

LOAN EVALUATION FOR TOLL ROAD SEGMENT THROUGH FEASIBILITY STUDY (THE CASE STUDY OF PT B)

Thesis

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FOREWORD

The author would like to praise to the presence of Allah SWT for the abundance of blessings, health, and safety this study can be completed well.

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stakeholders, particularly those directly engaged with the subject matter and research focus.

Jakarta, October 2023

Author

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ABSTRAK

Infrastruktur jalan tol di Pulau Jawa memainkan peran penting dalam meningkatkan konektivitas, sejalan dengan program pemerintah untuk memperkuat investasi dalam rute tol. PT B sebagai entitas swasta, mendukung inisiatif ini dan telah melakukan pembangunan jalan tol yang mulai beroperasi pada tahun 2018. Namun, tahun 2021 terdapat penurunan pendapatan yang disebabkan oleh pandemi COVID-19, yang mempengaruhi keberlanjutan usaha jalan tol. Menghadapi tantangan ini, diperlukan tinjauan kembali terhadap kelayakan investasi untuk menilai kemampuan jalan tol dalam menghasilkan keuntungan dan membayar kewajibannya. Metode Capital Budgeting, termasuk Net Present Value (NPV), Internal Rate of Return (IRR), dan Payback Period (PP), digunakan untuk melakukan evaluasi kembali terhadap kelayakan investasi jalan tol yang dikembangkan oleh PT B.

Kata Kunci: *Toll Road, Capital Budgeting, NPV, IRR, PP*

ABSTRACT

The infrastructure of toll roads on Java Island plays a crucial role in enhancing connectivity, aligning with the government's emphasis on bolstering investments in toll routes. PT B, as a private entity, supports this initiative and has undertaken the construction of toll roads that commenced operations in 2018. However, the year 2021 witnessed decrease in revenue due to Covid-19, posing a threat to the sustainability of toll business. In light of these challenges, a comprehensive review of the investment feasibility becomes imperative to assess the toll road's capacity to generate profits and its repayment capacity. Capital budgeting methods, including Net Present Value (NPV), Internal Rate of Return (IRR), and Payback Period (PP), are employed to evaluate the investment viability of the toll road developed by PT B.

Key Words: Toll Road, Capital Budgeting, NPV, IRR, PP

CHAPTER 1

INTRODUCTION

The first chapter explain the background problem of research, research problem, research question, research purposes, research benefits, and determine the limitation of the study which will be discussed in research scope.

1.1 Background Problem

Capital budgeting is the decision-making process or investment analysis used to identify projects that add value to the firm. It can also be employed to evaluate a project or investment. Several methods for calculating capital budgeting include net present value (NPV), internal rate of return (IRR), payback period (PP), and profitability index (PI) (Brigham & Daves, 2007). If the results of the capital budgeting show that the investment is feasible, the company also needs to forecast or analyze whether any future conditions might disrupt the investment performance. Sensitivity analysis can be utilized by the company to assess how unfavorable variables, such as lower volumes, shorter useful lives, or higher costs, are likely to affect the profitability of a project (Shim & Siegel, 2005).

The concept of capital budgeting and sensitivity analysis can be applied in various sectors, including financial institutions such as banks. According to Law No. 10/1998, a bank is defined as a financial institution that collects funds from the public in the form of savings and distributes the funds to the public in the form of credit/loans. Banks provide loans to help companies finance their

needs, including project financing. Currently, Bank A is providing a loan to PT B for their toll road project.

To maintain and improve the economic growth of a region, toll roads, as one of the physical infrastructures, have the potential for regional economic development by enhancing the smooth flow of goods and services. Additionally, toll roads can stimulate investment growth and distribution networks in other sectors, thereby increasing the productivity and capacity of business people. However, road connectivity in Indonesia is considered lower than in other countries. Indonesia ranks 109th out of 141 countries in the world according to The Global Competitiveness Report, 2019. (World Economic Forum, 2019)

According to the World Bank's Logistics Performance Index (LPI), Indonesia's logistics costs are high, and poor connectivity has affected Indonesia's productivity and competitiveness. In 2018, Indonesia was ranked 75th out of 140 countries in terms of road quality, lagging behind Malaysia and Thailand. Additionally, in terms of the logistics performance index, Indonesia was ranked 46th out of 163 in 2018, trailing behind Malaysia, Thailand, and even Vietnam. In relation to this, Indonesia has set goals to improve its national roads. To achieve this, the Directorate General of Highway (DGH) has outlined plans to construct 4,185 km of national roads and expand the toll road network by 30.4% for the 2014-2019 period (Chesheva, Goller, Diez, & Willian D., 2020). (Chesheva, Goller, Diez, & Willian D., 2020)

According to the Badan Pengatur Jalan Tol Report (2018), the first construction of a toll road was carried out in 1975. The initial section was Jagorawi, connecting Jakarta, Bogor, and Ciawi, with a total length of 59 km. As of June 2022, the total operation of several toll road sections in Indonesia has reached a length of 2,500 kilometers, divided into 66 toll road sections and 46 toll road business entities (BUJT). The Trans Java toll road segment is one of the longest toll roads in Indonesia. Toll road segment XY is one of the toll road sections in the Trans Java Toll Road and has a total length of 116.75 kilometers (picture 1). The toll road project is located in West Java Province, connecting the X-Y road. The highway route traverses various types of land in an area known for being dominant in agricultural production. Additionally, this route passes through various types of land such as irrigated rice fields, agricultural gardens, forest plantations, vacant land, plantations, and residential areas. The dominant zoning around the area includes forest areas, agricultural areas, industrial areas, and (Indonesia Infrastructure Finance, 2018).



Figure 1. 1 Trans Java Toll Road Maps

Source: www.ekonomi.bisnis.com

PT B is responsible for the construction of the XY Toll Road project. As a company holding a toll road project concession, PT B is part of the Y Group, which is known for its high credibility. The Y Group acquired 55% of the stocks as a commitment to contribute to the nation and the state of Indonesia..

The XY Toll Road project is a part of the Trans Java Toll Road mega project. During its construction, the XY Toll Road is equipped with 8 resting places, 7 interchanges, and 7 gates. In 2018, the XY toll road section also received additional scope in the form of access to the airport, with compensation in the form of an additional initial fare of Rp. 73/km and an extension of the concession period from 35 years to 40 years.

Currently, the toll road is in operation, while access to the international airport is still under construction. Although the international airport has not yet generated a profit, in 2019, PT B recorded a positive EBITDA and a DSC > 100%, indicating that the toll road segment X-Y has entered the mature period of its life cycle. However, in 2020, PT B suffered losses due to the COVID-19 pandemic, which heavily impacted average daily traffic, leading to a significant decrease. As PT B recorded a loss and the international airport is still not operational, it might impact the feasibility of the entire project carried out by PT B.

As the project is financed by a loan from the bank, an evaluation of feasibility is needed to assess if the project is still economically viable for the loan to be categorized as a performing loan. Capital Budgeting will be used as a method to analyze the feasibility of the project and make investment decisions. The capital

budgeting will be assessed using indicators such as Net Present Value (NPV), Payback Period (PP), and Internal Rate of Return (IRR).

The toll road project is a long-term investment. Typically, it takes more than 5 years to reach the mature period and start generating a profit. To support the long-term investment decision and the assessment of the feasibility study, the company might need to conduct a sensitivity analysis. Sensitivity analysis is one of the models that help the company determine how robust the project is based on variables that influence each other.

1.2 Research Problem

Currently, PT B, as a BUJT, is carrying out the project of the toll road segment XY and an additional international airport project. While the toll road is already in operational mode, there is an additional project for the international airport to extend the concession right. Based on the historical performance of PT B, the toll road project should be entering the mature period, generating positive EAT (Earnings After Tax). However, in 2018 and 2019, the borrower recorded negative EAT with amounts of IDR -92 billion and IDR -88 billion in consecutive years. This occurred due to high-interest expenses resulting from the growth of Average Daily Traffic.

Based on the issues highlighted, re-evaluation is required to assess the feasibility study of the project for its loan purpose. Even as it enters the mature period, the project has still recorded a loss in two consecutive years. The study should focus on the extent of financial performance strength concerning the

uncertain variables that impact its project feasibility. The project's feasibility will determine whether the company has made the right investment decisions through the toll road project.

1.3 Research Question

The research question that are appear from this research as follow:

- i. Did PT B perform well in the past based on historical financial performance?
- ii. Does the PT B toll road project XY remain economically viable as a performing loan, assessed through the capital budgeting technique?
- iii. What kind of variable or condition that has possibility to trigger the project become not feasible?

1.4 Research Purposes

In this thesis research, the objective of this study as follow:

- i. To evaluate the historical financial performance of PT B.
- ii. To assess the feasibility of the toll road project segment for loan evaluation purposes using the capital budgeting technique.
- iii. To analyze the variables that could render the project infeasible based on sensitivity analysis.

1.5 Research Benefits

The benefits of this research will be divided into two which are practical purpose and academic purpose as shown below:

Practical Purpose:

This study can help the practitioner to evaluate the performance of loan provided by bank in toll road industry.

Academic Purpose

- i. Enhance the understanding of financial performance analysis
- ii. Enhance the understanding of capital budgeting and sensitivity analysis theory.
- iii. Enhance the understanding of financial risk management analysis.

1.6 Research Scopes

In this research, due the limitation of condition and data there are some following constraints below:

- i. This research will only focus on studying and analyzing toll road infrastructure.
- ii. This research will only focus on companies as toll road companies (toll road operators and concession right holders).

1.7 Research Writing System

CHAPTER 1: INTRODUCTION

This chapter explains the background of problem, research problem, research question, research purposes, and research scopes

CHAPTER II: LITERATURE REVIEW

This chapter contains the literature that have relation with this study. The source can be from books, journal, and credible website.

CHAPTER III: RESEARCH METHOD

This chapter explains the research design, research sources, and method for data analysis

CHAPTER IV DISCUSSION AND ANALYSIS

This chapter contains the data that already collected and result also analysis from data procession based on research method in chapter III.

CHAPTER V: CONCLUSION AND RECOMMENDATION

This chapter contains conclusion from this study and recommendation for next study.

CHAPTER II

LITERATURE REVIEW

The second chapter of research is going to discuss the theory related to this study. The related theories are project finance, financial statement analysis, capital budgeting, and sensitivity analysis

2.1 Project Finance

According to Casseli & Gatti (2017), Project Finance is a structured financing to a specific economic entity or usually called a project company. The distinctive features of a project finance deal are:

- i. The debtor/project company is financially and legally independent from the sponsors.
- ii. Lenders have only limited resources to the sponsors after the project is completed, which sponsors involvement is limited in terms of time, amount, and quality.
- iii. Project risks are equally contributed between all parties that are related to the project (commercial banks, investment banks, contractors, sub-contractors, insurance companies, suppliers, project company and customers.
- iv. Cash flows must be sufficient to cover the payment of operating cost, debt, and interest. After that the cash flow can be used to pay a dividend.
- v. Collateral that can be given to sponsors are revenue and assets tied up in the project.

Project finance schemes are usually used in the project of energy, oil, mining, highways, telecommunications, and other sectors such as public utilities and services. The project financing itself can be divided into two stages: construction, development and operation phase. In the construction and development phase the loans will be given and debt service may be postponed. Meanwhile in the operation phase, the project will start to generate cash flows. (Fight, 2006)

2.2 Financial Statement Analysis

According to Berk and Domarzo (2017) financial statements are accounting report that shown firm's historical performance information which usually issued quarterly and annually. Financial statements are helpful for shareholder, financial analysts, and other related or non-related parties. For accuracy and as assurance to investors, the financial statements are evaluated by auditor that hired by firm to make sure the financial statements are prepared according to Generally Accepted Accounting Principles (GAAP).

