. Of course, this is not surprising since the need for private funding is stated in various documents such as master plans and guidelines, and even the private sector is aware of that need. However, the government and private sector agreed that it would be difficult for private sector financing to fill the funding gap of railway projects due to the high costs, high risks, and nascent stages of participation that would allow many first-time risks to be taken.

Several pieces of literature have argued that private sectors are hesitant to be involved in financing a railway development because they are a public service (Campos, 1999; Lawrence & Ollivier, 2014; Lyckle, 2016). Public control over the rail industry has occurred with accompanying subsidies to support rail transport providers that provide often-unprofitable routes. However, based on this survey, there seems to be a disagreement among experts on whether the railway as a public service would make it difficult to take part in the financing. On the one side, it is normal to assume and agree with the literature that railway as a public service will mean covering unprofitable routes and following the social demand to increase accessibility to as many people as possible. However, the railway operating company has ownership of several areas that can be utilized for TOD to gain non-fare revenue as a return for its financing as well as the benefit of land value increase that may benefit land owners in the area.

### 4.1.3 Private Actors Expectations

| Private Actors' Expectation in Indonesia | Private Sector | Experts | Experts | Experts | Experts | Government inst. | Government inst. | Government Inst. | Government Inst. |
|---|---|---|---|---|---|---|---|---|---|
| | Jababeka Group | University of Indonesia | Deloitte | Ernst & Young Indonesia | JIC Transport | PT Sarana Multi Infrastruktur (Persero) | Jakarta Transportation Agency | Bappenas | Ministry of Finance |
| Q12 | 4 | 4 | 5 | 4 | 3 | 5 | 4 | 5 | 5 |
| Q13 | 2 | 5 | 5 | 5 | 3 | 5 | 2 | 3 | 4 |
| Q14 | 5 | 5 | 4 | 5 | 3 | 2 | 4 | 4 | 4 |
| Q15 | 5 | 4 | 5 | 4 | 1 | 5 | 4 | 5 | 4 |
| Q16 | 5 | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 4 |

*Table 6 Private Actors Expectations on Railway Development Project Survey Results*

This section of the survey hopes to answer the motivation and incentives of private actors if they are to participate in the development of railway sector financing. As expected, private sectors are highly incentivized by the potential financial returns of financing the railway projects. They are not necessarily concerned about whether the transportation network has been developed since it can also be initiated from private sector cooperation (Jababeka Group, personal interview, May 2022). Although, a developed network will increase passenger demand and result in a more stable tariff revenue which is beneficial for the private sector if they are planning to gain a financial return from both tariff and non-tariff revenue. Since they are also highly interested in the prospect of land value increase brought by the developed railway sector, having a well-developed network would also benefit their financial returns.

By financing railway development, Private actors contribute positive externalities toward the public benefits. Due to this fact, it is understandable that both public and private sector agree that there is an expectation for financial and legal support to be received from the government. An expert from JIC understands that financial support from the government for the railway development itself is necessary but comments that it is not necessarily the case for the land development around the area since the private sector would benefit more from single ownership of the area. Legal support is also expected from the government sector, considering the nascent stage of private sector participation in railway financing.

### 4.1.4 Private Actors Participation for Railway Development

| Types of Private Actors' Participation in Indonesia | Private Sector | Experts | Experts | Experts | Experts | Government inst. | Government inst. | Government Inst. | Government Inst. |
|---|---|---|---|---|---|---|---|---|---|
| | Jababeka Group | University of Indonesia | Deloitte | Ernst & Young Indonesia | JIC Transport | PT Sarana Multi Infrastruktur (Persero) | Jakarta Transportation Agency | Bappenas | Ministry of Finance |
| Q17 | 3 | 4 | 4 | 5 | 3 | 5 | 4 | 5 | 4 |
| Q18 | 2 | 5 | 5 | 4 | 3 | 5 | 4 | 5 | 5 |
| Q19 | 2 | 4 | 5 | 4 | 3 | 5 | 4 | 3 | 5 |
| Q20 | 4 | 4 | 5 | 4 | 5 | 3 | 4 | 2 | 2 |
| Q21 | 5 | 5 | 5 | 4 | 5 | 5 | 4 | 2 | 4 |

*Table 7 Types of Private Actors Participation in Indonesia Survey Results*

As discussed in the literature on types of private sector participation, we can expect various ways of private sector involvement in railway development. Either by providing railway operation service and maintenance, cooperation through public-private partnerships, and filling the financing gap through equity. The government sector seems accepting of the three options and highly promotes the concept of public-private partnership as the highest possible approach if we are to expect private financing. A privately owned railway seems highly unlikely in the current situation. However, all respondents agreed that if there is foreseeable profit or a way to cover the loss through non-fare revenue such as TOD, private financing would be incentivized. During the interview, the private sector highlighted how they are very much incentivized by the potential of non-farebox business in the railway business since it can create robust business opportunities that can grow (Jababeka Group, personal interview, May 2022).

