

Financial Feasibility Analysis of XYZ Hotel's Investment on Corporate Catering Business in Times of Pandemic

Vannesa Joshina Wantah* and Mandra Lazuardi Kitri

School of Business and Management, Institut Teknologi Bandung, Indonesia

Email: vannesa_joshina@sbm-itb.ac.id

Abstract - Due to the financial impact of COVID-19 on the hotel industry, XYZ Hotel which is located in Bandung is planning on developing the hotel's food service, namely the corporate catering business which is considered more potential compared to the main business at this time. The investment will cost Rp217,080,000 and will be funded using equity. Given the current condition, this amount of investment is significant for the owners. Thus, they need to know the financial feasibility and risks of this investment. The results show a payback period of 1.79 years, NPV of Rp346,712,470, PI of 2.50 and IRR of 53.50% that is greater than 9.17%, the cost of capital. Using sensitivity analysis, 7 sensitive variables are identified and Monte Carlo simulations show a 67.10% probability of success of the project. Since all of the results exceed the acceptance standard, this project is feasible to be conducted in times of pandemic as it will implicate positively on the company's financial although it still has risks that should be taken into account.

Keywords – Capital Budgeting, Feasibility Study, Corporate Catering, Covid-19 Pandemic

I. INTRODUCTION

Due to the significant strike of the pandemic on the hotel industry, XYZ Hotel decided to develop the hotel's food service which is considered more potential at this time, namely corporate catering business. However, XYZ Hotel was unable to maximize the potential of this business since the available cooking equipment is not used only for cooking the catering meals, but is also used for cooking the meals ordered by hotel guests. Moreover, there were several companies that were interested in subscribing to XYZ Hotel's corporate catering, but XYZ Hotel had to postpone these requests since the production capacity has reached its maximum. Therefore, in order to enter this market prospective, XYZ Hotel owners intend to build a new kitchen in the hotel area specifically for the corporate catering business.

The cost of investment in a new kitchen for corporate catering business is Rp217,080,000, which includes the cost of building materials, construction services, and kitchen equipment such as a kitchen set, electric stove, food processor, freezer, large capacity refrigerator, oven, microwave, blender, rice cooker, and cooking utensils. As for the project's financing, XYZ Hotel will use 100% equity. Considering the fact that corporate catering is XYZ Hotel's new operating business, especially in times of pandemic, the owners believe they must be cautious in

making the investment as it will have an extensive impact on the business. Therefore, this study is designed to give investment recommendations to XYZ Hotel through the analysis of financial feasibility and risk in order to quantify the project's future prospects.

A. Financial Feasibility Study

Financial feasibility study is defined as an empirical method used to determine an investment's economic viability [1], which includes appraising the investment's financial state and operating capacity as well as estimating its potential state [2]. Two fundamental factors such as prospected return & risk expectation are dependent on a financial decision, and a way to analyze these two factors is through financial feasibility study [3]. Furthermore, the financial feasibility study provides a detailed quantitative estimation to verify whether the investment is feasible or not, based on the market and technical data [4]. The project's funding plan and investment appraisal are the analyses that include in the financial feasibility study, or commonly referred to as capital budgeting [5].

B. Capital Budgeting

Capital budgeting is a method of evaluating and comparing significant potential investments and expenditures in order to assess which ones are the most worthwhile [6]. In other words, corresponding to the amount of investment in the project, it is a method that company management uses to determine what capital projects will produce the greatest return [7].

There are two different approaches adopted by capital budgeting, such as the conventional or non-discount approach which is the Payback Period (PP), as well as the Net Present Value (NPV), Profitability Index (PI) and Internal Rate of Return (IRR) techniques as a contemporary approach that reflect the Discounted Cash Flow (DCF) concept [8]. These methods including IRR, NPV, PI and PP are known to have been widely applied in various studies as approaches that are prominent [9].

C. Sensitivity Analysis

If such an adjustment is made to one of the input variables in the analysis, sensitivity analysis is a way of assessing the potential results. These variables may be connected to the conditions of project ability, market conditions,

microeconomic conditions, and macroeconomic conditions that may influence potential sales, costs, and discount rates [10]. According to [11], in the simulation model, sensitivity analysis can indicate which parameter values are rational. It is used to determine how responsive the model is to adjust the parameter value of the model, shift the structure of the model, as well as demonstrate how the action of the model responds to changes in parameter values.

