

## REVALUATION OF FEASIBILITY STUDY IN DETERMINING LOAN FACILITY AND TENOR FROM BANK MANDIRI (CASE OF PT BUGAR HOSPITAL)

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**Abstract:** *PT Bugar Hospital is a hospital that plans to build its business in 2021, this hospital needs funding to execute the plan, the amount of shortfall in this business investment is 35 billion rupiah, therefore the hospital is trying to refer to Bank Mandiri to carry out a long-term loan. There is no financial historical data, the only data available is future projection data. Every ratio made by this hospital needs to be verified. This study aims to examine every assumption and calculation made by the borrower, as well as the borrower's ability to repay any long-term loans. Bank Mandiri has calculated the loan principal, interest and tenor. The methodology discusses internal analysis research & external analysis. Internal analysis clarifies the company's stakeholder analysis. External analysis describes Porter's five forces for market prospects and a SWOT analysis. Risk management will be carried out with a sensitivity analysis after the calculation of the feasibility study analysis of the hospital. In addition, the Monte Carlo simulation is conducted to determine the probability of the debt service coverage ratio that may occur. From the results of the calculation of this study, it was found that the decision to have an NPV was IDR -61,118,610,207.94, while from the DSCR perspective it was 0.97. The WACC used is 21.91%. The internal rate of return is 5%.*

**Keywords:** *debt service coverage ratio, feasibility study analysis, sensitivity analysis*

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## Introduction

Acquired from ministry of health, the ratio of hospital beds in Indonesia in 2015 was 1.21 per 1000 population. This ratio increased compared to 2014, which was 1.07 per 1000 population. In 2019, the ratio of hospital beds in Indonesia is 1.17 per 1,000 population. This means that Indonesia only has 1 hospital bed per 1,000 inhabitants. This figure is very far compared to South Korea which has approximately 11 hospital beds per 1,000 population. The area that has the most beds is in PT Bugar Hospital (deliberately disguised as confidential purpose) is a hospital that would be established in the middle of 2021, to be precise in the middle part of Indonesia (would be stated as Z province in the future). The hospital as a C Class hospital needs funding to construct the project, one of the funders are individuals also the parent companies. The hospital needs more resources to fund, the answer comes from a bank loan. The bank that PT Bugar Hospital aims for is Bank Mandiri, the bank is one of the biggest banks in Indonesia. With the reputation and variance of products & services Bank Mandiri has, a lot of individuals and groups choose this bank as their option. DKI Jakarta. DKI Jakarta is able to provide 2 hospital beds per 1,000 inhabitants. The class of hospitals is differentiated into 4 classes, which are hospital A class, B class, C class, and D class. Class A hospital must have facilities and medical service capability of at least 4 basic medical specialists, 5 medical support specialists, 12 other medical specialists, and 13 subspecialists. Both the facilities and infrastructure as well as the type A hospital equipment must meet the standards set by the minister. Besides, radiology and nuclear medicine equipment must meet the standards by the provisions of the law. In class A hospitals, patients can enjoy general medical services, emergency services, basic specialist medical services, medical support specialist services, other specialist medical services, oral dental specialist medical services, subspecialty medical services, nursing, and midwifery services, supporting services. clinics, and non-clinical support services. Class C public hospitals further limit their medical services, which provide at least 4 basic medical specialists and 4 medical support specialists. Here, people can enjoy general medical services, emergency services, basic medical specialists, medical support specialists, oral dental specialists, nursing and midwifery, as well as clinical and non-clinical support services. In class D public hospitals there are at least 2 basic specialist medical services, with facilities and service capabilities that include general medical services, emergency services, basic specialist medicine, nursing, and midwifery, as well as clinical and non-clinical support services. PT Bugar Hospital (deliberately disguised as confidential purpose) is a hospital that would be established in the middle of 2021, to be precise in the middle part of Indonesia (would be stated as Z province in the future). The hospital as a C Class hospital needs funding to construct the project, one of the funders are individuals also the parent companies. The hospital needs more resources to fund, the answer comes from a bank loan. The bank that PT Bugar Hospital aims for is Bank Mandiri. Bank Mandiri has a high demand for a bank loan and making the bank requires a hectic schedule for reviewing the bank loan proposal. Fortunately, for a great bank like Bank Mandiri, they own a system to calculate the principle of the loan, interest also a tenor. So, the bank could focus on doing qualitative research towards the borrower with 5C analysis. The highlight in this research is the capacity of the borrower, the borrower could adjust their company financial position so the loan could be given. Unfortunately, the bank doesn't have time to assess whether the capacity of the borrower is acceptable or not by investigating every assumption, the bank has a short amount of time for doing this analysis because they need to review other bank loan proposal and conducting another qualitative analysis. The headache of the credit analyst becomes greater if the business that would take the loan is a company that wants to establish a new business, in this situation the borrower (PT Bugar Hospital) asking for a loan to establish the business in the next year, so the money needed will be invested for building a hospital and