Private actors have shown to be willing to participate in financing the railway development if there is foreseeable profit in the future with manageable risks. However, it is interesting to see that according to private actors' responses, they are currently either indifferent or unwilling to participate in any form offered above. "We as an infrastructure development team are still wary of diving into public service financing, especially railway infrastructure" (Jababeka Group, personal interview, May 2022). The government sector and several experts also argue that availability payment should be added to support the PPP to increase the private sector's willingness to participate in the development.

### 4.1.5 Risks Considered by Private Actors

| Risks Considered by Private Actors in Indonesia | Private Sector | Experts | Experts | Experts | Experts | Government inst. | Government inst. | Government Insti. | Government Inst |
|---|---|---|---|---|---|---|---|---|---|
| | Jababeka Infrastruktur | university of indonesia | Deloitte | PT Ernst & Young Indonesia | JIC Transport | PT Sarana Multi Infrastruktur (Persero) | Dinas Perhubungan | Bappenas | Ministry of Finance |
| Q22 | 2 | 2 | 1 | 3 | 3 | 3 | 2 | 2 | 4 |
| Q23 | 5 | 4 | 5 | 4 | 5 | 5 | 4 | 4 | 4 |
| Q24 | 3 | 4 | 1 | 2 | 3 | 5 | 2 | 2 | 2 |
| Q25 | 5 | 4 | 4 | 2 | 3 | 3 | 4 | 4 | 4 |
| Q26 | 5 | 4 | 5 | 4 | 5 | 2 | 4 | 5 | 5 |
| Q27 | 5 | 4 | 5 | 5 | 3 | 5 | 3 | 3 | 5 |
| Q28 | 5 | 4 | 4 | 5 | 5 | 3 | 4 | 5 | 5 |
| Q29 | 2 | 4 | 5 | 2 | 5 | 3 | 3 | 5 | 5 |
| Q30 | 5 | 5 | 5 | 4 | 3 | 5 | 4 | 1 | 5 |
| Q31 | 2 | 2 | 2 | 4 | 3 | 2 | 4 | 1 | 2 |

*Table 8 Risks Considered by Private Actors Survey Results*

To better understand the private sector decision making, it is essential to consider what risks can be considered difficult to face and how they affect their decision to participate. Like

many other infrastructure development projects, risks are an essential aspect that decides the final decision of financing and responsibility sharing in a PPP cooperation.

Naturally, demand risks coming from the tariff settings and ridership level are considered high risk for their potential return in the railway sector. Other risk considerations, including asset depreciation, political risks, currency risks, operational costs, market exit, and land acquisitions, are considered. Even though the government sector is responsible for acquiring a land acquisition deal, a delay in the deal will also result in a delayed construction project. This means that even though the risk has been shifted, it is not necessarily gone from the private sector's viewpoint. The current pandemic was also considered to be a hindering aspect that may create a financial obstacle for private sector financing in railways. The response shows different arguments, but the private sector seems unbothered by the fact.

Another point of this survey is that private actors would not be willing to invest in a railway project without foreseeable profit, even with manageable risk. The government sector working for private financings like Bappenas and MoF also understood that demand risks are the primary concern of the private sector. After a follow-up interview with several experts and government actors, it is presumed that the availability payment is a positive way to shift the demand risks to the government sector, thus increasing the willingness of the private sector to participate. To confirm this, we did another additional survey and interviews with the private sector and several government actors on how it affects their decision-making.

### 4.1.6 Public Sector Consideration in Accommodating Private Financing

| Public-Sector Considerations in Accommodating Private Actors' Participation | Private Sector | Experts | Experts | Experts | Experts | Government inst. | Government inst. | Government Insti. | Government Inst |
|---|---|---|---|---|---|---|---|---|---|
| | Jababeka Infrastruktur | university of indonesia | Deloitte | PT Ernst & Young Indonesia | JIC Transport | PT Sarana Multi Infrastruktur (Persero) | Dinas Perhubungan | Bappenas | Ministry of Finance |
| Q32 | 5 | 5 | 5 | 3 | 3 | 5 | 4 | 2 | 5 |
| Q33 | 4 | 2 | 4 | 2 | 1 | 2 | 2 | 5 | 1 |
| Q34 | 2 | 5 | 3 | 4 | 5 | 5 | 4 | 4 | 5 |
| Q35 | 2 | 2 | 4 | 2 | 3 | 3 | 2 | 5 | 4 |
| Q36 | 4 | 2 | 3 | 2 | 3 | 2 | 2 | 5 | 5 |