2.2.1 Balance Sheet Statement

Balance sheet statement contained information about firm's assets, liabilities, and stakeholders' equity. Assets are divided into current assets and non-current assets. Current assets (cash and other marketable securities, account receivable, inventories, and other current assets) are

assets that can be converted into cash within one year. Meanwhile for non-current assets or assets that has tangible benefits for more than one year or categorized as long term. Fixed asset such as net property, plant, and equipment are included in non-current asset. Then for liabilities also divided into current liabilities and non-current liabilities. Example of current liabilities are account payable, short-term debt, and salary or taxes that have not been paid within or less than one year. For long term liabilities, its including long term debt, capital leases, and deferred taxes (Berk & DeMarzo, 2017).

The difference between the current asset and current liabilities is known as the net current asset or net working capital (Brealey, Myers, & Allen, 2020).

Net Working Capital = Current Asset – Current Liabilities.

Stockholders' equity is the difference between the assets and liabilities or usually called as book value of equity. It is also an accounting measure to see the net worth (Berk & DeMarzo, 2017).

Assets = Liabilities + Equity

The equity of firm comes from the sale of shares to investor and earnings that has been retained or invested from shareholders (Brealey, Myers, & Allen, 2020).

2.2.2 Income Statement

Income statements contain the revenues and expenses of a firm over a specific period of time. The final section of the income statement, often referred to as the bottom line, represents the net income, serving as a measure of profitability. The structure of an income statement is categorized as follows: (Berk & DeMarzo, 2017)

- i. Gross Profit or difference between revenue or costs.
- ii. Operating expenses which included administrative expense, overhead, etc. Then the gross profit minus operating expense will be shown as operating income.
- iii. Earning before interest and taxes (EBIT) is an adjusted for other sources of incomes or expenses.
- iv. Net income will be the representation of total or final earnings that firm holds.

2.2.3 Cash Flow Statement

The final financial statement will be published as a set of accounts that called cash flow statement and reveals the main source of cash and its application (Pike & Neale, 2006).

As concluded from Koh et. al (2014), the five factors that reflected in cash flows are:

- i. Net income before preferred dividends which positive net income could lead to more cash.

- ii. Noncash adjustments to net income is the net income should be adjust to reflect noncash revenue and expenses in order to calculate cash flow.
- iii. Changes in working capital. Increase in current assets other than cash decrease cash, whereas decrease will lead to increase of cash.
- iv. Investments will be reducing the cash position if firm decide to invest in period of time.
- v. Security Transactions and Dividend Payment. The cash position will rise if firm issues stock or bonds.

Those factors will be separate into three categories which are operating activities (net income, depreciation, changes in current asset and liabilities other than cash), investing activities (investment or sales in fixed assets and any financial investment) and financing activities (issues of debt or stock, dividend payment, stock repurchase, and principal payment).

2.2.4 Financial Ratios

One of the tools used to analyze financial statements is financial ratios. Financial ratios involve comparing numbers in financial reports by dividing one figure by another, serving as a performance measurement. These ratios play a crucial role in evaluating the financial statement..

According to Brigham & Daves (2007), commonly financial ratios are divided into liquidity ratio, asset management ratio, debt management ratio, and profitability ratio which describe as follow:

i. Liquidity Ratio

The liquidity ratio shows a company's ability to meet its obligations or pay its short-term debt by their liquid asset. Two commonly used for liquidity ratio are:

a) Current Ratio

Current ratio is dividing the current assets (cash, marketable securities, account receivable, inventories, other current assets, and etc) by current liabilities (account payable, short term notes, current portion of long term debt, etc)

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

b) Quick Ratio

Quick ratio is dividing the current assets deducted the inventories by current liabilities.

$$\text{Quick Ratio} = \frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}}$$

ii. Asset Management Ratio

Asset management ratios shows the efficiency of company managing its assets. Ratios that commonly used to analyze asset management ratio are inventory turnover ratio, days sales outstanding, fixed assets turnover ratio which describe as follow:

a) Inventory Turnover Ratio (ITO) divides the sales by inventories.

$$\text{ITO} = \frac{\text{Sales}}{\text{Inventories}}$$

- b) Days Sales Outstanding (DSO) uses to assess the performance of account receivables

$$DSO = \frac{\text{Account Receivables}}{\text{Average sales per day}}$$

- c) Fixed Assets Turnover Ratio shows the efficiency of firm using its fixed asset

$$\text{Fixed Assets Turnover Ratio} = \frac{\text{Sales}}{\text{Net Fixed Assets}}$$

iii. Debt Management Ratio

Firms usually use debt to finance their business. The financial leverage commonly has three implications “By raising funds through debt, stockholders can maintain control of a firm without increasing their investment; If the firm earns more on investments financed with borrowed funds than it pays in interest, then its shareholders’ returns are magnified, or “leveraged,” but their risks are also magnified. Creditors look to the equity, or owner-supplied funds, to provide a margin of safety, so the higher the proportion of funding supplied by stockholders, the less risk creditors face”

To measure the debt management ratios, there are two ratios that commonly used as follow:

a) Debt Ratio

The debt ratio measures the percentage of funds provided by debt divided to company’s equity

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

b) EBITDA Coverage Ratio

The ratio shows company's ability to service debt. The ratio defines as follow:

$$EBITDA \text{ Coverage Ratio} = \frac{EBITDA + Lease \text{ Payments}}{Interest + Principal \text{ Payments} + Lease \text{ Payments}}$$

iv. Profitability Ratio

Profitability ratios are financial ratio used to ability of a company to generate its profit.

a) Profit Margin

$$Profit \text{ Margin} = \frac{Net \text{ income available to common stockholders}}{Sales}$$

b) Basic Earning Power (BEP)

$$BEP = \frac{EBIT}{Total \text{ Assets}}$$

c) Return on Total Assets (ROA)

$$ROA = \frac{Net \text{ income available to common stakeholders}}{Total \text{ Assets}}$$

d) Return on Total Equity (ROE)

$$ROE = \frac{Net \text{ income available to common stakeholders}}{Total \text{ Equity}}$$

2.3 Investment Decision

Investment decision is a decision to require tangible (ex: land, buildings, plant, equipment) or intangible assets (ex: patents, rights, trademark) or financial asset outside the business in form of short-term securities and deposits. The problem related to investment decision is financing structure will be used by a firm. The financing structure can be a mix of shareholder's

funds, retained profits, loans capital, and government. Firm must commit once they decide to create an investment decision. The investment decision itself also refers as capital budgeting decision (Pike & Neale, 2006).

Tandelilin (2010) asserted that the purpose of investment is to enhance the wealth of investors. In this context, wealth is monetary and can be quantified by aggregating current income and the present value of future income (Tandelilin, 2010).

According to Brigham & Daves (2007) investor usually pick up the signal by analyze the overview of firm prospect by management. The signals provided mainly in the form of information about what has been done by management to realize desire of shareholder. The information is important for investors and business people because this information provides information, notes or descriptions, both for past, present and future conditions for the continuity and sustainability of company.

Tandelilin (2010) stated the fundamental of investment decision consist of the expected rate, risk level, and relationship between return and risk.

- i. The main reason people invest is to make a profit. In the context of investment management, the return on investment is referred as return. The expected return of investors from their investments is compensation for opportunity costs and the risk of decreasing purchasing power due to the influence of inflation.
- ii. In general, the greater the risk, the greater the expected rate of return. Risk can be interpreted as the possibility of an actual return that is

different from the expected return. And vice versa, investors who do not want to take risks that are too high, of course, will not be able to expect too high a rate of return.

- iii. The relationship between risk and expected return is a unidirectional and linear relationship. The greater risk of an asset, investor will also gain the greater expected return on that asset, and vice versa or we called high risk high return.

2.4 Capital Budgeting

“Capital budgeting is the decision process that managers use to identify those projects that add to the firm’s value, and as such it is perhaps the most important task faced by financial managers and their staffs.” (Brigham & Ehrhardt, 2008). The parameters utilized to ascertain the feasibility of a company based on the capital budgeting concept include the calculation of Net Present Value, Internal Rate of Return, and Payback Period.

2.4.1 Net Present Value

The Net Present Value (NPV) is defined as the present value of a project’s cash inflows minus the present value of its costs. The NPV decision rules is if NPV exceeds zero accept the project and otherwise. (Koh, Ang, Ehrhardt, & Brigham, 2014). NPV of zero explained the project cash flows are sufficient enough to repay the firm's invested capital and proved the required rate of return on that capital. (Brigham

& Ehrhardt, 2008). The net present value method is capital budgeting technique that used discounted cash flow technique. (Pike & Neale, 2006)

$$NPV = PV(Benefits) - PV(Costs)$$

The principal of NPV is *we should compare the project's NPV to zero (the NPV of doing nothing) and accept the project if its NPV is positive.*

According to Koh et.al (2014) the way to calculate NPV based on present value of each cash flow discounted at the project's risk adjusted cost of capital than the sum of discounted of cash flow is defined as NPV.

$$NPV = \sum_{t=0}^N \frac{CF_t}{(1+r)^t}$$

2.4.2 Internal Rate of Return (IRR)

"A Project's IRR is the discount rate that forces the PV of the inflows to equal the initial cost (or to equal the PV of all the costs if costs are incurred over several years). This is equivalent to forcing the NPV to equal zero. The IRR is an estimate of the project's rate of return." (Koh, Ang, Ehrhardt, & Brigham, 2014). The use of IRR Method is rational because (Brigham & Ehrhardt, 2008):

- i. It is expected the rate of return

- ii. If the internal rate of return exceeds the cost of the funds used to finance the project, a surplus will remain after paying for the capital and this surplus will accrue to the firm's stockholders.
- iii. If the IRR of a project exceeds its cost of capital, it will increase the shareholders' wealth.

The formula of IRR is:

$$\sum_{t=0}^n \frac{X_t}{(1+r)^t} = 0$$

Based on Pike and Neale (2006) *“Where the IRR exceeds the required rate of return the project should be accepted.”*

2.4.3 Payback Period

“The Payback Period defined as the expected number of years required to recover the original investment, was the first formal method used to evaluate capital budgeting projects. The basic idea is to start with the project's cost, determine the number of years prior to full recovery of the cost, and then determine the fraction of the next year that is required for full recovery, assuming cash flows occur evenly during the year” (Brigham & Ehrhardt, 2008)

However, the payback period has few weaknesses compare to other capital budgeting techniques (Berk & DeMarzo, 2017):

- i. The technique of discounted payback period ignoring cost of capital and time value of money from the project.

- ii. Ignoring the cash flow after payback
- iii. Relies on the right number of payback period.

Those weaknesses make payback rules less reliable than NPV rule.

Due to the reason of its weakness, the payback rule shall not be the only tool to decide the investment decision.

2.5 Sensitivity Analysis

The sensitivity analysis can be provided into decision consideration.

“Sensitivity analysis is a technique that shows how much a project’s NPV will change in response to a given change in an input variable such as sales, other things held constant.” (Brigham & Ehrhardt, 2008). The sensitivity analysis is also going to be used to see the impact of the income statement of the company and for financing the toll road project, variables such as traffic, tariff and interest rate become the factors in the sensitivity test. (Indo Premier, 2019)

Sensitivity analysis also one of tools to support the assessment of feasibility study by capital budgeting techniques. By doing sensitivity analysis, company might find the evaluation for the uncertainty of assumption. The tool will help to determine the change of NPV if there is a change of assumption or condition (Berk & DeMarzo, 2017).

The sensitivity analysis is not going to be replacement of NPV. However, as a world is full of uncertainties, if the dangers could be pointed, firm might be able to modify the project to know the pessimistic scenario (Brealey, Myers, & Allen, 2020)

CHAPTER III

RESEARCH METHOD

The third chapter is going to explain the research design, data sources and types that will be used in the research, and the sequence of analysis method.

3.1 Research Design

The research design employed in this study adopts a descriptive method, given its reliance on a case study of PT B as a Build-Operate-Transfer (BUJT) entity holding concession rights for the XY Toll Road segment. The primary objective is to re-evaluate the performance of PT B, assessing its continued feasibility in managing the toll road segment XY project. The evaluation necessitates a comprehensive examination, utilizing both primary and secondary data. The predominant approach in this research is quantitative, as it extensively relies on numerical data and quantitative analyses.