D. Monte Carlo Simulation

Monte Carlo Simulation is defined as a method of optimizing a portfolio that improves its usefulness [10]. It will help to achieve approximation to real values by using Monte Carlo Simulation for risk analysis, thereby reducing the variance in the project [12]. According to a research [13], the reason for using Monte Carlo simulation is to provide a measurement on the distribution of the probability in the project and the estimated value of project risks, as well as how possible that value is to be in the scope of our interest. Using the normal distribution theory, the probability of the prediction falling within the predicted range in the form of the histogram or frequency chart will later appear.

II. METHODOLOGY

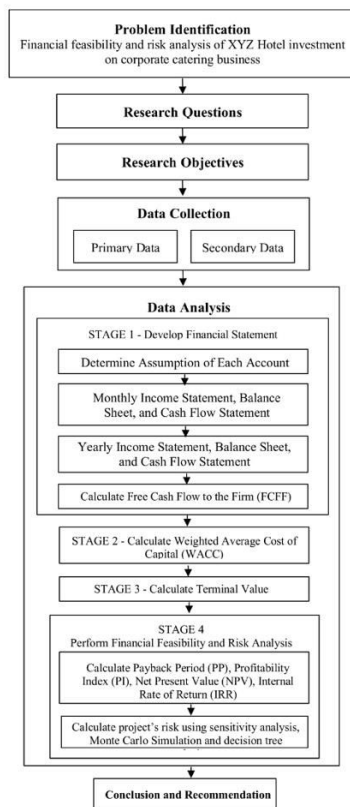


Fig. 1. Research Design

In collecting the data, primary & secondary data will be used as the methods. In collecting the primary data,

interviews with XYZ Hotel owners and top management are conducted in order to know the project's investment cost, the project's target in revenues, the stream of revenues, and the corporate catering project's current condition in the market. These obtained data will be used as the assumption in determining the financial projection of the investment project. For the secondary data, historical financial reports, market rate, the beta coefficient and the risk-free rate data from websites and databases will be utilized.

As for the data analysis as stated in Fig. 1, it consists of four stages:

1) *Develop Financial Statements Projection*: In a span of time that classifies the potential incomes and outgoings of cash flows that reflect a company's financial operations, the cash flow stream explains the cash flow of the business. In designing the cash flow stream, the first thing to do is establish each account's assumptions. After that, the stream of monthly cash flow can be constructed, then proceed to the annual cash flow. Lastly, the Free Cash Flow to the Firm (FCFF) can be calculated.

2) *Calculate Weighted Average Cost of Capital*: Since the cost of capital depends on the project's total capital, WACC is defined as the rate of return that have to be received on assets to provide the estimation on return to the capital providers that is equivalent to what they could gain from alternative risk investment opportunities. To calculate the components of WACC, cost of debt and cost of equity must be firstly determined.

3) *Calculate Terminal Value*: The terminal cash flow is estimated at the end of the projected timeframe, assuming perpetual increase of the last FCFF.

4) *Perform Financial Feasibility and Risk Analysis*: Several techniques will be adopted in order to confirm that all the criteria of a financially feasible investment are addressed. Those techniques are Payback Period (PP), Net Present Value (NPV), Profitability Index (PI) and Internal Rate of Return (IRR). In analyzing the sensitivity, sensitivity analysis to find out the most sensitive variables is conducted with change in input variables. Thereafter, Monte Carlo Simulation is conducted to measure the risk and provide the probability of NPV distribution arising in the project. After that, sensitivity analysis using a decision tree will be conducted in order to incorporate the pandemic condition as a variable, which will result in a decision on whether to invest in this project or not.

III. RESULTS

A. Financial Feasibility Analysis

After the calculation is done with each capital budgeting technique, the results are obtained as exhibited in Table II.

TABLE I
FEASIBILITY ANALYSIS RESULT

Techniques	Result
Payback Period (PP)	1.79
Net Present Value (NPV)	Rp346,712,470
Profitability Index (PI)	2.50
IRR	53.50%

B. Risk Analysis

The sensitivity analysis is carried out on 17 variables that act as input variables using a $\pm 10\%$ change from the base state. From the result, it can be seen that there are 7 variables that are classified as sensitive because the swing in NPV percentage is above the input change, which is $\pm 10\%$. This means that the NPV is most sensitive to changes in these 7 variables.