any other hospital needs. The risk becomes higher than any other bank loan scenario, the only financial information provides is the financial projection assumption until the next 8 years. In response to the insufficient time of the bankers to assess whether the bank loan is acceptable from the perspective of financial project investment assumption, this research aims to check every assumption and calculation done by the borrower, also the ability of the borrower to pay every cost that already set. Considering the bank loan principal, interest, and tenor that Mandiri would give. The research objective of this thesis is as the academic review of the feasibility study PT Bugar Hospital, calculating whether the hospital can pay the bank loan, find out that the project of investment done by the hospital is feasible or not, reconsider the numbers that the bank calculated is the most suitable, hopefully, this thesis could be an input for the bank to decide to accept or decline the bank loan. This thesis doesn't conduct all the 5C credit analysis, the highlight only goes to the capacity of the PT Bugar Hospital that has been projected for the next 8 years and taking Bank Mandiri side whether to accept or reject the bank loan. The author ensures every assumption done by the hospital is acceptable or not by doing qualitative information from the expert, digging information from the internet, and some assumption comes from the target management of PT Bugar Hospital Management. From the perspective of the bank, the author only takes assumption from Mandiri's view regarding instruments needed to acquire bank loan in Mandiri in perspective of the capacity, the author doesn't have capabilities to calculate the suitable tenor, interest, and principle of the bank loan. The hospital feasibility study purpose focus on the investment, doesn't conclude other instrument that measure the feasibility of the hospital in perspective of hospital management.

## **Literature Review**

### **Internal Analysis**

In analyzing the internal analysis, the author uses stakeholder analysis. The relationship that occurs between stakeholders, a hospital project is said to be profitable if all stakeholders are willing to fulfill their obligations so that they get rights according to the initial agreement that has been agreed. So that there is a mutually beneficial mutual relationship between the parties involved or in other words, all stakeholder expectations have been met. Whether stakeholders are central, strategic or environmental will depend on their main characteristics or qualities, such as legitimacy, power, and urgency (Archie B. Carroll, Ann K. Buchholtz., 2017). Stakeholders could then switch from category to category in a complex, flowing and time-dependent manner. This compilation of words for defining the stakeholders is useful because it captures, to a degree, the contingencies and complexities that need to be considered in the actual situation.

### **External Analysis**

For the external analysis the author uses Porter's Five Forces. For Porter's Five Forces use for determining about industry competitiveness in view of buyers, suppliers, new entrants, substitute of the hospital and rivalry among competitors. The power of customers, the willingness of consumers to push rates down. The rivalry among competitors, the greater the number of rivals, along with the number of similar goods and services they provide, the lower the influence of the company. Threats of new entrants tells the new business into an industry threaten the position of the company because it will add the competitive pressure. The power of suppliers, how effectively manufacturers can absorb the expense of inputs. The number of suppliers of main inputs of a product or service is affected, how special these inputs are, and how much it would cost a business to turn to another supplier. The fewer suppliers to the

industry, the more dependent the business will be on the supplier. The threats of substitutes, substitute goods or services that may be threat in place of the products or services, companies that manufacture goods or services for which there are no near alternatives would have the leverage to raise costs and to tie them up on better terms. (Thompson, 2018).

### **Mix of Internal & External Analysis (SWOT Analysis)**

SWOT believes that strengths and weaknesses are define as the internal analysis, while opportunity and threats are describing the external. SWOT is an acronym for the four parameters investigated by the technique. Strengths features of an organization or a mission that offer it an edge over others. Weaknesses features that put a company or a project at a disadvantage compared to others. Opportunities, environmental elements that a company or a project might leverage to its benefit. Threats, environmental elements that could create issues for the company or the project.