3.2 Data Source and Types

Data that will be used in this research divided into two types which are primary and secondary data:

i. Primary Data

The data originates from PT B, encompassing various sources such as the financial report, financial projections based on company assumptions, Average Daily Traffic Volume (ADT), and direct information obtained from PT B, all of which are pertinent to this research.

ii. Secondary Data

The inclusion of secondary data will enhance the comprehensiveness of this study. Secondary data will serve as a basis for formulating assumptions in both Financial Projection and Capital Budgeting Projection, incorporating factors such as Gross Domestic Product (GDP), inflation, Toll Tariff Regulation, interest rates, and other external data pertinent to the research. The sources for this secondary data include analytical studies conducted by Consultant C (providing macroeconomic data such as GDP, inflation, and population projections) and regulations from both the Badan Pengatur Jalan Tol and the Ministry of Public Works and Public Housing..

The source data for this research are analysts study conduct by Consultant C (for macroeconomic data such as GDP, inflation, and population projection, etc) and regulation from Badan Pengatur Jalan Tol and Ministry of Public Works and Public Housing.

3.3 Data Analysis Method

Figure 3.1 shown a scheme for the data analysis method of this research from the data collection until sensitivity analysis.

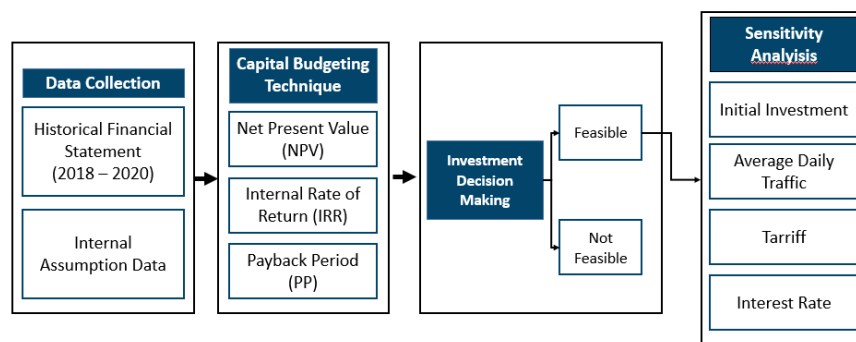


Figure 3. 1 Research Method Process

The initial phase of the research involves the collection of audited historical financial statements spanning the years 2018 to 2020. These datasets will serve a dual purpose: firstly, to analyze the historical performance of PT B, and secondly, to serve as a foundational source for projection assumptions related to the balance sheet, income statement, and cash flow. In addition to historical financial performance, this study incorporates assumptions derived from internal data and discussions with account holders at PT B.

Subsequently, the researcher will delve into analyzing the collected financial statements to gain a comprehensive understanding of PT B's past conditions. This analysis encompasses the examination of balance sheets, income statements, and cash flow statements.

Following the collection and analysis of financial statements, along with the assimilation of assumption sources, the research will progress to the financial statement projection stage. The projection will span fifteen years, aligning with the loan period provided by the bank.

The subsequent analytical method involves adhering to investment decision rules through capital budgeting techniques. This capital budgeting process will be executed using Excel, employing the formulas outlined in Table 3.1 to guide the analysis:

Table 3. 1 Description of Capital Budgeting Formula

No	Indicator	Formula	Description
1	Net Present Value	=SUM(PV) The sum of present value is calculation for present value for the next 15 years (2021 – 2036)	If the NPV > 0, the project is feasible.

No	Indicator	Formula	Description
2	Internal Rate of Return	$= r_a + \left(\frac{NPV_{r_a}}{NPV_{r_a} - NPV_{r_b}} \right) \times (r_b - r_a)$ <p>Description of Formula: r_a: lower discount rate r_b: higher discount rate NPV_{r_a}: NPV at lower discount rate NPV_{r_b}: NPV at higher discount rate</p> <p>Discount rate used for the research is 6.15% (based on interest rate of bank loans)</p>	<p>If the IRR > WACC, then the return that firm's get will be higher than initial rate.</p> <p>Formula for WACC = (Cost of Debt x (Debt Portion x (1- Tax Rate))) + (Equity Portion x Cost of Equity))</p> <p>Cost of Debt: 6,15% Cost of Equity: 16% Debt Portion: 70% Equity Portion: 30%</p>
3.	Payback Period	<p>=IF(Accumulated FCF>1;1;0)</p> <p>Accumulated FCF is calculation for the next 15 years (2021 – 2036)</p>	The accumulated FCF must be higher than 0

If the project is deemed feasible for continuation, the next phase involves the implementation of sensitivity analysis. The execution of sensitivity analysis will entail testing against the Net Present Value (NPV), considered the dependent variable in this context. The sensitivity analysis will follow the subsequent steps:

- i. Identify variable that might be sensitive to the toll road project decision.

There are four variables will be tested against the NPV as follow (Table 3.2):

Table 3. 2 Description of Variable

No	Variable	Description
1.	Average Daily Traffic	PT B revenue comes from the average daily traffic because people pay for the toll road services. The ADT could have fluctuation trend as several conditions might influence the change of ADT such as pandemic, the change of infrastructure, and economic condition.
2.	Tariff	PT B could not determine the toll road tariff as it is already decided and ruled by government. Government has power to decide whether the tariff will be increase or not.

3.	Maintenance Cost	Maintenance cost mostly consist of cost for road overlay and joint venture expense to gate operational.
4	Interest Rate	The interest rate that agreed by Banks and PT B is floating rate. In the future, the chance of interest rate change could appear and influence the feasibility of project.

- ii. Change the growth of variable and calculate its NPV
- iii. Analyze which variable is most sensitive to toll road project feasibility.

CHAPTER IV

Data, Analysis, and Discussion

The fourth chapter is going to be show the data that already collected, interpretation and explanation the result of data analysis.

4.1 Toll Rates

Toll Road Segment XY was fully operational on June 13, 2015. The toll road uses closed toll transaction system when the payment will be made at the exit gate. The payment will be based on the distance from the passenger original entrance until destination exit. Based on Table 4.1, the toll rates imposed for class I – class V vehicles that have been set and running at this time in accordance with the Decree of the Ministry of PUPR No. PUPR 1219/KPTS/M/2019 are as follows

Table 4. 1 Toll Road Tariff

(In Rp)

Origin	Destination	Category				
		Category I	Category II	Category III	Category IV	Category V
CKP	KLJ	25,000	41,000	41,000	51,500	51,500
	SBG	35,000	58,000	58,000	72,500	72,500
	CKD	61,500	101,500	101,500	127,500	127,500
	KTJ	79,000	130,500	130,500	163,500	163,500
	SBJ	93,500	154,500	154,500	194,000	194,000
	PLM	107,500	177,000	177,000	222,000	222,000
KLJ	CKP	25,000	41,000	41,000	51,500	51,500
	SBG	10,500	17,000	17,000	21,500	21,500
	CKD	36,500	60,500	60,500	76,000	76,000
	KTJ	54,000	89,500	89,500	112,000	112,000
	SBJ	69,000	113,500	113,500	142,500	142,500
	PLM	82,500	136,000	136,000	170,500	170,500
SBG	CKP	35,000	58,000	58,000	72,500	72,500
	KLJ	10,500	17,000	17,000	21,500	21,500
	CKD	26,500	43,500	43,500	54,500	54,500

Origin	Destination	Category				
		Category I	Category II	Category III	Category IV	Category V
	KTJ	44,000	72,500	72,500	90,500	90,500
	SBJ	58,500	96,500	96,500	121,000	121,000
	PLM	72,000	119,000	119,000	149,500	149,500
CKD	CKP	61,500	101,500	101,500	127,500	127,500
	KLJ	36,500	60,500	60,500	76,000	76,000
	SBG	26,500	43,500	43,500	54,500	54,500
	KTJ	17,500	29,000	29,000	36,000	36,000
	SBJ	32,000	53,000	53,000	66,500	66,500
	PLM	45,000	75,500	75,500	94,500	94,500
KTJ	CKP	79,000	130,500	130,500	163,500	163,500
	KLJ	54,000	89,500	89,500	112,000	112,000
	SBG	44,000	72,500	72,500	90,500	90,500
	CKD	17,500	29,000	29,000	36,000	36,000
	SBJ	14,500	24,500	24,500	30,500	30,500
	PLM	28,500	46,500	46,500	58,500	58,500
SBJ	CKP	93,500	154,500	154,500	194,000	194,000
	KLJ	69,000	113,500	113,500	142,500	142,500
	SBG	58,500	96,500	96,500	121,000	121,000
	CKD	32,000	53,000	53,000	66,500	66,500
	KTJ	14,500	24,500	24,500	30,500	30,500
	PLM	13,500	22,500	22,500	28,000	28,000
PLM	CKP	107,500	177,000	177,000	222,000	222,000
	KLJ	82,500	136,000	136,000	170,500	170,500
	SBG	72,000	119,000	119,000	149,500	149,500
	CKD	45,500	75,500	75,500	94,500	94,500
	KTJ	28,500	46,500	46,500	58,500	58,500
	SBJ	13,500	22,500	22,500	28,000	28,000

(Source: Company Internal Data)

The increase in toll rates is governed by Law No. 38 of 2004 regarding Toll Roads and Government Regulation No. 15 of 2005 regarding Toll Roads. According to these regulations, toll rate evaluation and adjustment must be carried out every two years by BPJT based on the old tariff adjusted for the effects of inflation. The toll road's future revenue will be determined by the

company, as the revenue is generated from toll road operations, with the tariff significantly influencing its income.

4.2 Toll Road Life Cycle

Toll road business has their own business life cycle. According to Figure 4.1 the life cycle of toll road project is divided into three phases:

i. Construction Phase

In construction phase, toll road will not record any profit or earning after tax company is negative. During this phase, any operational expense will be top up from shareholder and financing from bank.

ii. Negative Period

Negative period is the early phase of toll road operational mode or ramp up period. In this phase, company might still record negative EAT or the revenue is not in line with the projection.

iii. Mature Period

Mature period happens when toll road records positive EAT and generating cash flow. Company will be able to pay their obligation from its free cash flow.

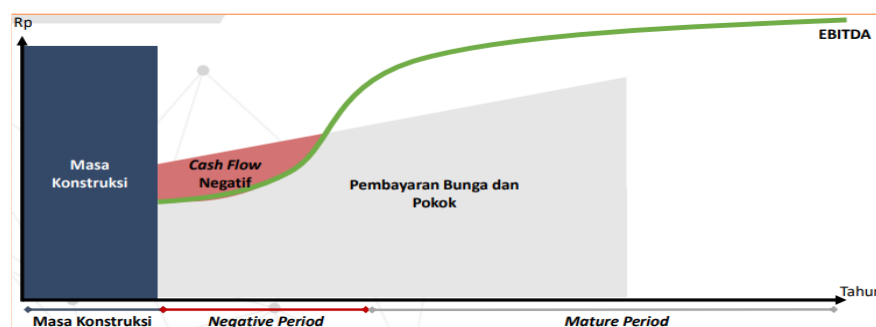


Figure 4. 1 Toll Road Life Cycl

Currently toll road segment XY is in mature period as it is already records positive EAT and shall pay their obligation from its free cash flow.