*Table 9 Public Sector Consideration in Accommodating Private Actors Survey Result*

The government sector seems to highly value control over the public services to secure welfare. Yet, as previous survey result suggests, they also understood that the private sector must participate in the development that may lead to them having control over the public service. The survey shows that the government sector disagrees with the statement that public welfare would be difficult to achieve if the private sector ran the railway. This is since the

government can still secure the necessary service level and through requirement in providing license to operate and tariff level.

License to operate is considered an essential factor to secure public welfare, and as stated in the literature review, any railway operation service is not allowed without a license from either the ministry of transportation or relevant local government officials. There are disagreements as to whether the license to operate is harder to enforce in the private sector or not. However, this question is relevant to Q29, where most sectors from government, private, and experts agreed that license to operate should not hinder private sector capability to gain revenue. Meaning that there is no reason for the private sector to evade the rules and requirements stated when given the license to operate.

### 4.1.7 Follow-up Survey on Availability Payment

| Additional Surveys: "The benefit of Availability Payment given by the government for the private sector outweight the loss of revenue source" | Private Sector | Experts | Government inst. | Government Inst. | Government Inst |
|---|---|---|---|---|---|
| | Jababeka Infrastruktur | University of indonesia | PT Sarana Multi Infrastruktur (Persero) | Bappenas | Ministry of Finance |
| | 2 | 4 | 5 | 4 | 4 |

*Table 10 Views on Availability Payments*

After gathering the responses from several experts and government institutions, several government experts (PT SMI, Academia, and MoF) do not believe private actors would be willing to participate in private financing like PPP without the promotion of availability payment as a measure to reduce the risks for the private sector. However, there seems to be a discrepancy between the government's views with those of the private sector. When interviewed, the private sector admits that even with a pre-determined return, the capital needed for developing the railway sector is relatively huge, while to gain availability payment, it is necessary for the development to finish and run with an acceptable rate of availability and performance initially agreed upon. This means they must take a leap of faith in facing those risks before the return from availability payment.

## 4.2 Discussions Points

### 4.2.1 Value of Non-Farebox Revenue

Even though tariff is a considerable aspect of the railway business, it is also essential to consider non-farebox revenue as an additional benefit of operating the railway system. This excess revenue can stem from a separate business entity to develop the TOD areas, including

retails, hotels, advertisements distribution, real estate and other business opportunities, to cross-subsidy the potential loss of the railway sector or even grow as a separate business. TOD is an urban planning principle that promotes urban development along with transit stations. If we take the case of Japan railways as a case study, we can see that their non-farebox revenue is a huge part of their business process, as can be seen in the table below:

| Railway Companies | | Railway Business | Non – Railway Business | Total |
|---|---|---|---|---|
| JR East Group | Revenue Ratio | 68% | 32% | 100% |
| JR West Group | Revenue Ratio | 62% | 38% | 100% |
| Tokyo Metro | Revenue Ratio | 88% | 12% | 100% |
| Tokyu Group | Revenue Ratio | 18% | 82% | 100% |
| Hankyu Hanshin | Revenue Ratio | 30% | 70% | 100% |

*Table 11 Japan Railway Revenue by Source (秋村成一郎, 2022)*

The non-railway business of JR group usually from businesses inside their areas such as retails, restaurants, and shopping area in the concourse or transition areas between stations that people go through every day. Meanwhile, Tokyo Metro has very limited space to develop non-railway business due to being a subway and having very little space for non-farebox development. Major real estate business owners like Hankyu Hanshin and Tokyu gain their non-fare revenue from several sources such as the real estate business, lifestyle service business, and other entertainment, hotel, and resorts which is important for the company's livelihood. This is especially true during decreasing demand due to the pandemic (Hankyu Hanshin Fiscal Report, 2021; Tokyu Fiscal Report, 2020). Urban transit will serve not only current residents but will guide the settlement of future populations. Landowners, together with a developer, can establish cooperative entities to consolidate and develop buildings with new access roads and open space. Landholders, tenants, and developers can also create development opportunities inside the built-up areas, typically where transit station exists or has newly opened. Optimizing TOD will provide economic and financial value for the public and private sectors.