### **Feasibility Study**

A feasibility study is an investigation that takes into account all pertinent aspects of the project, including fiscal, technological, legal and scheduling considerations, in order to assess the probability of successful completion of the project. (Kenton, 2020). The cost of capital is the cost of funding the firm and the minimum amount of return that the project would receive in order to maximize the firm's valuation. WACC also represents the estimated total potential capital expense over the long term. WACC calculated by weighting the debt and equity costs by each proportion of the capital structure of the company (Gitman, L. J., & Zutter, C. J., 2015). The cost of debt is the cost of funding additional funds generated by long-term borrowing. The interest paid to the lender is tax free by the company, so the interest on the mortgage decreases the net income of the company. In order to assess the net debt expense of the business, measure the tax benefits provided by the debt and resolve the costs of the long-term debt on a post-tax basis (Gitman, L. J., & Zutter, C. J., 2015). The cost of equity is the return expected by the company to determine if the investment satisfies the capital return criteria. The expense of equity of a company shall be compensated by business demands in return for holding the asset and bearing the burden of ownership. The standard formula for the cost of equity is the capital asset pricing model (CAPM). (Gitman, L. J., & Zutter, C. J., 2015). Betas calculates the risk added when engaging in a diversified portfolio. As a result, they are ideally suited to companies where the median investor is diversified. For private companies, the owner is always the sole creditor and can therefore be seen as a marginal investor. Moreover, in most commercial businesses, the director continues to have all of his or her capital invested in private sector and does not have the potential to diversify. As a result, it can be claimed that betas would understate the vulnerability of these companies to business risk. The author using "Adjusting for Non-Diversification" Damodaran method to calculate the company beta. (Damodaran, 2020). Net working capital is the difference between the existing assets of a company and its current liabilities. Net working capital is measured using line items from the balance sheet of the company. Generally, the higher your overall surplus of working capital, the more likely it is that your business will be able to fulfill its financial obligations. Shows on the net working capital the instrument that construct the NWC are account receivables, inventories, account payable, and accruals (Gitman, L. J., & Zutter, C. J., 2015). Free cash flow to the firm (FCFF) reflects the volume of cash flow from activities available for delivery on account of depreciation, tax, working capital and acquisition expenditures. FCFF is an indicator of the performance of a business after both spending and reinvestment. (Gitman, L. J., & Zutter, C. J., 2015). Terminal value (TV) is the value of a company or project outside the projected horizon

where potential cash flows can be expected. Terminal valuation means that the company will expand at a constant growth rate indefinitely after the projected period. Terminal value is also a significant proportion of the overall value measured. The Formula of terminal value shows below (Gitman, L. J., & Zutter, C. J., 2015). Net present value is the contrast between the present value of cash inflows and the present value of cash outflows over time. NPV is used to assess the feasibility of the planned expenditure or scheme in capital budgeting and investment planning. Positive NPV means more lucrative investment, and negative NPV shows the investment doesn't feasible (Gitman, L. J., & Zutter, C. J., 2015). The internal rate of return is a calculation used in the financial analysis to assess the viability of future investments. The internal rate of return is a discount rate which makes the NPV of all cash flows equal to zero in the discounted cash flow analysis. A positive IRR means that the endeavor is successful, whereas a negative IRR implies an undertaking that would produce a loss (Gitman, L. J., & Zutter, C. J., 2015). The payback period applies to the length of time it takes to repay the investment expense. Simply put, the payback period is the amount of time the investment has hit a break-even rate. The desirability of an investment is directly correlated to its payback time. Shorter paybacks mean more lucrative spending. Based on the estimate, the discounted payback time for the company's investment project couldn't analyze. This means that the company payback period is over the time of the projection plan (Gitman, L. J., & Zutter, C. J., 2015). The profitability index defines an index which reflects the relationship between the costs and the benefits of the proposed project. It is measured as the ratio between the current value of the projected potential cash flows and the original sum spent in the enterprise. If the project has a profitability index higher than 1, the organization should invest in the project (Gitman, L. J., & Zutter, C. J., 2015). The Debt Service Coverage Ratio (DSCR) is an important principle for real estate financing and commercial lending. It is important when it comes to underwriting commercial real estate and company leases, as well as tenant finances, and is a crucial aspect of deciding the full amount of the loan. In this post, we're going to take a deep dive into the debt service coverage ratio and take a few examples along the way (Gitman, L. J., & Zutter, C. J., 2015). Sensitivity analysis is a financial model that specifies how target variables are influenced by changes in other variables known as input variables. This paradigm is often referred to as a study of what-if or simulation. It is a means of estimating the outcome of a decision given a set of variables. By constructing a number of variables, the analyst will decide how changes in a single variable influence the result. Scenario analysis is the method of calculating the potential value of the portfolio over a given period of time, assuming that specific changes in the prices of the portfolio assets or main variables, such as changes in the interest rate, take place. Scenario analysis is widely used to predict portfolio valuation shifts in relation to an adverse occurrence which can be used to analyze the possible worst-case scenario. Monte Carlo simulation is a model used to predict the probability of different outcomes when the intervention of random variables is present. Monte Carlo simulations help to explain the impact of risk and uncertainty in prediction and forecasting models. The basis of a Monte Carlo simulation involves assigning multiple values to an uncertain variable to achieve multiple results and then to average the results to obtain an estimate. (Kenton, 2020).