4.3 Toll Road Segment XY Compliance

Minimum Service Standard is created by Badan Pengatur Jalan Tol (Kementrian Pekerjaan Umum dan Perumahan Rakyat) to ensure the user of toll road safety and comfort. In order for the company to operate the toll road, it must comply the minimum service standard which BPJT will evaluate two times in a year. Toll road Segment XY has already complied all requirement from Minimum Service Standard until 2021 based on the Minister of Public Works Decree No. 392/PRT/M/2005 dated August 31, 2005 as its shown in Table 4.2:

Table 4. 2 Minimum Service Standard Compliance

Indicator	Status of Compliance
Condition of Toll Road	
Skid	Complied
Roughness	Complied
Potholes	Complied
Rutting	Complied
Cracking	Complied
Average Speed	
Average Speed	Complied
Accessibility	
Average Transaction Speed	
Toll Gate Capacity	Complied
Mobility	
Observation Area	Complied
Information Punctuality	Complied
Breakdown Vehicle Handling	Complied
Tow Vehicle	Complied
Safety	
Signs	Complied
Road Marks	Complied
Guide Post and Reflector	Complied
KM Stake	Complied
Rumija Gates	Complied
Accident Handling	Complied

Indicator	Status of Compliance
Law and Safety	Complied
Rescue Help & Center	
Ambulance	Complied
Tow Vehicle	Complied
Police	Complied
Highway Patrol (Operator)	Complied
Rescue	Complied
Information System	Complied
Environment	
Hygiene	Complied
Plants	Complied
Grass	Complied
TI&TIP	Complied
Road Condition	Complied
On/Off Ramp	Complied
Toilet	Complied
Parking	Complied
Lighting	Complied
Gas Station	Complied
Repair Shop	Complied
Restaurants	Complied

4.4 Construction Cost

Total investment cost for the construction of toll road XY with additional project of airport will be IDR 13,7 Trillion (Table 4.3). The total investment cost based on Minutes of Changes in Business Plans for the Concession of the toll road XY in the Context of Increasing the Scope of Access to International Airport through Modification of the Interchange on XY Toll Road No. 06.3/BA/Pt.6/2020 dated February 7, 2020 in Amendment I PPJT No. 11 March 31, 2020, are as follows:

Table 4. 3 Construction Cost Detail

(In Rp Mio)

Cost Item	Investment Cost	Investment Year 2015	Airport
Construction Expense	8.506.446	7.970.513	535,933
Toll Materials	99,469	99,469	
Design + AMDAL	85,425	80,100	5,325
Supervision	167,140	144,614	22,526
Escalation	1,355,464	1,355,464	

Cost Item	Investment Cost	Investment Year 2015	Airport
Tax (10%)	1,021,377	965,016	56,361
Overhead Cost	247,138	230,384	16,754
Land Procurement	692,942	692,942	
Interest during Construction Period	1,920,142	1,870,478	49,664
Financial Cost	376,207	370,000	6,207
Total Cost		13,778,980	692,770

The additional airport has an area of 1800 Ha, consisting of a 3000m x 60m runway, 1140m x 25m taxiway, 678m x 296m apron, and 4,480 m² cargo terminal. The passenger terminal building of International Airport has a total area of 96.280 m², with details:

- i. Domestic Departure Terminal with area of 27.854m² and capacity of 1.114 passengers,
- ii. Domestic Arrival Terminal with area of 22.632m² and capacity of 905 passengers,
- iii. International Departure Terminal with area of 24.897m² and capacity of 820 passengers,
- iv. International Arrival Terminal with area of 20.897m² and capacity of 688 passengers.

4.4 Historical Balance Sheet Summary

The summary of company's balance sheet from FY2018 – FY2020 as follow:

Table 4. 4 Historical Balance Sheet Summary

(In Rp Million)

Description	2018	%	2019	%	2020	%
Current Asset	229.560	2	336.314	3	461.658	4
Non Current Asset	12.036.019	98	11.699.765	97	11.662.789	96
Total Assets	12.265.579	100	12.036.079	100	12.124.447	100
Current Liabilities	504.639	4	372.121	3	342.624	3
Non-Current Liabilities	8.441.125	69	8.432.281	70	8.413.547	69
Total Liabilitas	8.945.764	73	8.804.402	73	8.756.171	72
Equity	12.265.579	100	12.036.079	100	12.124.447	100

(Source: Internal Data PT B)

According to table 4.4, Total assets are dominated by non-current assets which consist concession right. This concession asset is recognized as concession rights and is amortized over the concession right period on unit of usage based on traffic volume method. Due to its amortization, non-current asset had decreasing trend. In FY2019, non-current asset decreased 2,79% (YoY) and in FY2020, non-current asset decreased 0,94% (YoY). Total Assets trend were fluctuated as in FY2019 decreased 1,87% and increased 0,73% in FY2020. In FY2019 it decreased because of amortization and in FY2020 total asset increased due to cash and cash balance.

The total liabilities of PT B are predominantly comprised of long-term debt obtained through a syndication loan from banks, as outlined in Table 4.5. The long-term debt exhibits a decreasing trend, attributed to the continual increase in its current portion over the years. As of the current assessment, PT B's loan status falls within the current category, and it maintains a commendable repayment record.

Table 4. 5 Detail of Long Term Debt PT B

Description	2018	2019	2020
Long term debt	8.097.571	8.025.557	7.947.719
Current Portion of Long term debt	84.165	84.165	105.206
Total of Long Term Debt	8.181.736	8.109.722	8.052.925

(Source: Internal Data of PT B)

Total equity of PT B decreased 2,65% (YoY) in 2019 because of negative retained earning create in 2019. Then in FY2020, total equity rises to 4,23% as PT B maintained positive retained earnings and receive mezzanine loan to improve PT B capital and maintain positive equity. The mezzanine loan was a form of commitment from parent group to support PT B.

4.5 Historical Data of Income Statement

Financial performance of company audited by auditor “E” and the opinions for period FY2018 – FY2020 are present fairly. Table 4.6 is summary of company’s income statement for FY2018 – FY2020.

Table 4. 6 Income Statement Summary

(In Rp Million)

Description	2018	%	2019	%	2020	%
Toll Revenue	1.433.042	100,0	1.597.655	100,0	1.469.054	100,0
Toll Expenses (excl. Amortization)	313.510	21,88	403.788	25,27	373.136	25,40
Gross Profit	1.119.522	78,12	1.193.877	74,73	1.095.918	74,60
SGA Expenses (excl. Depreciation)	70.253	4,90	56.166	3,52	31.195	2,12
Amortization & Depreciation	320.230	22,35	382.086	23,91	265.755	18,09
EBIT	883.290	61,64	834.864	48,30	810.156	55,15
Interest Expense	889.921	62,10	834.864	52,26	732.731	49,88
EBT	-6.631	-0,46	-63.145	-3,95	77.425	5,27
Tax	85.401	5,96	24.984	1,56	11.225	0,76
EAT	-92.032	-6,42	-88.129	-5,52	66.200	4,51
EBITDA	1.203.520		1.153.805		1.075.911	
NWC	63.568		68.132		26.325	
CAPEX	44.134		30.620		45.840	
Principal Expense	3.345		118.984		76.605	
Interest Expense	889.921		834.864		732.731	
FCF	1.135		(123.678)		(6.436)	

(Source: Internal Data of PT B)

The company's revenue fully comes from revenues generated by the toll road segment XY which is managed by the PT B as BUJT. The toll road section has been operating since June 2015. The revenue increased in FY2019. However, with the pandemic and government policies related to social restrictions and the prohibition of going home, the company's revenue fell in 2020 to Rp1.46 trillion (-8,05%, YoY).

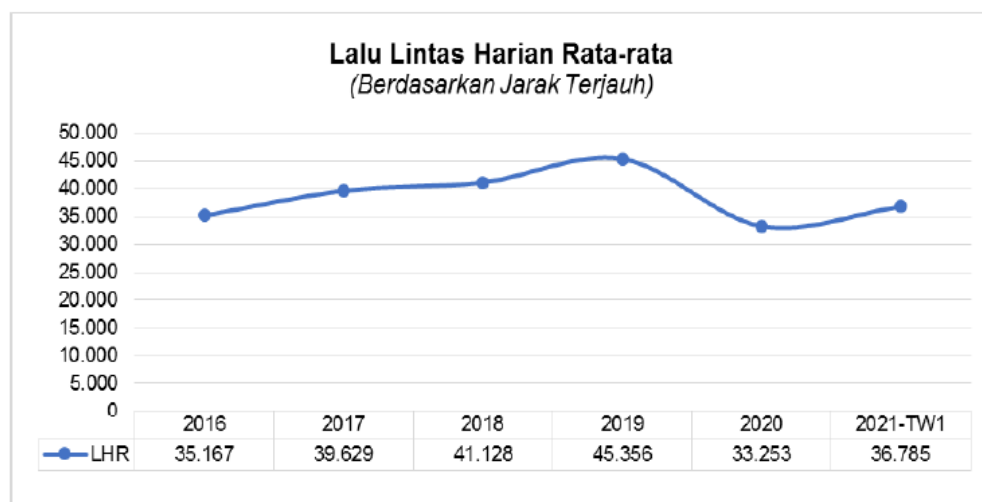


Figure 4. 2 Average Daily Traffic 2016 – TW12021

Based on Figure 4.2, from 2016 to 2019, ADT was continued to grow with a CAGR of 2016-2019 of 13,57% which show increasing trend. However, due to the pandemic in 2020, LHR dropped to 33.253 (-26,7%, YoY). As the pandemic starts to subside down, the ADT in 1H21 starts to increase slowly. It happened because of government already loosen the restriction rules which led to Indonesian People “Mudik” custom when Eid Al-Fitr happened.

The fluctuation of ADT itself was reflected to company’s revenue from FY2018– FY2020.

Table 4. 7 Construction Revenue and Expense

Item	2018	2019	2020
Construction Revenue	66.680	44.970	198.776
Construction Expense	66.680	44.970	198.776
Construction Margin	-	-	-

In the historical financial performance, the recognition of construction revenue is contingent upon the progress of toll road construction completion. The construction revenue is offset by construction expenses, and it's noteworthy that there is no margin accounted for between the construction revenue and expenses. The recognition and offsetting mechanism align with the principle that the revenue is realized as construction milestones are achieved, without a distinct margin attributed to the construction revenue and expenses. (Table 4.7).

SGA (excl depreciation) recorded a decline in the historical period (dropped around 44,4% in 2020). Company managed to press the SGA expense for the efficiency of the company, especially in terms of the cost of salaries and benefits. The efficiency of SGA in 2020 related to the reduction of three expatriate workers.

Other income is income from interest income on time deposits and demand deposits. Interest expense was recorded to have a decreasing trend from 2018 to 2020 (from Rp 889 Bio to Rp 732 Bio), as it was in line with the payment of principal with installments during the period. In addition, the decrease in interest expense was also contributed by a decrease in loan rates with the refinancing of syndicated loans in 2018. In the previous period (in 2017), the

prevailing rate was Average Time Deposit + 5,71%, then with refinancing in 2018 the rate became Average Time Deposit + 3,94%. Apart from the decrease in outstanding which in line with principal installments, the decrease in interest, was due to the lower reference rate (ATD) during that period.

The company's profitability or EBITDA was recorded positively in the period 2018 (Rp 1.203 Bio) to 2019 (Rp 1.153 Bio). However, because of high interest expense during the period, EAT was recorded negative with an improving trend. It can be considered reasonable considering that the toll road segment is still in the ramp-up period (fully operated in June 2015) so that EBITDA has not been able to cover the interest expense that has arisen. However, improvements are seen from the historical period, and in 2020 the company began to record positive EAT. In 2020, EBITDA decreased 6,7% which in line with the decline in toll road revenues due to the pandemic. However, the company was able to perform efficiency in operating expenses, and reduce interest expenses, so that EAT was recorded as positive.

4.6 Historical Data of Cash Flow

The cashflow summary report from FY2018 – FY2020 as follow:

Table 4. 8 Historical Cashflow Summary

Cashflow	2018	2019	2020
Operational	1.172.022	131.243	39.387
Investment	-263.708	-724	-3.227
Funding	-920.836	-105.295	-40.933
Cash Increase/ Decrease	-12.523	25.224	-4.774
Beginning Cash	44.267	31.745	56.968
Ending cash	31.745	56.968	52.194
DSRA	116.491	192.214	368.301
Ending cash after DSRA	148.235	249.183	420.495

As indicated in Table 4.8, the company has consistently reported positive operating cash flow since 2018. However, there was a notable decline in net cash flow in 2019, primarily attributed to the Auditor Judgment in FY2018, where interest expense was categorized under funding cash flows. In contrast, during the 2019-2020 period, interest expense is classified as cash out from operational activities.