### 4.2.2 Land Value Capture as Innovative Infrastructure Funding

Land Value Capture (LVC) can also be used to support infrastructure financing as a financial and regulatory mechanism by which the proceeds from increased land value will be spent for financing infrastructure development. Landowners pool their land together for reconfiguration and contribute a portion for sale to raise funds to pay for public infrastructure. This can be used as an instrument to finance transit lines and station development. To guarantee

a successful integration of land value capture in the railway sector, there needs to be supporting legal and institutional frameworks such as the zoning law and specialized urban development agency, as well as promoting cooperation not only with the private sector but also with land owners and local governments.

Implementing a land value capture policy will be beneficial through various means. Creating an LVC policy framework will push the government to provide a way to calculate and share the economic and commercial benefits across different parts of government. Implementing the value capture principle can also provide a more robust approach in planning economic corridors around a public transport area and thus can increase the private sector's confidence in financing the infrastructure from the additional return on investments (ADB, 2021). After development, this can help during the infrastructure project planning phase to create economic uplift from the land value capture. Control and monitoring that should arise from this approach will provide enhanced fiscal discipline and stability. (ADB, 2021).

### 4.2.3 Demand Risks

As previously discussed in the literature review and seen in the survey results, demand risks are one of the vital risks considered by a railway service operator to secure revenue from the tariffs previously agreed with the government. Besides technical reasons for how ridership surveys are often overestimated, there are various aspects like political pressure to accelerate the project or other various uncertainties.

Ridership surveys are still a significant factor in why demand risks are considered very high. Passenger forecasts are overestimated for nine out of ten rail projects; the average overestimation is 106%. For 72% of rail projects, forecasts are overestimated by more than two-thirds (Flyvbjerg et al., 2006). The misprediction from surveys can come from a lack of relevant or updated data; for example, ridership surveys that are done during the construction period can lead to a higher traffic along the route. A survey done in this environment will result in an overestimation. More people seem to want to use the railway merely due to the worsened traffic condition and high expectations and excitement towards the new railways. Previous studies on MRT Jakarta were done in 2010, when popular public transportation such as Gojek, Uber, and Grab was new and not yet widespread, leading to an overestimation. Even if the ridership estimation is accurate, it is very challenging for the tariff revenue to cover the costs of operating and maintaining the railway operation service.

An overestimation of demand can prove fatal if the private sector solely owns the risks. If a project that was thought to be financially feasible at the planning stage turned out to be not true, the private sector would have difficulties covering the loss. Then, related to market exit risks, it would be difficult for them to exit the market and sell the business elsewhere besides the government, which would also not want the operation to stop. Nevertheless, this situation is terrible for both the public and private sectors. Then, there are other unpredictable risks that may affect the average demand that can impact private sector profitability, such as the pandemic. During the early days of the pandemic, many railways sector ridership was reduced significantly while not being able to reduce the operation and maintenance costs that much. Because of this, JR East highly relies on non-fare businesses to cover the loss during the pandemic for survivability (JIC Transport, personal interview, May 2022).

### 4.2.4 PPP and Availability Payment to Shift Demand Risk

PPP seems to be a step in the right direction toward increasing private participation in railway development. PPPs should create value for all participants. When the public and private sectors work together in a PPP, the PPP must generate value for both parties to be sustainable. The public sector may benefit from the private sector's market responsiveness, cost efficiency, technological know-how, or financial capacity. The private sector may benefit from the public sector's existing assets, exclusive right to operate services, knowledgeable staff, access to resources, or ability to manage specific risks. An investor should require viable financial feasibility for a railway PPP project. This situation is very rare for urban rail transit projects that rely only on the fare revenue. Therefore, financial feasibility is vital in designing a specific PPP model to adapt to the project situation (Soehodho, 2021). Many railway projects are economically feasible for the government to enact but are usually not financially feasible due to difficulties in gaining returns.

The party best able should take risks in PPPs to manage them. In structuring a PPP, the public sector can manage certain risks (e.g., land acquisition and demand risks). In contrast, the private sector may excel at managing other risks (e.g., technical risks). Successful PPPs share the risks so that the party best able to manage them has the responsibility and incentive to do so (Lawrence & Ollivier, 2014). The government sector understands that private sectors are unwilling to participate in railway development due to its low RoI and long payback period and the existing high demand risks due to tariff settings and ridership. Availability payment is meant to deal with just that; by making a predetermined rate of return agreed by both sectors,

the government will pay a fixed rate of return to the private sector. However, any tariffs and non-tariff revenue from the operations will go directly to the government.