## Methods

The analysis approach is a technique that offers the evidence to be gathered and then interpreted and analyzed. The author uses primary data from Bank Mandiri in this study. Meanwhile, for external analysis, the author gathers secondary data for the analysis of Porter's Five Forces. Then, the author will do the feasibility analysis. First, the investment project modelling, taking assumption about the portion that Bank Mandiri accept towards the total of the investment.

Second, the assumption review is rechecking the former financial project assumption before remodel. Third, done project analysis by making any account according to the investment project analysis until the year of the bank loan end. Fourth, done both sensitivity analysis to NPV and DSCR, the goal is to understand the instrument that could affect the NPV of the hospital also affect the ability to pay the long-term debt. The author will focus on the DSCR to make the scenario, because this instrument is the one that would answer the business issue. End of study would conclude the risk and scenario that has been done.

### Discussion and Conclusion

The purpose of an investment is a commodity that is bought with the intention of producing more revenue at some stage in the future. In this initiative, the company's investment planning goal is to build a new hospital, a hospital that will be completed in 2021. The instrument that will be invested as defined in the table below.

**Table 1: Project Assumptions**

Investment	Cost
Land	30,000,000,000.00
Plant	15,000,000,000.00
Transportation	500,000,000.00
Medical Devices	40,000,000,000.00
General devices	200,000,000.00
Electronic Devices	500,000,000.00
Computer	1,000,000,000.00
Furniture	500,000,000.00
financing required	87,700,000,000.00

Source: (PROCESSED DATA, 2020)

From the table above told that total financing required for investment of the hospital about 87.7 billion Rupiah, 40% financing goes from Bank Mandiri bank loan, the rest goes from self-financing by the equity holder. As for the instrument projection that would be sold by the hospital divided into two, which are products and services. In the products the hospital sold medicine from outpatient, outpatient specialist medicine, inpatient, and medical checkup. All of the sales approach rise according to inflation annually, because the hospital need to compete with current condition to continuously generate money. Excluding the medical checkups (MCU), the hospital doesn't rise the medical checkup price since the MCU is stable in cost of goods sold. For the service income the hospital has various types, there are general practitioner doctor salary, specialist doctor salary, action, variety of room for inpatient that include the food, treatment, and doctor visit. There are still many actions that could be profited from the service which are operation action, inpatient drug dependency, operation action for pregnant mom, pregnancy control, administration from outpatient I, administration from outpatient II, administration from inpatient, laboratories, x-ray, dentist, observation, ECG, neurosurgery, nebulizer, phototherapy, USG, NST, laparoscopy/endoscopy, ambulance, and hemodialysis. All of the price projected rise as much the inflation annually, because the approach of cost of revenue comes from the percentage of specific of sales. For the cost of revenue, the hospital taking assumption from percentage of specific sales as stated on sales projection, the author could not calculate the intrinsic value of each cost because insufficient data and information,

but still the author digging information from many sources, which are from web and hospital management practitioner to be precise as the consultant of the hospital management. The cost of medicine stated from the projection done by PT Bugar Hospital is about 50%, but based on qualitative information 60% medicine sales is the most optimist approach, it could not be any lower, the cost of medicine range goes from 60% until 90%. The cost of MCU is pretty low, because many hospital source of revenue mostly come from this MCU about 20% cost. Based on the projection the author found that the consultant of the hospital used the honorarium of specialist doctor, operation, operation from pregnancy, and doctor visit is totally for the doctor itself, this calculation is doesn't acceptable because there's no revenue could be generated for the hospital in this process. The author found that the honorarium for each specialist doctor, operation, operation from pregnancy, and doctor visit is 60% all of it, it's already on the most optimist approach, the cost couldn't go any lower because the doctor wouldn't want to work in this hospital if it's not favorable for them.