The operational cash flow in 2020 experienced a decrease, attributed to a decline in cash receipts from toll revenues during the Covid-19 pandemic and an increase in cash out for restricted cash. It is important to note that despite these challenges, the operating cash flow remained positive in 2019 and 2020. This signifies that the company's operating income has proven sufficient to cover operational expenses during these periods.

Investment cash flows recorded negative trend in historical periods in line with the cash out for the acquisition of fixed assets in the form of additional

HPJT through payments to contractors. Payments to contractors were made in 2018, the amount of cash out spent on investment activities was Rp. 224 billion and Rp. 263 billion in 2018.

Cash flows from investment began to decline in 2018 in line with the completion of the construction phase, namely the toll road has been operated in 2015. Cash out of investment activities in 2019 and 2020 were used for the purchase of fixed assets in the form of vehicles, office equipment and toll road equipment.

Funding cash flows have been negative in historical periods. This was caused by the large amount of cash out for payment of principal and interest on credit facilities owned. In 2018, the company received new loan due to proposed syndication facility of IDR 8.31 trillion.

However, there were payments to syndicated creditors previously amounting to IDR 8.54 trillion, as well as cash out for interest payments which reached IDR 872 billion. In 2019, the company's inflow cash was sourced from receipt of the mezzanine facility, and cash out was used to pay off the syndicated debt principal and interest. Whereas in 2019 and 2020, cash out was mainly used for repaying the loan principal.

4.7 Historical Ratio

The summary of historical ratio performance of company in FY2018 – FY2020 as follow:

Table 4. 9 Historical Financial Ratio

Rasio	2018		2019		2020	
CR	0,45	times	0,90	times	1,35	times
DER (Total Debt)	2,69	times	2,72	times	2,60	times
DER (Net Debt)	2,65	times	2,65	times	2,47	times
DSC	117,47	%	119,28	%	131,56	%
EBITDA/ Interest	135,24	%	138,20	%	146,84	%
EBITDA/ Debt	13,45	%	13,10	%	12,29	%
Debt/ EBITDA	7,43	times	7,63	times	8,14	times

The company's liquidity reflected based on Current Ratio (CR) in year 2020 is above 1.00 times. The value indicates PT B is able to meet current liabilities with current liquid assets or current assets. Despite in the historical performances the value of CR were below 1.00 times, CR shows an increasing trend in line with additional cash balances from additional company profits.

The solvency of the company remains sound, indicated by a declining trend in the Debt-to-Equity Ratio (DER), which reached 2.6 times in 2020. The subsequent decrease in the DER can be attributed to syndicated debt payments (principal installments) and an augmentation of equity resulting from withdrawing the mezzanine facility.

However, that the DER ratio falls short of meeting the DER reference established by Bank X for the construction sector, which specifies a maximum threshold of 2.33 times. This variance suggests a deviation from the specified benchmark set by Bank X within the construction sector.

4.8 Projection of Financial Statement

Financial performance of company B will be projected for 10 years from 2021 – 2030. Projection will use assumption from internal company, external data and historical data of financial performance.

4.8.1 Assumption of Average Traffic Road and Tariff

The assumption of ATR and tariff growth based on internal company data (consultant hired by PT B). For the projection of ATR, the assumptions are supported by few considerations as follow:

- i. The international airport will be commercially operating in 2023
- ii. A seaport begins operation in 2023
- iii. Average daily traffic increase every year since its operation (2015-2019) about by 9.3% per annum.
- iv. The significant increase trend happened in Lebaran and at the year end in each December.
- v. Based on assumption made by consultant B, the GDP growth will have impact on the increase of cars, buses, light until heavy vehicle type. Lastly for population will have impact on cars.
- vi. Based on *Badan Pusat Statistik* data, java population will increase each year. However, the growth will be slowing down each year.
- vii. The assumption also has consideration of few government plans such as Ibu Kota Nusantara in Kalimantan which will gradually

move start from 2024 and Jakarta – Surabaya semi high-speed train that has completion plan in 2025.

Based on those assumption, in 2021 ATR projected to increase about 10% because of historical data of ATR in 1H21. Then in 2022, the assumption will conservatively decrease. The international airport projected to actively start in 2023 hopefully would be able to slowing down the decrease of ATR each year (Table 4.10).

Table 4. 10 Average Daily Traffic Growth Assumption

ATR	Unit	Periods				
		2021	2022	2023	2024	2025
Gol 1	Vehicle/Day	28,531	30,340	32,297	34,466	36,435
Gol 2		5,853	6,597	7,381	8,248	9,023
Gol 3		1,353	1,541	1,749	1,935	2,120
Gol 4		366	435	512	599	690
Gol 5		476	593	725	875	986
Gol 6		-	-	-	-	-
Growth LHR	%	10.00%	8.00%	8.00%	8.00%	7.00%
Total Vehicles	Unit	36,578	39,505	42,665	46,078	49,304

ATR	Unit	Periods				
		2026	2027	2028	2029	2030
Gol 1	Vehicle/Day	38,828	41,433	44,152	47,113	50,273
Gol 2		9,865	10,725	11,657	12,602	13,623
Gol 3		2,321	2,540	2,718	2,973	3,181
Gol 4		739	734	785	840	830
Gol 5		1,055	1,073	1,087	1,163	1,245
Gol 6		-	-	-	-	-
Growth LHR	%	7.00%	7.00%	7.00%	7.00%	7.00%
Total Vehicles	Unit	52,755	56,448	60,399	64,627	69,151

ATR	Unit	Periods					
		2031	2032	2033	2034	2035	2036
Gol 1	Vehicle/Day	52,996	55,865	58,970	62,246	65,083	67,952
Gol 2		14,587	15,617	16,719	17,897	18,975	20,116
Gol 3		3,445	3,652	3,953	4,190	4,400	4,716
Gol 4		953	1,010	1,153	1,222	1,283	1,444
Gol 5		1,319	1,476	1,647	1,746	1,925	2,021
Gol 6		-	-	-	-	-	-
Growth LHR	%	6.00%	6.00%	6.00%	6.00%	5.00%	5.00%
Total Vehicles	Unit	73,300	77,698	82,360	87,301	91,666	96,250

Tariffs are assumed to increase every two years which in line government rules. The rules based on Law No. 38 year 2004. However, government also consider the minimum service standard which will be evaluate regularly. In the base case of assumption, we assume government always increase the tariffs every two years as plan for 5%.

Table 4. 11 Tariff Growth Assumption

Tariffs	Unit	Periods				
		2021	2022	2023	2024	2025
Gol 1	Rp.	923	996	996	1,046	1,046
Gol 2		1,519	1,519	1,519	1,595	1,595
Gol 3		1,519	1,519	1,519	1,595	1,595
Gol 4		1,906	1,906	1,906	2,001	2,001
Gol 5		1,906	1,906	1,906	2,001	2,001
Gol 6		-	-	-	-	-
Growth Tarif	%		0.00%		5.00%	

Tariffs	Unit	Periods				
		2026	2027	2028	2029	2030
Gol 1	Rp.	1,098	1,098	1,153	1,153	1,210
Gol 2		1,675	1,675	1,759	1,759	1,847
Gol 3		1,675	1,675	1,759	1,759	1,847
Gol 4		2,101	2,101	2,206	2,206	2,316
Gol 5		2,101	2,101	2,206	2,206	2,316
Gol 6		-	-	-	-	-
Growth Tarif	%	5.00%		5.00%		5.00%

Tariffs	Unit	Periods					
		2031	2032	2033	2034	2035	2036
Gol 1	Rp.	1,210	1,271	1,271	1,334	1,334	1,401
Gol 2		1,847	1,939	1,939	2,036	2,036	2,138
Gol 3		1,847	1,939	1,939	2,036	2,036	2,138
Gol 4		2,316	2,432	2,432	2,554	2,554	2,681
Gol 5		2,316	2,432	2,432	2,554	2,554	2,681
Gol 6		-	-	-	-	-	-
Growth Tarif	%		5.00%		5.00%		5.00%

4.8.2 Projection of Income Statement

According to Table 4.13, revenue in 2021 is assumed to grow by 12.1% (YoY) with LHR growth assumed to be 10% (YoY), based on table 4.8 with constant rates compared to 2020 rates. Revenue and traffic growth is still more conservative than the internal projections from PT X, namely in 2021 traffic growth of 42% and revenue growth of 39.3% (YoY). However, considering the 2021 end of year custom and social restriction policy from government are still not clear yet, the LHR growth taken is adjusted to 10%, in accordance with the realization of LHR growth in the first quarter of 2021 of 10.76%, so that revenue is projected to grow 12.1% (YoY).

In 2022 and beyond, it is assumed that toll road traffic growth has returned to normal alongside the implementation of the New Normal, which has an impact on increasing social activity and the national economy. The traffic growth is based on the findings of a traffic study conducted by consultants and is duly justified. These assumptions, as outlined in point 4.6.1, are integral to the considerations made.

In addition to the growth in ADT traffic, revenue growth is also anticipated due to the assumption that the government will periodically increase toll rates in accordance with the toll rate adjustment provisions outlined in Law No. 38 of 2004 and PPJT No. 10 of 2011, specifically in Article 11.4. This article stipulates that the adjustment of toll rates is targeted at addressing the effects of the inflation rate in the respective region. It's important to note that the increase in tariff might impact the fluctuation of ADT (Average Daily Traffic) as logistic costs increase. Furthermore, new transportation options for the Indonesian people may influence their choice of transportation mode for traveling in Java. The toll expense in the initial projection for the year 2021 has increased from the original historical 25.40% to 27% due to the non-linear growth in revenue from additional access to International Airport with the costs that arise with the additional access project. Furthermore, in 2022 and thereafter, the COGS is assumed to fall again by 25.4% according to the COGS in the historical period. One of the firm's strategies is to manage their cost efficiency. So, the firm hopes to manage their consistency of COGS composition.

Interest expenses are projected to decrease in the projection period in line with loan rate adjustments, and principal installments for IP facilities, both tranche A and tranche B. The 2018 syndicated loan is assumed to be refinanced with new facilities from Bank X and other banks in April 2021. The installments for the Tranche A facility are assumed to start in 2021, while the installments for the Tranche B facility are assumed to start in 2022 (there is a grace period) with the consideration that new construction will be completed in 2021.

EBITDA and EAT are projected to be positive with an increasing trend. The Net Profit Margin (EAT/Sales) for the projected year always records positive growth, even though in the initial year of the projection, namely 2021, from an expense perspective, there are still costs to be paid which are quite high due to the assumption of an increase in COGS for additional International Airport access. The NPM projection is quite conservative taking into account the increase in operating income and projected interest costs. Net Profit (EAT) in the projected year is positive in line with the growth in toll road revenues, as well as the decrease in interest costs in line with the principal installments in banking facilities. The company's EBITDA has also continued to increase, indicating a fairly good condition of the company's cash flow. For the full projection until 2035 will be shown in Appendix 1.

Table 4. 12 Projection of Income Statement

Detail Rp Million	PROJECTION							
	31/12/2021	360	31/12/2022	360	31/12/2023	360	31/12/2024	360
	Amount	%	Amount	%	Amount	%	Amount	%
Revenue	1,653,197	100.00	1,893,604	100.00	2,057,643	100.00	2,348,571	100.00
COGS	446,363	27.00	522,641	27.60	522,641	25.40	596,537	25.40
Gross Profit	1,206,834	73.00	1,370,962	72.40	1,535,001	74.60	1,752,034	74.60
Operational Expense	31,195	1.89	31,195	1.65	31,195	1.52	31,195	1.33
Operational Profit	1,175,639	71.11	1,339,767	70.75	1,503,806	73.08	1,720,839	73.27
Amortization	279,583	16.91	303,659	16.04	320,690	15.59	332,505	14.16
EBIT	881,174	53.30	1,021,226	53.93	1,168,235	56.78	1,387,140	59.06
Interest Expense	536,781	32.47	541,685	28.61	525,565	25.54	492,265	20.96
EBT	344,394	20.83	479,542	25.32	642,670	31.23	894,874	38.10
Tax	103,303	6.25	143,848	7.60	192,786	9.37	268,454	11.43
EAT	241,091	14.58	335,694	17.73	449,884	21.86	626,421	26.67

4.8.3 Projection of Balance Sheet Summary

In the projection of balance sheet (Table 4.12), the assumptions used are based on historical data of balance sheet and discussion with internal. Based on historical data trend, the composition of asset structure is stagnant such as other current asset, tax liabilities, derivative liabilities, employee benefit obligation, and non-current liabilities. for the full projection of balance sheet is shown in Appendix 2.