| Risk Type | Private | Public | Shared | Comments |
|---|---|---|---|---|
| Demand | | ✓ | | With AP, the demand risk, revenue collection risks and tariffs risk are held by the public sector |
| Revenue Collection | | ✓ | | |
| Tariff | | ✓ | | |
| Availability | ✓ | | | |
| Performance | ✓ | | | |
| Environment and Social | | | ✓ | |
| Land Acquisition | | ✓ | | Land acquisition is a slow and complex process in Indonesia; the private sector has no appetite to take the risks. |
| Interface | | | ✓ | |
| Handover | | | ✓ | |
| Political | | | ✓ | |
| Currency | | | ✓ | |

*Table 12 Risk sharing under AP scheme; Source ADB, 2021 (modified)*

There are several benefits of using the availability payment scheme. The most obvious, as stated above, is the government sector's handling of the demand risks. The private sector would have known their projected return on investment early before the project started, making them capable of preparing for long-term financial planning. The government will also secure continuous revenue and benefit from the infrastructure relevant to the initial contract and the potential to control and develop it further without dealing with private ownership. It may seem perfect; however, there are some known challenges in the application for both the private and public sectors.

Private actors in an AP agreement are evaluated each period on the availability of the facilities and services as well as the performance of the private sector. This means that the private sector needs to fulfill a certain level of standards, where if it's not achieved, there will be deductions for non-compliance and credits for enhanced performance. Availabilities standards usually depend on the agreements but generally include the availability of facilities, safety, and condition of assets. While performance standards typically include operation performance, securities, emergency response, and customer satisfaction. The requirements for both availabilities and performance

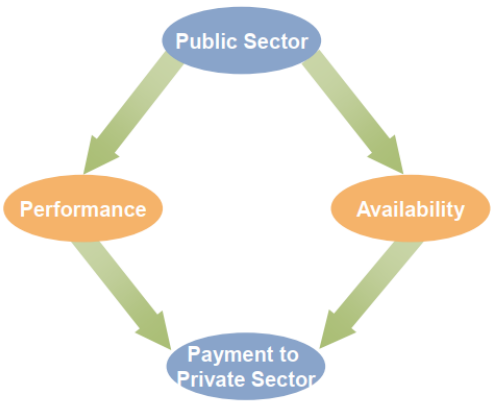


*Figure 6 AP Evaluation Scheme; source: KPMG report, 2009*

are previously agreed during the contract phase between the public and private sector to secure a fair deal.

Another difficulty that can arise comes from the question of how much should be paid in the AP scheme? Although it seems beneficial for both parties, we need to understand that to gain the private sector's interests to participate, and the government must propose a high value of payment than they would otherwise get. This also aligns with a railway project's high project capital expenditure. This means AP would be significantly expensive for the government to pay, and local government entities normally cannot cover such costs.

Chapter V

# Conclusion

## 5.1 Learning Points

The survey results resembled the literature that private sectors seem unwilling to participate in railway sector financing for various reasons, including the high demand risks, low rate of return, and long expected payback period. Private financing for the railway is also not financially interesting for the private sector in Indonesia due to the high risks across the board and lack of experience in dealing with those risks. The nascent stages of participation of the private sector in railway development would also allow several first-time risks necessary to be taken. However, there seems to be a willingness for the private sector to develop the non-farebox revenue, as they can provide more robust and consistent business opportunities (Jababeka Group, personal interview, May 2022). Therefore, exploring options to increase non-farebox business opportunities for railway operator might be necessary for future studies.

Even though it may not yet be intriguing enough for the private sector to finance the railway development, the private and public sectors seem to agree that cooperation through PPP would benefit both parties in pursuing the railway development. Cooperation with each other is deemed necessary; the government sector needs the financial supplement from the private sector, while the private sector as a profit-seeking entity can benefit from the financial and legal support given by the government. The government also believes that the private sector should be able to run public services without difficulties nor would hinder the target of achieving public welfare. Even though the government would prefer all public services to be handled by them, they understood that it would be difficult for them to generate funding. Instead, they can rely on private sector funding while securing welfare through utilizing license to operate published by relevant government actors.

In pursuing more private sector participation, government institutions under the Ministry of Finance tried to promote PPP to gain private sector involvement in railway infrastructure financing. The main benefit of using the PPP scheme is the shared risks between private and public sectors, while it also provides the opportunity for the private sector to rely on financial and legal support from the government. Unfortunately, the private sector still seems hesitant, considering the various risks are tricky to handle, even in the form of PPP. To further support the PPP scheme and increase the appetite of the private sector, availability Payment is proposed by several government agents for the private sector to elude the demand risks.