**Table 2: Hospital Workforce**

Medical Human Resources			
Position	People	Salary	Total
Special Doctor	23	15,000,000.00	345,000,000.00
General Doctor	4	5,000,000.00	20,000,000.00
Nurse	20	3,500,000.00	70,000,000.00
Midwife	6	4,000,000.00	24,000,000.00
Nutrient	2	3,000,000.00	6,000,000.00
Apothecary	3	4,500,000.00	13,500,000.00
Apotachary\ Assistant	2	3,000,000.00	6,000,000.00
Radiograph	3	4,000,000.00	12,000,000.00
Health Analyst	5	4,000,000.00	20,000,000.00
Medical Records	2	3,000,000.00	6,000,000.00
Environmental Helath	1	2,700,000.00	2,700,000.00
Non-medical Human Resources			
Position	People	Salary	Total
Cashier	3	2,000,000.00	6,000,000.00
Accounting	1	3,500,000.00	3,500,000.00
Technician	1	3,000,000.00	3,000,000.00
Front Office	4	3,000,000.00	12,000,000.00
Human Resource	3	3,500,000.00	10,500,000.00
IT	1	3,500,000.00	3,500,000.00
Waitress	2	2,700,000.00	5,400,000.00
Chef	2	3,000,000.00	6,000,000.00
Grand Total			575,100,000.00

Source: (PROCESSED DATA, 2020)

The number of people working in the hospital acquired by the author from Bugar Hospital human resource description. The Salary shows above regional minimum wage in X District, which is 2,538,000 Rupiah, and the grand total for the fixed cost is 575,100,000 Rupiah. For other information that couldn't be found by the author, author use the provided information by the projection assumption which are consumption for inpatient 100,000 rise as much inflation annually, laboratory cost 70% from the lab service, x-ray 65%, nebulizer 5%, ECG 20%, neurosurgery 5%, USG 5%, NST 5%, L/Endoscopy 85%, haemodialysis 85%, ambulance 10%.

The consultant of the hospital needs to be thorough of their projection, because in the cost of revenue the hospital doesn't include the fixed cost of labour cost. from the qualitative information the cost of labour is very optimistic to aim 15%, the range of labour cost from 15% until 40% tot the total revenue.

**Table 3: Number Of Hospital & Bed In Z Province**

No	City	Type of Hospital		Sum	Number of Bed
		General Hospital	Special Hospital		
1	A	2	1	3	165
2	B	6	1	7	278
3	C	4	3	7	344
4	D	5	0	5	402
5	X	1	1	2	166
6	E	1	0	1	93
7	F	1	0	1	96
8	G	6	0	6	426
9	H	10	5	15	1074
<b>Sum</b>		<b>20</b>	<b>6</b>	<b>26</b>	<b>1544</b>

Source: (PUBLIC HEALTH OFFICE Z PROVINCE, 2020)

From the data on health facilities above, it can be described in terms of the number of health facilities in the form of hospitals, which is relatively large. However, the capacity in the form of the number of hospitals as a whole is still relatively insufficient, when compared with the population of Z Province. This condition is an opportunity as well as a need for hospital development. So for District X, when viewed from the projection of the population in 2019, it is 179,100 people compared to 166 beds in Regency X. then a comparison is obtained; beds 1: 1079 inhabitants, while the ratio of bed and population according to WHO is 1: 200 or 5 bed for 1000 Population. So, in District X, there are still 879 beds shortage. When viewed from the comparison of beds above, the prospects and needs for the development of a hospital in X district are very likely to be able to provide health services that are increasingly decent and affordable.