Table 4. 13 Projection of Balance Sheet Summary

Detail Rp Million	PROJECTION							
	31/12/2021	360	31/12/2022	360	31/12/2023	360	31/12/2024	360
	Amount	%	Amount	%	Amount	%	Amount	%
Total Current Asset	435,333	3.38	902,914	6.94	1,288,127	9.86	1,421,743	10.74
Total Non-Current Asset	12,429,640	96.62	12,111,099	93.06	11,775,527	90.14	11,810,654	89.26
Total Current and Non Current Asset	12,864,973	100.00	13,014,013	100.00	13,063,655	100.00	13,232,397	100.00
Total Current Liabilities	389,333	3.03	651,861	5.01	784,964	6.01	928,481	7.02
Non Current Tol Liabilities	8,866,273	68.92	8,417,092	64.68	7,883,746	60.35	7,282,550	55.04
Total Equity	3,609,367	28.06	3,945,061	30.31	4,394,945	33.64	5,021,366	37.95
Total Liabilities & Equity	12,864,973	100.00	13,014,014	100.00	13,063,655	100.00	13,232,397	100.00

Detail Rp Million	PROJECTION							
	31/12/2025	360	31/12/2026	360	31/12/2027	360	31/12/2028	360
	Amount	%	Amount	%	Amount	%	Amount	%
Total Current Asset	1,926,101	14.38	2,646,542	19.23	3,039,865	21.48	4,052,198	27.43
Total Non-Current Asset	11,469,701	85.62	11,112,576	80.77	11,109,039	78.52	10,723,309	72.57
Total Current and Non Current Asset	13,395,802	100.00	13,759,118	100.00	14,148,903	100.00	14,775,507	100.00
Total Current Liabilities	990,977	7.40	1,137,548	8.27	1,210,502	8.56	1,371,283	9.28
Non Current Tol Liabilities	6,660,313	49.72	5,970,227	43.39	5,259,099	37.17	4,480,121	30.32
Total Equity	5,744,513	42.88	6,651,344	48.34	7,679,303	54.27	8,924,103	60.40
Total Liabilities & Equity	13,395,803	100.00	13,759,118	100.00	14,148,903	100.00	14,775,507	100.00

Detail Rp Million	PROJECTION							
	31/12/2029	360	31/12/2030	360	31/12/2031	360	31/12/2032	360
	Amount	%	Amount	%	Amount	%	Amount	%
Total Current Asset	5,133,270	33.21	6,144,017	37.40	7,716,368	43.94	9,664,128	50.76
Total Non-Current Asset	10,324,856	66.79	10,284,622	62.60	9,845,342	56.06	9,376,132	49.24
Total Current and Non Current Asset	15,458,127	100.00	16,428,640	100.00	17,561,709	100.00	19,040,259	100.00
Total Current Liabilities	1,457,363	9.43	1,506,432	9.17	1,548,878	8.82	1,296,955	6.81
Non Current Tol Liabilities	3,680,102	23.81	2,943,207	17.92	2,227,353	12.68	1,879,800	9.87
Total Equity	10,320,662	66.77	11,979,001	72.92	13,785,479	78.50	15,863,505	83.32
Total Liabilities & Equity	15,458,127	100.00	16,428,640	100.00	17,561,709	100.00	19,040,259	100.00

Assets in the projection period show an increase dominated by non-current assets with an average of 72% of total assets with toll road concession rights dominating. The value of toll road concession rights is projected to decrease with the projected amortization based on the unit of usage method, and there is an assumption of an increase in HPJT in line with the assumption of road overlay in the 5th and 10th year after the toll road operates. Current assets are also projected to increase with an increase in cash in line with the increase in income in the projection period

Short-term liabilities and long-term liabilities show a downward trend due to the payment of long-term loan installments. The syndicated loan is assumed to be refinanced in 2021, with payments of the principal installments (progressive) starting in the first year for tranche A facilities and starting in the second year for tranche B facilities.

Equity is assumed to increase throughout the projection period with additional retained earnings in line with the assumption that a positive bottom line is recorded during the projection period. During the projection period, it is assumed that the mezzanine facility will be drawn down in 2021 in the amount of IDR 119 billion in accordance with PT

B's internal projections. In the projection period, it is assumed that there will be no mezzanine principal and interest payments.

4.8.4 Projection of Free Cash Flow

According to Table 4.14 during the projection period from 2021 to 2035, historical free cash flow exhibited negativity in 2020, primarily attributable to elevated principal and interest expenses. Subsequently, as the burden of principal and interest expenses diminishes—aligned with the repayment schedule, wherein these expenses progressively decrease each year—PT X successfully attains positive free cash flow, sustaining this trend until the conclusion of 2035. In addition to the reduction in principal and interest expenses, the positive and escalating revenue projections exert a favorable influence on the company's EBITDA, thereby supporting the overall cash flow.

Table 4. 14 Projection of Free Cash Flow

	2021	2022	2023	2024	2025	2026
EBITDA	1,175,639	1,342,493	1,553,163	1,811,763	1,961,476	2,237,555
EBITDA (1 - Tax)	1,072,336	1,197,828	1,345,570	1,516,032	1,616,865	1,803,249
NWC(t)	-	-	-	-	-	-
NWC(t-1)	26,325	-	-	-	-	-
CAPEX	76,798	61,916	47,034	45,840	44,646	43,452
Free Cash Flow (FCF)	1,021,863	1,135,912	1,298,536	1,470,192	1,572,219	1,759,797
Principal Expense	38,230	38,230	38,230	38,230	38,230	38,230
Interest Expense	536,781	541,685	525,565	492,265	470,598	431,520
FCF - (p+i)	446,852	555,997	734,741	939,697	1,063,392	1,290,047

	2027	2028	2029	2030	2031
EBITDA	2,419,129	2,746,572	2,975,343	3,312,448	3,520,883
EBITDA (1 - Tax)	1,922,789	2,142,552	2,292,642	2,516,607	2,655,977
NWC(t)	-	-	-	-	-
NWC(t-1)	-	-	-	-	-
CAPEX	42,258	-	-	-	-
Free Cash Flow (FCF)	1,880,531	2,142,552	2,292,642	2,516,607	2,655,977
Principal Expense	38,230	38,230	38,230	38,230	38,230
Interest Expense	391,075	346,219	299,996	249,362	197,361
FCF - (p+i)	1,451,226	1,758,103	1,954,416	2,229,015	2,420,386

	2032	2033	2034	2035
EBITDA	3,926,200	4,183,783	4,660,944	4,951,239
EBITDA (1 - Tax)	2,934,309	3,109,366	3,444,153	3,640,481
NWC(t)	-	-	-	-
NWC(t-1)	-	-	-	-
CAPEX	-	-	-	-
Free Cash Flow (FCF)	2,934,309	3,109,366	3,444,153	3,640,481
Principal Expense	38,230	38,230	38,230	38,230
Interest Expense	149,463	102,932	80,341	34,118
FCF - (p+i)	2,746,616	2,968,204	3,325,581	3,568,133

Based on the calculation of steady Free Cash Flow for 15 years from PT X, the estimation of terminal value and enterprise value are shown in Table 4.15.

Table 4. 15 Estimate of Enterprise Value

FCF	(13,150,179)	446,852	1,135,912	1,298,536	1,470,192	1,572,219
Tahun ke	0	1	2	3	4	5
Disc Factor		0.93	0.86	0.79	0.73	0.68
PV Value	(13,150,179)	413,642	973,343	1,029,997	1,079,485	1,068,603
Terminal Value	24,756,194					
PV of FCF	2,827,105					
PV of Terminal Value	7,773,088					
Enterprise Value	10,600,193					

4.9 Capital Budgeting Analysis

The method of capital budgeting analysis will investigate the continuity of feasibility study for the project based on Net Present Value, Internal Rate of Return, and Payback Period.

4.9.1 Net Present Value Result

This method assesses the difference between the present value investment with the present value of future net cash receipts. Calculation of net present value using discount factor of the cost of capital of 8,03% (in Rp Million)

Table 4. 16 NPV Result

	2021	2022	2023	2024	2025
EBIT	881,174	1,023,952	1,217,591	1,478,063	1,619,329
INTEREST EXPENSE	536,781	541,685	525,565	492,265	470,598
EBT	344,394	482,267	692,026	985,798	1,148,731
TAX	103,303	144,665	207,593	295,731	344,611
EAT	241,091	337,602	484,433	690,068	804,121
EBITDA	1,175,639	1,342,493	1,553,163	1,811,763	1,961,476
EBITDA (1-Tax)	1,072,336	1,197,828	1,345,570	1,516,032	1,616,865
DEPRECIATION + AMORTIZATION	294,465	318,541	335,572	333,699	342,147
INTEREST EXPENSE	536,781	541,685	525,565	492,265	470,598
CAPEX	76,798	61,916	47,034	45,840	44,646
NWC	-				
NWC (t-1)	26,325				
DEPRECIATION + AMORTIZATION	294,465	318,541	335,572	333,699	342,147
OUTLAYS	13,150,709				
FCF	(13,150,709)	1,021,863	1,135,912	1,298,536	1,470,192
		1,021,863	1,135,912	1,298,536	1,572,219

Cost of Debt :	6.15%
Cost of Equity :	16%
Porsi Pembiayaan :	
Debt :	70%
Equity :	30%
Outlay	13,150,179
WACC =	8.03%

B. NET PRESENT VALUE	=	2,214,418	(NPV > 0)		
KETERANGAN		2021	2022	2023	2024
FCF	(13,150,709)	1,021,863	1,135,912	1,298,536	1,470,192
DISC FACTOR		0.93	0.86	0.79	0.73
PV	(13,150,709)	945,907	973,320	1,029,961	1,079,435
					1,068,541

Based on table 4.15, the NPV result is Rp 2,214,418 Mio with the amount is above zero or positive (NPV>0). It indicates the future project cash flow are sufficient enough to cover the finance and cost of project. Other than that, based on amount of PV itself, it shows the repayment schedule applied to PT X are not going to create any loss in the future and PT X still be able to have excess cash flow.

4.9.2 Internal Rate of Return Result

Next step of discounted cash flow technique is to get the view of internal rate return. The internal rate of return will show the equalize present

value in the future to the initial cash outlay. The IRR rule is if the rate of return is higher than the opportunity of cost capital, firm could take the opportunity to invest.

Based on the calculation of IRR for the toll road project with additional international airport, the value IRR of project is 13,78% (Table 4.16) which higher than initial WACC of 8.03%. As the value of IRR is higher than WACC, the project is feasible to be continued and financed. The high IRR also shows the interest return from this project is higher compared to interest expense for this project.

Calculation of IRR:

$$= r_a + \left(\frac{NPV_{ra}}{NPV_{ra} - NPV_{rb}} \right) x (r_b - r_a)$$

$$= 5,15 + \left(\frac{16.376.030}{16.376.030 - 19.041.430} \right) x (7,15 - 5,15) = 13.78\%$$

Table 4. 17 IRR Result

C. IRR		13.78%				
KETERANGAN		2021	2022	2023	2024	2025
FCF	(13,150,709)	1,021,863	1,135,912	1,298,536	1,470,192	1,572,219
PV ATAS	7.15% (13,150,709)	953,675	989,373	1,055,547	1,115,335	1,113,146
PV BAWAH	5.15% (13,150,709)	971,815	1,027,368	1,116,931	1,202,644	1,223,114

4.9.3 Payback Period

Payback period method is used to know the period that the future net cash inflow will match the initial cash outlay. The cumulative cash flow based on table 4.17 would show the discounted payback period.