Although it seems like a suitable solution, the government would also face difficulties in covering the costs of AP to the private sector due to the high capital expenditure needed. This situation would also make it difficult for regional availability payment to be applied for a railway development project since the local government usually has limited financial capabilities. From the private sector's point of view, due to lack of experience in railway development, they are also not confident in taking a railway development project using their funding. Private sectors consider the initial risks of participating in AP still too high, added with the expected high service level of availability and performance will be required by the government as the AP requirement will make the return uncertain and full of additional operational risks.

## 5.2 Possible Policy Implications

To attract the private sector's appetite for non-farebox business opportunities, the government may need to consider transferrable development rights/floor area ratio as one way to provide business opportunities for the private sector. Enabling a transferrable floor area ratio may increase the private sector's appetite to be involved in railway sector financing (JIC, personal interview, May 2022). This has been the case with several Japanese railway companies that develops business opportunities by utilizing the transferrable development rights stated in the urban development laws. The development of GranTokyo and making money to restore the Tokyo Station building were realized by transferring the unused volume part of the Tokyo Station (Omote, 2022). Having a transferrable development right would allow railway companies to transfer unused areas to nearby real estate owners as if selling a land area.

From the survey results and interviews, it seems clear that the private sector is wary of financing a substantial public service infrastructure like the railway sector, even in the form of PPP and supported by availability payment. Providing the private sector in Indonesia with

further exposure can be important to grow from this nascent stage. Experience through cooperation like the joint venture with experienced foreign companies, considering the foreign investment limitation, maybe a suitable way to pursue this; doing so would reduce the relative risks they take. Having a more experienced private sector environment would also be likely to increase their appetite to participate in future projects. However, relying on cooperation with foreign companies can be challenging for both the private and public sectors. To deal with the high costs of AP that need to be paid by the government due to the high initial capital expenditure of the private sector, it is a reasonable option to limit the amount of private financing in a project (PT SMI, personal interview, May 2022). By doing this, it will still secure a certain amount of private funds to support the railway development project while at the same time reducing the total burden of private actors, as well as reducing the future availability of payment need to be paid by the government. However, this means that the government needs to find other measures to fund the railway infrastructure project capital, either from the government budget or other sources like utilizing the land value capture of land owners.

Finally, the government may need to seek further proper PPP scheme with availability payment that can be beneficial through analyzing the private sector roles in infrastructure development. One intriguing practice, Soehodho (2021), analyzes a hybrid combination of PPP with availability payment of only five years compared to conventional concessions. This way, the government only pays AP for the first five years, and the business entity would gain help to survive in the early stage to build a strong foundation for after there are no longer availability payment where they need to survive from both farebox and non-farebox revenue. Close cooperation between public and private sector would be necessary to establish a more beneficial PPP scheme.

To conclude, this thesis is expected to serve as a baseline for the current views on potential railway development financing from both the private and public sectors in Indonesia. I expect further exploration of various key aspects that can influence the motivation and incentives of the private sector to be necessary for future developments.

## Bibliography:


1. ADB. 2014. “Rail Infrastructure Tariffs; enabling private sector Development in Mongolia’s railway sector”
2. ADB. 2020. “Public-Private Partnership Monitor: Indonesia”. https://doi.org/10.22617/SGP210069-2
3. ADB. 2021. “INNOVATIVE INFRASTRUCTURE FINANCING THROUGH VALUE CAPTURE IN INDONESIA”. https://doi.org/10.22617/SGP210069-2
4. Berawi, Mohammed. 2018. "Improving Feasibility of High-Speed Train Project: Creating Added Value" In Modern Railway Engineering, edited by Ali Hessami. London: IntechOpen, 2018. 10.5772/intechopen.74288
5. BPS Statistics Indonesia. 2017. “Railway Passenger/year data” https://www.bps.go.id/indicator/17/72/4/jumlah-penumpang-kereta-api.html
6. BPS Statistics Indonesia. 2017. “Railway tons of goods/year data” https://www.bps.go.id/indicator/17/73/4/jumlah-barang-melalui-transportasi-kereta-api-menurut-pulau.html
7. BPS Statistics Indonesia. 2017. “Total Rail Length in Indonesia” https://www.bps.go.id/indikator/indikator/view_data/0000/data/1195/sdgs_9/1
8. Campos, J. and Cantos Sánchez, P.. 1999. “Regulating privatized rail transport”. Available at SSRN 620543.
9. Chan, A. P., Lam, P. T., Chan, D. W., Cheung, E., & Ke, Y. 2010. “Critical success factors for PPPs in infrastructure developments: Chinese perspective”. Journal of construction engineering and management, 136(5), 484.
10. Chang, Tengyuan & Deng, Xiaopeng & Hwang, Bon-Gang. 2019. “Investigating Political Risk Paths in International High-Speed Railway Projects: The Case of Chinese International Contractors”. Sustainability. 11. 4157. 10.3390/su11154157.
11. Directorate of Government Support and Infrastructure Financing Management, Ministry of Finance, n.d. “TRANSPORT SECTOR: Final Sector Review Report”,
12. Flyvbjerg, Bent & Skamris, Mette & Buhl, Søren. 2006. “Inaccuracy in Traffic Forecasts”. Transport Reviews. 26. 1-24. 10.1080/01441640500124779.
13. Government Regulation No. 72 of 2009. Traffic and Railway Transportation
14. Graham, J. Daniel, Van Dender, Kurt. 1973. “Estimating the agglomeration benefits of transport investments: some tests for stability”, No.2009-32, OECD Discussion Paper