**Table 4: Bugar Hospital Traffic Assumption**

BOR (bed occupancy rate)	50.00%
Inpatient in a Year	6,448.33
Hemodialysis	252.00
Medical check Up traffic	18,975.00
Outpatient IGD	9.98
Outpatient From Specialist	19.96
Total of bed	106.00
number of days in a year	365.00
Action % from Outpatient coming	0.50
Number of X Citizen	179,100.0
indonesi population growth	1.10%
Percentage of Morbidity in X	11.94%
Number of people of city X need doctor	21,857.59
Divided by two hospital in X District	10,928.79
Outpatient per Day	29.94

Source: (CENTRAL BUREAU OF STATISTICS OF X DISTRICT & PROCESSED DATA, 2020)

For the sales assumption the author uses information from the total population of Z Province in 2020 as the driver to analyse the number of patients. the author figured out the number of people that would come to PT Bugar Hospital based on central bureau of statistics of X data and divided by two hospital in the X district excluded the special hospital because it has different market purpose, also the special hospital has below 40 number of beds. From this assumption could found that inpatient based on bed occupancy rate (from hospital target BOR & valid because X district has lack of hospital) times number of beds, divided by number of day people inpatient in hospital, times number of days in a year. The author found that outpatient from specialist is based on 66.7% of total outpatient in a day, the rest goes to outpatient in IGD, this assumption found because lot of people come to hospital for the doctor specialist, the cause of specific need of patients, not for the general doctor. In this research, the cost of debt acquires from the investment projection found about 8.19%, this value is still rational because it's over the risk-free rate 6.18% on 10-year government bond yield 22 December 2020. The cost of equity found 18.57%, in response the business doesn't yet established, so it will show a risky value towards the equity holder, the instrument that making this cost of equity higher is the beta, with value 3.14. The result shows the required return needed in this investment is 21.91%.

**Table 5. WACC**

Description	Weight	Cost	Weighted cost
<b>Cost of Debt</b>	40.83%	8.19%	3.34%
<b>Cost of Equity</b>	59.18%	31.37%	18.57%
<b>WACC</b>			<b>21.91%</b>

Source: (PROCESSED DATA, 2020)

The terminal value approach used by the author by using the number of Indonesia GDP. The author assumption taking the GDP as the approach to calculate the terminal values is because the company growth will be competitively move towards the Indonesia GDP. The terminal growth author used come from International Monetary Fund, based on Indonesia projected GDP in 2025, 5.1%, and the discount rate come from the WACC of Bugar Hospital. All the ratio data

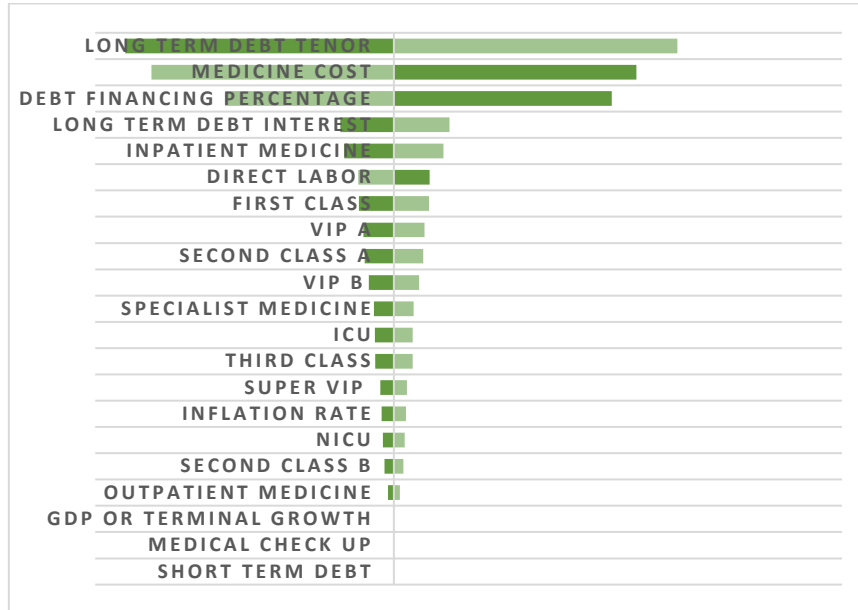
for constructing the NWC acquired by the author from the benchmark data of four big companies listed in the capital market. The account receivables of the company collected by the average collection period benchmark data times 30% of sales on credit, times the revenue divided by 365 days, the inventories the author acquired by average age of inventories of benchmark data, times the cost of goods sold divided by the 365 days. For account payable the formula by average age payment period times the cost of goods sold, times the 70% of purchasing from the cost of goods sold. Last the accruals from the ratio of accruals towards the general & administrative of benchmark data, times the revenue generated by Bugar Hospital. The Net working capital shows rising from the first year 971 million Rupiah to 1,988 million Rupiah. The simulation shows that Bugar Hospital doesn't need to issue new short term debt loan to execute the business.