Table 4. 18 Payback Period Result

KETERANGAN		2021	2022	2023	2024	2025
FCF	(13,150,709)	1,021,863	1,135,912	1,298,536	1,470,192	1,572,219
ACCUMULATED FCF	(13,150,709)	(12,128,846)	(10,992,934)	(9,694,398)	(8,224,207)	(6,651,987)
YEARS		1	2	3	4	5

KETERANGAN		2026	2027	2028	2029	2030
FCF	(13,150,709)	1,759,797	1,880,531	2,142,552	2,292,642	2,516,607
ACCUMULATED FCF	(13,150,709)	(4,892,190)	(3,011,659)	(869,107)	1,423,535	3,940,142
YEARS		6	7	8	8	8

The payback period for the project is 8 years or until year 2028 the cash inflow already positive. Based on the payback period itself, the number is lower than the loan tenor (15 years) and concession right (46 years).

4.10 Sensitivity Analysis Scenario

The toll road project feasibility is going to be affected by conditions such as average daily traffic, tariffs, and maintenance cost variable. Sensitivity analysis will be used to find out the influence of those variables to feasibility of toll road project.

4.10.1 Change of Average Daily Traffic

Source of revenues of toll road are depends on the daily traffics. Revenues from toll roads operation are recorded when the sale of toll tickets or services are rendered and recognized at a point in time. Based on table 4.19, if the average daily traffic decrease to 8%, the NPV will be below zero and the toll road project become not feasible.

Table 4. 19 Sensitivity Testing for ADT

Sensitivity of ADT Variable					
Change	0%	-2%	-4%	-6%	-8%
NPV	1,013,397	720,470	427,542	134,614	-

4.10.2 Change of Tariff

Tariff of toll road determined by government and will be review every 2 years. There is possibility of government will raise or lower the tariff based on Indonesia economic condition.

According to table 4.20, the project will become not feasible if government lower toll road tariff until 42% from the current tariff.

Table 4. 20 Sensitivity Testing for Tariff

Sensitivity of Tariff					
Change	-10%	-20%	-30%	-40%	-42%
NPV	1,653,859	1,104,408	554,957	5,506	-

4.10.3 Change of Maintenance Cost

Road repair and maintenance service (Maintenance Cost) also have impact to the feasibility of toll road project. If the company could not maintain the efficiency with high maintenance cost, the project also could be not feasible.

If the maintenance cost is 42% of revenue, NPV will goes under zero and the toll road project is not feasible.

Table 4. 21 Sensitivity Testing for Maintenance Cost

Sensitivity of Maintenance Cost					
Change	30%	32%	34%	38%	40%
NPV	1,810,374	1,365,267	920,160	29,946	-

4.11.4 Change of Interest Rate

The toll road project expose to interest rate risk as its financing also come from Long Term Debt from Bank for 15 years. If the Bank decided to raise the interest rate, it could interfere the feasibility of its project. The project will be not feasible if the bank raises the interest rate until 10.5%

Table 4. 22 Sensitivity Testing for Interest Rate

Sensitivity of Interest Rate					
Change	7%	8%	9%	10%	10.5%
NPV	1,941,634	1,342,324	775,266	238,426	-

4.10.5 Result of Analysis

Based on the sensitivity analysis testing, average daily traffic is the most sensitive variable. For a slight decrease, it could interfere the feasibility of toll road project because average daily traffic is the source of revenue. Following by increase of interest rate, lowering tariff, and increase of maintenance cost.

CHAPTER V

CONCLUSION, RECOMMENDATION AND LIMITATIONS.

The fifth chapter shows conclusion, recommendation and limitations based on the conducted research.

5.1 Conclusion

The conclusion of this research will be concluded as follow:

- i. PT B demonstrates positive total assets, maintaining a stable amount around Rp 12 trillion. Non-current assets, primarily in the form of concession rights, dominate these holdings. The trend in liabilities is declining, corresponding to a reduction in loan obligations. PT B's equity consistently maintains a positive value from 2018 to 2020. The income statement reveals that PT B experienced an increase in revenue in 2018 and 2019, attributed to higher average daily traffic. However, despite these revenue gains, PT B recorded negative Earnings After Tax (EAT) in FY2018 and FY2019 due to a heightened portion of interest expenses. In FY2020, PT B achieved positive EAT, even though revenue experienced an 8.0% decline, primarily attributable to lower average daily traffic.
- ii. Based on the calculation of NPV, IRR, and PP by capital budgeting technique, it shows the Project of Toll Road Segment XY is feasible as $NPV > 0$ (Rp 2,214,418 Mio), $IRR > WACC$ ($13.56\% > 6.15\%$) and Payback Period is lower than Tenor of Loan (9 years lower than 15 years).

- iii. Based on conducted sensitivity analysis, at one point all of variables will have impact to the feasibility of the project. Four variables have impact to the feasibility of the project as follow:
- a. The project will become not feasible if Average Daily Traffic drops to - 8%.
 - b. The project will become not feasible if the interest rate of loan raise to 10.5% (current interest rate is 6.15%)
 - c. The project will become not feasible if government decide to cut the tariff until 42%.
 - d. The project will become not feasible if the company could not keep its efficiency and maintenance cost is 42% from revenue.

5.2 Recommendation

Based on the research conducted, several improvements can be made in the future for further research:

- i. Development of advanced capital budgeting techniques to yield superior results beyond the three most common methodologies, such as the profitability index.
- ii. Conducting a meticulous financial projection extending until the conclusion of the concession period, grounded in more precise assumptions.

5.3 Limitation of the Research

The research has several limitations which can be conclude as follow:

- i. The company is not listed (private company). Due to the type of company, few data are not available for public.
- ii. Uncertainty of future which impact the data collected for assumption might be not too exact.

REFERENCES

- Berk, J., & DeMarzo, P. (2017). *Corporate Finance*. England: Pearson Education Limited.
- Borgonovo, E., & Gatti, S. (2013). Risk Analysis with Contractual Default. Does Covenant Breach Matter? *European Journal of Operational Research* 230, 431-443.
- Brigham, E. F., & Daves, P. R. (2007). *Intermediate Financial Management*. Mason: Thomson Higher Education.
- Brigham, E., & Ehrhardt, M. (2008). *Financial Management: Theory and Practice* (12th ed.). USA: Thomson South-Western.
- Casseli, S., & Gatti, S. (2017). *Structured Finance* (2 ed.). Milan: Springer International Publishing.
- Chesheva, E., Goller, E., Diez, T. H., & Willian D., P. (2020). *Indonesia Public Expenditure Review: Spending for Better Results*. From The World Bank: <https://thedocs.worldbank.org/en/doc/976441590233778562-0070022020/original/IDPER2020Ch9Roads.pdf>
- Fight, A. (2006). *Introduction to Project Finance*. London: Butterworth-Heinemann.
- Indo Premier. (2019). *Jasa Marga: Re-initiating Coverage*. Jakarta: PT Indo Premier Sekuritas.

- Koh, A., Ang, S.-K., Ehrhardt, M., & Brigham, E. (2014). *Financial Management: Theory and Practice, An Asia Edition*. Singapore: Cengage Learning Asia Pte Ltd.
- Lu, C.-J., & Chen, C.-J. (2019). Debt covenants and analysts' Information Environment. *Asia-Pacific Journal of Accounting & Economics*, 17-37.
- Peraturan Otoritas Jasa Keuangan Nomor 42/POJK.03/2017. (n.d.). *Kewajiban Penyusunan dan Pelaksanaan Kebijakan Perkreditan atau Pembiayaan Bagi Bank Umum*. From Otoritas Jasa Keuangan: <https://www.ojk.go.id/id/kanal/perbankan/regulasi/peraturan-ojk/Documents/Pages/POJK-tentang-Kewajiban-Penyusunan-dan-Pelaksanaan-Kebijakan-Perkreditan-atau-Pembiayaan-Bank-bagi-Bank-Umum/SAL%20POJK%2042%20-%20PPKPB.pdf>
- Pike, R., & Neale, B. (2006). *Corporate Finance and Investment* (5th ed.). England: Pearson Education Limited.
- Republic of Indonesia Ministry of National Development Planning/National Development Planning Agency. (2020). *Public Private Partnership: Infrastructure Projects Plan in Indonesia 2020*. Jakarta: Republic of Indonesia Ministry of National Development Planning/National Development Planning Agency.
- Shim, J., & Siegel, J. (2005). *Budgeting Basics and Beyond*. New Jersey: John Wiley & Sons Inc.

Spiceland, C., Yang, L., & Zhang, J. (2006). Accounting quality, debt covenant design, and the cost of debt. *Review of Quantitative Finance and Accounting* 47, 1271-1302.

Tandelilin, E. (2010). *Portofolio dan Investasi: Teori dan Aplikasi*. Yogyakarta: Kanisius.

Undang - Undang Republik Indonesia Nomor 10 Tahun 1998. (n.d.). *Perubahan atas Undang - Undang Nomor 7 Tahun 1992 tentang Perbankan*. From <https://www.bphn.go.id/data/documents/98uu010.pdf>

World Economic Forum. (2019). *The Global Competitiveness Reports*. Switzerland: World Economic Forum.

Other Sources:

Feasibility Study PT B

Financial Report PT B

LIST OF APPENDIXES

Appendix 1: Projection of Income Statement

Appendix 2: Projection of Balance sheet

APPENDIX 1

Detail	PROJECTION													
Rp Million	360	31/12/2025	360	31/12/2026	360	31/12/2027	360	31/12/2028	360	31/12/2029	360	31/12/2030	360	
	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	
Revenue	100.00	2,518,355	100.00	2,840,772	100.00	3,040,353	100.00	3,414,841	100.00	3,662,044	100.00	4,111,238	100.00	
COGS	25.40	639,662	25.40	721,556	25.40	772,250	25.40	867,369	25.40	930,159	25.40	1,044,254	25.40	
Gross Profit	74.60	1,878,693	74.60	2,119,216	74.60	2,268,103	74.60	2,547,471	74.60	2,731,885	74.60	3,066,984	74.60	
Operational Expense	1.33	34,088	1.35	35,110	1.24	36,164	1.19	37,248	1.09	38,366	1.05	39,517	0.96	
Operational Profit	73.27	1,844,605	73.25	2,084,106	73.36	2,231,940	73.41	2,510,223	73.51	2,693,519	73.55	3,027,467	73.64	
Depreciation	0.05	1,194	0.05	1,194	0.04	1,194	0.04	1,194	0.03	1,194	0.03	1,194	0.03	
Amortization	14.16	340,953	13.54	357,125	12.57	372,364	12.25	385,730	11.30	398,452	10.88	409,060	9.95	
EBIT	59.06	1,502,459	59.66	1,725,787	60.75	1,858,382	61.12	2,123,299	62.18	2,293,873	62.64	2,617,213	63.66	
Interest Expense	20.96	470,598	18.69	431,520	15.19	391,075	12.86	346,219	10.14	299,996	8.19	249,362	6.07	
EBT	38.10	1,031,861	40.97	1,294,266	45.56	1,467,307	48.26	1,777,080	52.04	1,993,877	54.45	2,367,850	57.59	
Tax	11.43	309,549	12.29	388,271	13.67	440,183	14.48	533,115	15.61	598,154	16.33	710,346	17.28	
EAT	26.67	722,311	28.68	905,995	31.89	1,027,124	33.78	1,243,964	36.43	1,395,722	38.11	1,657,504	40.32	