15. Grimsey, Darrin & Lewis, M.K.. 2005. “Are Public Private Partnerships Value for Money? Evaluating Alternative Approaches and Comparing Academic and Practitioner Views”. Accounting Forum. 29. 345-378. 10.1016/j.accfor.2005.01.001.
16. Hankyu Hanshin Holdings Group. 2021. Results Briefing Materials for Financial Results for the First Half of Fiscal 2022 https://www.hankyu-hanshin.co.jp/docs/88cc6df9da5e6d6dc57b7c76bd6ffcdb4373fe7e.pdf\
17. Hodgkinson, Peter. 2015. “Undertaking feasibility studies of railway projects and railway traffic costing”, UNESCAP https://www.adb.org/sites/default/files/publication/31216/rail-infrastructure-tariffs-mongolia.pdf
18. Indonesian Law No. 23 of 2007. Railway
19. Japan Transport and Tourism Research Institute, “Railway and Area Development” in JTTRI International Seminar on Railway and Area Development in Bangkok, Manila, Jakarta.
20. JICA. 2016, "The Study on Integrated Transport Master Plan for JABOTABEK (Phase I)
21. KPMG. 2009. Availability Payment Mechanisms For Transit Projects.
22. Lawrence, Martha; Ollivier, Gerald. 2014. “Private Capital for Railway Development”. China Transport Topics;No. 10. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/25482 License: CC BY 3.0 IGO.”
23. Lyckle. (2016). “The Railway Market in Japan”. http://www.EUbusinessinJapan.eu
24. Maestas, Cherie D. 2018. “Expert Surveys and a Measurement Tool: Challenges and New Frontiers” *in* R. Michael Alvarez and Lonna Rae Atkeson *Handbook of Polling and Polling Methods.* Oxford, UK: Oxford University Press.
25. Martin Wachs, T.Gordon Kumagai. 1973. “Physical accessibility as a social indicator”, Socio-Economic Planning Sciences, Volume 7, Issue 5, Pages 437-456, ISSN 0038-0121, https://doi.org/10.1016/0038-0121(73)90041-4.
26. Matsushita, H., & Morichi, S. 2019. “Risk Analysis of PPP Urban Railway Projects in Asia”. In Journal of the Eastern Asia Society for Transportation Studies (Vol. 13).
27. Ministry of Finance Regulation No. 260 of 2016. Payment Procedures for Service Availability in Public Private Partnership for Infrastructure Provision.
28. Ministry of Home Affairs Regulation No. 96 of 2016. Availability Payment Service
29. Ministry of National Development Planning of the Republic of Indonesia (Bappenas) Regulation No. 4 of 2015.

30. Ministry of Transportation - Directorate General of Railways. 2015. “Join UNESCAP, UIC Seminar for Railway Costing”
31. Ministry of Transportation regulation No. 15 of 2016. Concessions and Other Forms of Cooperation Between Governments and Business Entities in the Public Railways
32. Ministry of Transportation Regulation No. 20 of 2021. Licensing for the Operation of Public Railway Facilities
33. Ministry of Transportation Regulation No. 22 of 2021. Licensing for the Operation of Public Railway Infrastructures
34. Ministry of Transportation regulation No. 58 of 2018. Procedures for Implementing Public-Private Partnerships in the Provision of Transportation Infrastructure under the Ministry of Transportation
35. Ministry of Transportation regulation No. 62 of 2013. Guidelines for the Calculation on the Usage of State-Owned Railway Infrastructure Costs.
36. Ministry of Transportation regulation No. 66 of 2016. Delegation of Authority from the Minister of Transportation to Heads of Transportation Management Agency for Jakarta, Bogor, Depok, Tangerang and Bekasi
37. Ministry of Transportation regulation No. 84 of 2016. Instructions for the Implementation of Types and Tariffs on Types of Non-Tax State Revenues Applicable at the Directorate General of Railways
38. Ministry of Transportation, Ministerial Regulation No. 43 of 2011 Indonesia National Railway Master Plan. https://jdih.dephub.go.id/assets/uudocs/permen/2011/pm._no._43_tahun_2011.pdf
39. Nakamura, K.. 1996. “Privatization and Beyond: The JR Case Restructuring Railways (part 2) Privatization policy in retrospect”. In *Japan Railway & Transport Review*.
40. Newman, P., Davies-Slate, S., & Jones, E.. 2018. “The Entrepreneur Rail Model: Funding urban rail through majority private investment in urban regeneration”. *Research in Transportation Economics*, *67*, 19–28. https://doi.org/10.1016/j.retrec.2017.04.005
41. Omote,Teruyuki, (2022), “JR East’s Real Estate Development Strategy"
42. Persatuan Insinyur Indonesia (PII). N.d. Indonesia National Railway Policies and Development Programs
43. PPP Knowledge Lab, “Rail” accessed from https://pppknowledgelab.org/sectors/rail
44. Presidential regulation No. 38 of 2015. Public Private Partnership in Infrastructure Provision