**Table 6: Capital Budgeting Analysis**

<b>Payback Period</b>	<b>7.87</b>
<b>Discounted Payback Period</b>	<b>#N/A</b>
<b>Net Present Value</b>	<b>-Rp61,150,641,156.72</b>
<b>Profitability Index</b>	<b>0.30</b>
<b>IRR</b>	<b>5.00%</b>

Source: (PROCESSED DATA, 2020)

The NPV estimations are based on the cash flows of the company in the financial forecast. Since combining three parts of the cash flow, the original spending, the incremental cash flow and the terminal cash flow, the NPV can be determined using the current project discount rate. Based on the tables, the company's expenditure NPV is -Rp61,150,641,156.72. Based on calculations, IRR of the investment project of the company is 5.00%. The result of 5.00% of IRR is below than 21.91% of WACC. Lower IRR than WACC shown that the investment is doesn't profitable towards the shareholder. The payback period show in almost year 8, this value on the year 8 has sum up with the terminal value, so the project breakeven point is over the length of the project. Based on calculations, the profitability index of the investment project of the company is 0.30, lower than 1 means the project doesn't profitable. Based on the calculation of the hospital ability to pay Bank Mandiri long term debt, the author taking the approach by having the operating profit plus depreciation and amortization, divided by sum of the current portion long-term debt and interest expense. The author excludes the year 1, because in year one too much expense charged towards the hospital. Occurring the minimal hospital ability to pay the debt shows in year two, 0.97 DSCR. Then could be assumed that the long-term debt could be executed. Because in Bank Mandiri if the DSCR over than 90% is still acceptable, with the terms and condition that must be fulfilled. The author tries to figure how much minimum DSCR from year 1 until 8 could be generated on each of instruments, the use of swing is 15% from the actual position, as the author doing his analysis, he found that some of the instruments above the percentage of swing which are the debt financing percentage, medicine cost, and the long-term debt tenor. To visualize the calculation done by the author, it will be described in tornado chart below:



**Figure 1: DSCR Tornado Chart**  
 Source: (PROCESSED DATA, 2020)

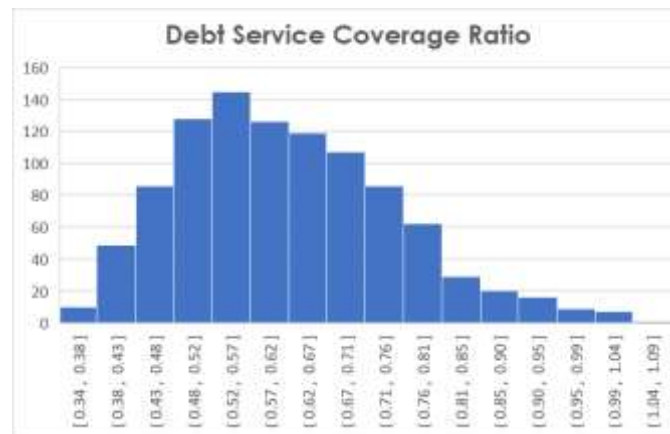
The data tells the most sensitive towards DSCR are long term debt tenor, medicine cost, and debt financing percentage. Debt Financing Percentage for Investment, taking an assumption that the base case of this scenario is the lowest value that the Bank Mandiri could lend, because if the bank lower their principle loan more, the hospital need more source of funding for the investment project, the hospital going to be in hard position if this scenario happen, better for them looking a bank loan from different bank. So, for the room of negotiation the hospital could have not lower than 40% from total investment until 70% as the ceiling that Bank Mandiri could share. The best case that the hospital could acquire is about 70% of the bank loan. Medicine Cost, The author has limited information regarding medication cost, so the author done qualitative research towards the hospital expert and surfing on the web, the cost percentage to sales of medication on Indonesia, the hospital could only take 20% until 40% margin from total medication sales, so 60% cost of medication is the most that the hospital could take for 40% margin. In the worst case the hospital could has 20% margin or could be said about 80% cost of revenue. Long-Term Debt Tenor, according to the sensitivity analysis towards DSCR, the LTD tenor of the hospital is most sensitive, the base case of the LTD tenor 8 years taking in assumption the interest still the same 10.5%, in perspective of the hospital the worst case is on 7 year tenor because below 7 year the hospital doesn't have ability to pay and to generate money for themselves.