Detail Rp Million	PROJECTION											
	31/12/2031	360	31/12/2032	360	31/12/2033	360	31/12/2034	360	31/12/2035	360	31/12/2036	360
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	JUMLAH	%
Revenue	4,367,310	100.00	4,864,869	100.00	5,180,817	100.00	5,766,505	100.00	6,065,052	100.00	6,701,006	100.00
COGS	1,109,297	25.40	1,235,677	25.40	1,315,928	25.40	1,464,692	25.40	1,540,523	25.40	1,702,055	25.40
Gross Profit	3,258,013	74.60	3,629,193	74.60	3,864,889	74.60	4,301,813	74.60	4,524,529	74.60	4,998,950	74.60
Operational Expense	40,702	0.93	41,923	0.86	43,181	0.83	44,477	0.77	45,811	0.76	47,185	0.70
Operational Profit	3,217,311	73.67	3,587,269	73.74	3,821,708	73.77	4,257,336	73.83	4,478,718	73.84	4,951,765	73.90
Depreciation	1,194	0.03	1,194	0.02	1,194	0.02	1,194	0.02	1,194	0.02	1,194	0.02
Amortization	439,281	10.06	469,210	9.64	498,238	9.62	523,410	9.08	546,704	9.01	570,094	8.51
EBIT	2,776,836	63.58	3,116,865	64.07	3,322,276	64.13	3,732,733	64.73	3,930,820	64.81	4,380,477	65.37
Interest Expense	197,361	4.52	149,463	3.07	102,932	1.99	80,341	1.39	34,118	0.56	5,536	0.08
EBT	2,579,475	59.06	2,967,402	61.00	3,219,343	62.14	3,652,391	63.34	3,896,702	64.25	4,374,941	65.29
Tax	773,834	17.72	890,212	18.30	965,794	18.64	1,095,709	19.00	1,169,002	19.27	1,312,474	19.59
EAT	1,805,642	41.34	2,077,190	42.70	2,253,549	43.50	2,556,683	44.34	2,727,700	44.97	3,062,468	45.70

APPENDIX 2

Detail	PROJECTION													
	360		31/12/2025		360		31/12/2026		360		31/12/2027		360	
	Rp Million	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Cash and Balance	7.85		1,542,963	11.52	2,263,762	16.46	2,657,443	18.79	3,670,135	24.85	4,751,565	30.75	5,762,670	35.09
DSRA	2.78		368,301	2.75	368,301	2.68	368,301	2.60	368,301	2.49	368,301	2.38	368,301	2.24
Other Current Asset	0.11		14,837	0.11	14,837	0.11	14,837	0.10	14,837	0.10	14,837	0.10	14,837	0.09
Total Current Asset	10.74		1,926,101	14.38	2,646,900	19.24	3,040,581	21.49	4,053,273	27.44	5,134,703	33.23	6,145,808	37.42
Fixed Asset	0.35		44,646	0.33	43,452	0.32	42,258	0.30	41,064	0.28	39,870	0.26	38,676	0.24
Net Consission Asset	89.25		11,468,545	85.62	11,111,420	80.77	11,107,883	78.52	10,722,153	72.59	10,323,700	66.80	10,283,466	62.62
Other Non Current Asset	0.01		1,156	0.01	1,156	0.01	1,156	0.01	1,156	0.01	1,156	0.01	1,156	0.01
Total Non-Current Asset	89.60		11,514,347	85.96	11,156,028	81.09	11,151,297	78.83	10,764,373	72.87	10,364,726	67.07	10,323,298	62.86
Total Current and Non Current A	100.35		13,440,448	100.34	13,802,928	100.33	14,191,878	100.32	14,817,646	100.31	15,499,430	100.30	16,469,107	100.28
Current Portion of LT Debt Bank X	1.69		231,000	1.72	256,189	1.86	264,000	1.87	289,189	1.96	297,000	1.92	273,566	1.67
Current Portion of LT Debt Other B	2.86		391,237	2.92	433,898	3.15	447,128	3.16	489,789	3.32	503,019	3.26	463,329	2.82
Tax Liabilities	2.03		309,549	2.31	388,271	2.82	440,183	3.11	533,115	3.61	598,154	3.87	710,346	4.33
Derivatife Liabilities	0.03		4,410	0.03	4,410	0.03	4,410	0.03	4,410	0.03	4,410	0.03	4,410	0.03
Other Current Liabilities	0.12		16,192	0.12	16,192	0.12	16,192	0.11	16,192	0.11	16,192	0.10	16,192	0.10
Current Overlay Portion	0.29		38,230	0.29	38,230	0.28	38,230	0.27	38,230	0.26	38,230	0.25	38,230	0.23
Total Current Liabilities	7.02		990,618	7.40	1,137,190	8.27	1,210,143	8.55	1,370,925	9.28	1,457,005	9.43	1,506,074	9.17
LT Liabilities Bank X	19.64		2,368,189	17.68	2,112,000	15.35	1,848,000	13.06	1,558,811	10.55	1,261,811	8.17	988,246	6.02
LT Liabilities Other Bank	30.53		3,648,347	27.24	3,214,449	23.37	2,767,321	19.56	2,277,531	15.42	1,774,512	11.48	1,311,183	7.98
Provision of maintenance toll road	1.91		252,508	1.89	252,508	1.84	252,508	1.79	252,508	1.71	252,508	1.63	252,508	1.54
Accrued Income - Long Term	0.05		7,141	0.05	7,141	0.05	7,141	0.05	7,141	0.05	7,141	0.05	7,141	0.04
Lease Liabilities	0.12		15,382	0.11	15,382	0.11	15,382	0.11	15,382	0.10	15,382	0.10	15,382	0.09
Employee Benefit Obligation	0.03		3,823	0.03	3,823	0.03	3,823	0.03	3,823	0.03	3,823	0.02	3,823	0.02
Non Current other liabilities	2.76		364,924	2.72	364,924	2.65	364,924	2.58	364,924	2.47	364,924	2.36	364,924	2.22
Non Current Tol Liabilities	55.04		6,660,313	49.72	5,970,227	43.40	5,259,099	37.18	4,480,121	30.33	3,680,102	23.81	2,943,207	17.92
Total Liabilities	62.05		7,650,932	57.12	7,107,417	51.66	6,469,242	45.73	5,851,046	39.61	5,137,107	33.24	4,449,280	27.09
Stock	9.49		1,256,272	9.38	1,256,272	9.13	1,256,272	8.88	1,256,272	8.50	1,256,272	8.13	1,256,272	7.65
Other Instrument Equity	26.52		3,508,782	26.20	3,508,782	25.51	3,508,782	24.80	3,508,782	23.75	3,508,782	22.71	3,508,782	21.36
Previous Equity.	(2.80)		256,312	1.91	978,623	7.11	1,884,618	13.32	2,911,742	19.71	4,155,706	26.89	5,551,429	33.80
Retained Earning	4.73		722,311	5.39	905,995	6.59	1,027,124	7.26	1,243,964	8.42	1,395,722	9.03	1,657,504	10.09
Total Equity	37.95		5,743,677	42.88	6,649,672	48.34	7,676,796	54.27	8,920,760	60.39	10,316,483	66.76	11,973,987	72.91
Total Liabilities & Equity	100.00		13,394,609	100.00	13,757,089	100.00	14,146,038	100.00	14,771,806	100.00	15,453,590	100.00	16,423,267	100.00

Detail	PROJECTION											
	31/12/2031		360		31/12/2032		360		31/12/2033		360	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Cash and Balance	7,335,379	41.78	9,283,497	48.78	11,395,682	54.23	13,895,755	60.44	16,804,917	66.29	20,128,154	70.69
DSRA	368,301	2.10	368,301	1.94	368,301	1.75	368,301	1.60	368,301	1.45	368,301	1.29
Other Current Asset	14,837	0.08	14,837	0.08	14,837	0.07	14,837	0.06	14,837	0.06	14,837	0.05
Total Current Asset	7,718,517	43.97	9,666,635	50.79	11,778,820	56.05	14,278,893	62.11	17,188,055	67.80	20,511,292	72.04
Fixed Asset	37,482	0.21	36,288	0.19	35,094	0.17	33,900	0.15	32,706	0.13	31,512	0.11
Net Consission Asset	9,844,186	56.07	9,374,976	49.26	9,245,563	44.00	8,722,154	37.94	8,175,449	32.25	7,974,181	28.01
Other Non Current Asset	1,156	0.01	1,156	0.01	1,156	0.01	1,156	0.01	1,156	0.00	1,156	0.00
Total Non-Current Asset	9,882,824	56.29	9,412,420	49.45	9,281,813	44.17	8,757,210	38.09	8,209,311	32.38	8,006,849	28.12
Total Current and Non Current A	17,601,340	100.26	19,079,055	100.24	21,060,633	100.22	23,036,102	100.20	25,397,367	100.18	28,518,141	100.16
Current Portion of LT Debt Bank X	265,754	1.51	264,000	1.39	264,000	1.26	163,246	0.71	31,246	0.12	-	0.00
Current Portion of LT Debt Other B	450,100	2.56	83,553	0.44	447,128	2.13	276,483	1.20	53,919	0.21	-	0.00
Tax Liabilities	773,834	4.41	890,212	4.68	965,794	4.60	1,095,709	4.77	1,169,002	4.61	1,312,474	4.61
Derivatife Liabilities	4,410	0.03	4,410	0.02	4,410	0.02	4,410	0.02	4,410	0.02	4,410	0.02
Other Current Liabilities	16,192	0.09	16,192	0.09	16,192	0.08	16,192	0.07	16,192	0.06	16,192	0.06
Current Overlay Portion	38,230	0.22	38,230	0.20	38,230	0.18	38,230	0.17	38,230	0.15	38,230	0.13
Total Current Liabilities	1,548,520	8.82	1,296,597	6.81	1,735,754	8.26	1,594,270	6.93	1,312,999	5.18	1,371,306	4.82
LT Liabilities Bank X	722,491	4.12	458,491	2.41	194,491	0.93	31,246	0.14	0	0.00	0	0.00
LT Liabilities Other Bank	861,084	4.90	777,531	4.09	330,403	1.57	53,919	0.23	(0)	-0.00	(0)	-0.00
Provision of maintenance toll road	252,508	1.44	252,508	1.33	252,508	1.20	252,508	1.10	252,508	1.00	252,508	0.89
Accrued Income - Long Term	7,141	0.04	7,141	0.04	7,141	0.03	7,141	0.03	7,141	0.03	7,141	0.03
Lease Liabilities	15,382	0.09	15,382	0.08	15,382	0.07	15,382	0.07	15,382	0.06	15,382	0.05
Employee Benefit Obligation	3,823	0.02	3,823	0.02	3,823	0.02	3,823	0.02	3,823	0.02	3,823	0.01
Non Current other liabilities	364,924	2.08	364,924	1.92	364,924	1.74	364,924	1.59	364,924	1.44	364,924	1.28
Non Current Tol Liabilities	2,227,353	12.69	1,879,800	9.88	1,168,672	5.56	728,943	3.17	643,778	2.54	643,778	2.26
Total Liabilities	3,775,872	21.51	3,176,396	16.69	2,904,426	13.82	2,323,212	10.11	1,956,776	7.72	2,015,083	7.08
Stock	1,256,272	7.16	1,256,272	6.60	1,256,272	5.98	1,256,272	5.46	1,256,272	4.96	1,256,272	4.41
Other Instrument Equity	3,508,782	19.99	3,508,782	18.44	3,508,782	16.70	3,508,782	15.26	3,508,782	13.84	3,508,782	12.32
Previous Equity.	7,208,933	41.06	9,014,574	47.36	11,091,764	52.78	13,345,314	58.05	15,901,996	62.73	18,629,696	65.43
Retained Earning	1,805,642	10.29	2,077,190	10.91	2,253,549	10.72	2,556,683	11.12	2,727,700	10.76	3,062,468	10.76
Total Equity	13,779,628	78.49	15,856,818	83.31	18,110,368	86.18	20,667,050	89.89	23,394,750	92.28	26,457,218	92.92
Total Liabilities & Equity	17,555,501	100.00	19,033,215	100.00	21,014,793	100.00	22,990,262	100.00	25,351,527	100.00	28,472,301	100.00



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