45. Presidential regulation No. 44 of 2015. List of Business Entity and Open Business Fields with Requirements in the Investment Sector
46. Rahman, Herawati Z., Perdana Miraj, and Azaria Andreas. 2019. "Exploring Public–Private Partnership Scheme in Operation and Maintenance Stage of Railway Project" Sustainability 11, no. 22: 6517. https://doi.org/10.3390/su11226517
47. Robert, Osei-Kyei & Chan, Albert. 2015. "Review of studies on the Critical Success Factors for Public–Private Partnership (PPP) projects from 1990 to 2013". International Journal of Project Management. 33. 10.1016/j.ijproman.2015.02.008.
48. S&P Global Ratings. 2022 "Indonesia Outlook Revised To Stable From Negative; 'BBB/A-2' Ratings Affirmed" https://www.bi.go.id/id/publikasi/ruang-media/news-release/Documents/sp_2411722_Lampiran.pdf
49. Smith, N. J & Gannon, M.. 2008. "Political risk in light rail transit PPP projects". Proceedings of the ICE - Management, Procurement and Law. 161. 10.1680/mpal.2008.161.4.179.
50. Soehodho, Soetanto; Ambarsari, Retno; Ayu, Talitha. 2021. "How PPP Approach can be implemented for Jakarta LRT Development: An Unsolicited Proposal for Development of LRT Jakarta", Eastern Asia Society for Transportation Studies, Volume 13
51. Takahashi, N. 2019. "Japanese National Railways' financing schemes and bankruptcy". *Annals of Business Administrative Science*, *18*(6), 263–276. https://doi.org/10.7880/abas.0191117a
52. Tokyu Corporation. 2020. Consolidated Financial Statements https://www.tokyu.co.jp/ir/english/upload_file/m002-m002_04/03_tanashin_e2_202103.pdf
53. Weber, Barbara & Alfen, H. Wilhelm. 2010. Infrastructure as an Asset Class; Investment Strategies, Project Finance, and PPP, 95-102
54. Wei, Gongding & Li, Xuemei. 2018. "The spatial spillover effect of High speed railway on the Beijing-Shanghai HSR economic zone". 10.2991/iceep-18.2018.46.
55. Worldbank, (2022), "Indonesia Country Overview" https://www.worldbank.org/en/country/indonesia/overview
56. Worldbank. (2014), Financing Transit-Oriented Development with Land Values. https://openknowledge.worldbank.org/handle/10986/2174

57. Worldbank. 2021. International Bank For Reconstruction And Development International Finance Corporation Multilateral Investment Guarantee Agency Country Partnership Framework For The Republic Of Indonesia For The Period Fy21-Fy25
58. Worldometers, (2022). "World Population-Indonesia Population" https://www.worldometers.info/world-population/indonesia-population/
59. Wunderlich, Wilfried & Mayer, Oliver. 2017. 'PPP in Japan's Railway System – A Success Story". International Transportation (Internationales Verkehrswesen). 69. 21-25.
60. Yoshino, Nakahigashi, & Pontines. 2017. "Infrastructure Financing through Private Funds Attract Private Financing to Infrastructure Investment by Injecting Spillover Tax Revenues Economic Effects of Infrastructure Investment Need for Infrastructure Investment". https://doi.org/10.5923/j
61. 秋村成一郎. (2022). 駅周辺整備の考察と展望(第 2 回)日本の駅周辺整備の特徴. *JREA*, *65*(3), 45886–45889. https://cir.nii.ac.jp/crid/1520573331297198208.bib?lang=en