**Table 7. SCENARIO ANALYSIS**

Description	Worst Case	Base Case	Best Case	Monte Carlo Simulation
Debt Financing Percentage	70%	40%	40%	56%
Medicine Cost	80%	60%	60%	61%
Long Term Debt Tenor	7	8	9	8.395649564
DSCR	0.500690368	1.151792485	1.333149936	1.151792485
Range Best vs Worst		0.832459568		

Source: (PROCESSED DATA, 2020)

In Monte Carlo simulation, author using 1000 generate random data in order to find the risk of probability negative net present value from replacement project of the company. The value of random number is defined between the worst and best scenario value that already defined in scenario analysis. Based on Monte-Carlo simulation, the mean value is 0.62 and the standard deviation value is 0.13. from the graph shown below tells the probability of DSCR below than 0.9 is 96%.



**Figure 2: Monte-Carlo Histogram**  
 Source: (PROCESSED DATA, 2020)

Bugar Hospital by issuing a long-term debt by Bank Mandiri shows the company could generate money from it. As the loan getting higher, the cost of capital getting lower, by analyzing this financial leverage tells that the company could generate profit from the shareholder equity also from the initial long-term liabilities without issuing short-term debt loan, with the financial leverage value 66.41%. Bluntly, the author makes every assumption very optimistic so the project could be saved and executed. The medicine cost to sales of medicine is 60%, this number could not go any lower, if take into account from the web “Farmasiindustri” the cost of medicine must be about 70% until 80%, this number is an ideal number cost of medicine, but as the author ask from dr. Juliana Aritonang as the practitioner of hospital industry, nowadays it could go until 60% so the hospital could take a margin 40%. Fortunately, the cost of medicine could reduce to 60%, because if the cost of medicine in 70%, the project isn’t possible because the biggest revenue acquired by the hospital mostly from the medicine, if reflect to the hospital project forecast the price doesn’t rise and the cost of revenue is stable. Other than medicine, the author drive every price rise as much as inflation annually to make optimistic view, because almost of the cost of revenue taking percentage to the sales, it doesn’t make sense if the cost of revenue doesn’t rise, so the instrument need to adjust is the revenue itself. If the author doesn’t rise every price annually, then the hospital income statement would be in minus position over then 2 years, this event occurred in response the G&A expense rise as much as inflation, and other expense taking percentage to total revenue in a year. Based on the base case scenario, if excluding the year one because there’s a burden from lot of expense, the company has ability to pay it’s own debt with DSCR value 0.97. As long as the DSCR value above 0.90 then it’s still acceptable in perspective of Bank Mandiri. Minimal number 0.90 of DSCR acquired qualitatively by the author from the commercial banking head Mandiri in Z province. In the perspective of loan principle, it could not go any lower than 35 billion because the hospital could not find any source of funding to fund the investment besides the bank, there’s still a room of funding from Bank Mandiri until 70% of total investment, as in the base case it’s acceptable with a special condition since the hospital could almost fulfill the debt. By doing all

calculation one after another, the author found an obstacle respectively, so the author recommends in the view of capacity PT Bugar Hospital, the bank need to reject this bank loan, scenario analysis shows the probability of the hospital ability paying the loan below 0.9 in DSCR is 96%, this project is very risky to be giving a long-term debt. From the perspective of the interest rate in base case scenario the company doesn't have the ability to pay the interest from Bank Mandiri two years in a row. From the perspective of the tenor, the hospital could generate healthier DSCR if the tenor length is getting longer, but still it's too risky because the capital budgeting analysis tells the hospital doesn't feasible shows in NPV, payback period, IRR, and profitability Index.

### Future Research

Although the data the author acquire validated with the expert, in the future research the author propose to do benchmarking ratio in the same class hospital to make the assumption more accurate. To balance high cost of capital in response of a new business with high risk, hopefully there will be a research analysing the growth assumption besides from bed occupancy rate. The future research also expected to analyse the 5C credit analysis besides the capacity to make the loan decision could be decide accurately.

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