TABLE II
SENSITIVITY ANALYSIS RESULT

Input Variables	NPV Swing	
	Change	
Catering Set Ingredients	-51.77%	51.77%
Package A Quantity Sold per day	43.55%	-43.55%
Package A Price	43.55%	-43.55%
Package B Quantity Sold per day	30.34%	-30.34%
Package B Price	30.34%	-30.34%
Package C Quantity Sold per day	9.61%	-9.61%
Package C Price	9.61%	-9.61%
Catering Set Packaging	-4.87%	4.87%
Labor Cost 1	-3.07%	3.07%
Management Salary	-3.07%	3.07%
Labor Cost 2	-2.45%	2.45%
Electricity	-0.9%	0.9%
Cardboard Packaging	-0.64%	0.64%
Marketing Expense	-0.12%	0.12%
Transport	-0.27%	0.27%
Office Supplies	-0.05%	0.05%
Research and Development	-0.03%	0.03%

After the sensitivity analysis is conducted, the 7 sensitive variables will be used as the base for running the Monte Carlo simulation in order to know the probability of different outcomes. Using 1,000 different scenarios of the 7 variables to generate the NPV in Monte Carlo Simulation, the results show that this investment project has 67.10% certainty. The mean of the NPV is also generated from the simulation, which results in Rp359,329,547.

IV. DISCUSSION

In accordance with the financial feasibility result in Table I, it can be seen that first, the payback period is 1.79 years, which means the result is less than the project's lifetime, which is 5 years. Thus, the payback period meets the acceptance standard. Second, the NPV of this investment project is Rp346,712,470, which means it shows a positive result. Thus, the NPV meets the criteria. Third, the profitability index is 2.50, which means that it meets the criteria since the result is greater than 1. Fourth, the calculated IRR is 53.50%, which exceeds the cost of capital of 9.17%. Therefore, the IRR has met the criteria. Since all the techniques used have obtained results that meet the acceptance standard, this investment project is regarded as feasible.

As for the sensitivity analysis, there are 7 sensitive variables which are the catering ingredients, package A

quantity sold per day, price A, package B quantity sold per day, price B, package C quantity sold per day and price C. These variables are classified as sensitive because the swing in NPV percentage is above the input change, which is $\pm 10\%$. This means that the NPV is most sensitive to changes in these 7 variables. As for the result of the Monte Carlo simulation, the result shows that this investment project has 67.10% certainty of obtaining a positive NPV which is considered good and logical. However, this project still has risks that can result in a negative NPV of the project.

V. CONCLUSION

The hotel industry is one of the industries that has experienced hardest strike by the COVID-19 pandemic financially, one of which is XYZ Hotel, which is located in Bandung. In order to survive, XYZ Hotel decided to develop its food service business, namely the corporate catering business, which currently has more potential compared to its main business. In fact, there are several companies that are interested in subscribing to XYZ Hotel's corporate catering, but XYZ Hotel had to postpone these requests since the production capacity has reached its maximum. Therefore, in order to penetrate into this market prospective, XYZ Hotel owners intend to build a new kitchen specifically for corporate catering business which will cost Rp217,080,000 and will be funded using equity.

In order to find out whether this investment is feasible, a financial feasibility study is performed using capital budgeting techniques. The results show a payback period of 1.79 years, NPV of Rp346,712,470, PI of 2.50 and IRR of 53.50% that is greater than 9.17%, the cost of capital. After the feasibility analysis is performed, a risk analysis is carried out using sensitivity analysis and Monte Carlo simulation. The result of sensitivity analysis reveals that there are 7 sensitive variables. These variables then used as the inputs in Monte Carlo simulation using 1,000 different scenarios, which results in 67.10% certainty of obtaining a positive NPV. Overall, it can be said that the investment in the corporate catering business planned by XYZ Hotel is feasible, although it still has risks that should be taken into account.

By building a new kitchen specifically for the corporate catering business, production capacity and consistency will increase and eventually lead to upgraded quality of food and service. Thus, the trust of customers and other channels such as suppliers will be formed and positively impact the business profitability. To deal with catering set ingredients price as the most sensitive variables, XYZ Hotel must be able to determine wisely whether to increase the price per portion or reduce the portion without reducing the quality and taste of the original food. Due to the uncertainty caused by COVID-19 pandemic, in order to achieve the daily sales target,

XYZ Hotel should try to reach a wider market other than companies and organizations, such as individuals. However, to be able to reach the individual target market, XYZ Hotel must implement a suitable marketing strategy for individual target market. This can be done by starting to do massive promotions on social media since the use of social media is becoming more active during this pandemic as it is one way to stay connected with many people without having to leave the house.

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