



**ORIGINAL RESEARCH PAPER**

**Economics**

**FEASIBILITY STUDY OF SUBSIDIZED HOUSING PROJECT BY PT. XYZ IN DELI SERDANG REGENCY, NORTH SUMATERA PROVINCE, INDONESIA**

**KEY WORDS:** Feasibility study, Capital Budgeting, Subsidized House

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**ABSTRACT**

Deli Serdang is the regency of North Sumatra that provides accessible, safety and comfortable environment as a place to live. PT. XYZ is a property business that has plan to make an investment by building subsidized housing for low income communities in Indonesia. The company will use the equity of the company which amounts to IDR 13,054,005,556 and the remaining will be financed by using debt of IDR 4,000,000,000. PT. XYZ has not made a financial feasibility study for this investment project in order to provide information that will help the Board of Director to decide the implementation of the project and assess the risk in implementing the project. The results show that the Net Present Value of the project is IDR 7,633,426,960.54 which shows positive values, the profitability index is 1.78 that is greater than 1, the IRR is 38.75% that is higher than the cost of capital, and the payback period of the project is 2 years 1 months 10 days. Based on the all the techniques, the result shows the investment project is feasible to be implemented by PT. XYZ. In the risk analysis, there are 3 variables that can be considered as sensitive variable to the project's NPV which consist of the price per house, quantity sold per month, and house building cost per house. The recommendation to the company will be given regarding the price per house, quantity sold per month, and house building cost per house in order to achieve the company's goal in this project.

**INTRODUCTION**

The population of people in Indonesia is growing rapidly, especially in the big cities. Currently, the level of urbanization is taking place in Indonesia, which causes the cities grow quite quickly (Wilonoyudho, 2017). Cities in Indonesia continue to face significant problems in finding housing for their citizens. The housing demand is much greater than the supply available. Housing and settlements are the problems that will arise in line with population growth (Ariyanti & Kusumah, 2018). North Sumatra has the fourth biggest distribution of population by province in Indonesia. Data on the percentage of households that have access to decent and affordable housing in North Sumatra gathered from Badan Pusat Statistika (BPS) showed decreasing percentage from 94.03% in 2018 to 64.65% in 2019 (BPS, 2019).

The population growth causes increasing needs for housing, especially in Deli Serdang. According to Andi Atmoko Panggabean, North Sumatra DPD Real Estate Indonesia Chairman, there will be 20,000 subsidized house will be built in North Sumatra and 80% of the amount will be built in Deli Serdang since the demand of the subsidized house in 2019 still good and the request is far above the medium and luxury houses, because of the needs and the increasing awareness of the important of having house (medanbisnisdaily.com, 2019). Because of that, Deli Serdang always develops their housing area in order to fulfill the needs of housing for the people that lived and grew in that area.

**Feasibility Study**

According to Mukherjee & Roy (2017), feasibility study is an analysis that will help the project manager to look at the viability of particular idea on the project from the perspective of resource, time, optimal cost, technical, legal and economical. Feasibility study is an analysis on the investment decision which may result in unprofitable with a loss of money, energy, and time. The aim of conducting feasibility study is not only about providing an appropriate solution to any of the problem related to the plant design and layout of project but to provide the scope of its expectations (Shen L.Y. et. al., 2010).

**Financial Feasibility**

According to Björnisdóttir (2010), financial feasibility analysis

is an analytical tool used to determine the economic viability of a project. It consists of evaluating the financial condition and operating results of the investment and predicting its possible future and performance. It consists of evaluating the financial condition and operating results of the investment and predicting its possible future and performance. Before proceeding with the development of a business idea, financial feasibility studies should be carried out and this also applies to the financial feasibility analysis. A financial feasibility study defines the financial viability of a project and its profitability (Oprea, 2010). A firm can analyze the investment plan will be feasible or not feasible by using capital budgeting method (Oktaviani, 2018).

**Capital Budgeting**

Capital budgeting is control and decision-making tool for a long planning investment decision for a project that takes many years (Oki & Sivanathan, 2018). An investment of an organization could be financed by equity and debt sources. The result of an investment project should be aligned with the current activities of the organizations or give value added to the investors. According to Cooper (2001), the reason of capital budgeting decision is crucial for the successful of an investment is because investment require large amount of fund, firm required to know the certain way to repay the funds for an investment. Most capital budgeting required long-term commitment and the timing of the decisions is important. In practices, most of financial managers use several techniques in evaluating a project, use discounted cash flow as the primary methods (Net Present Value, Internal Rate of Return, and Profitability Index) and payback period as the secondary method (Peterson & Fabozzi, 2002).

**Risk Analysis**

According to Aven (2015), risk analysis can determine a risk picture, compare different risk related alternatives and solutions, identify variables, situations, activities, processes, components and the relevant (critical) in relation to risk, demonstrate the impact of different risk measures. Dayananda, Irons, Harrison, Herbohn & Rowland (2002) stated that sensitivity analysis is one of the method to evaluate the risk of a project that provide information about the acceptance or rejection of a single project.

**Sensitivity Analysis**

The sensitivity analysis is a method of calculation that is approved to predict changes in the output data entry models that is used to make investment decisions with respect to the capital budgeting in uncertainty (Khan, 2017). The method examined how change of the input (costs, revenues) occur due to the insufficient forecast or other factors, influencing those parameters and the overall value of budget resources (Hashmi, S.H., et.al., 2017).

**CASE**

PT. XYZ is a national private company founded in Medan, North Sumatra that has activities in property business which has primary activities on build housing. By looking at the needs of subsidized housing, the percentage of low-income communities in North Sumatra, and the population growth in Deli Serdang, PT. XYZ would like to build subsidized housing for low income communities in Deli Serdang, North Sumatra. PT. XYZ will build 343 houses in 2021 with 4-years construction period and the company need to collect a big amount of money by using debt and equity to build the housing project for the consumers. The company will use the equity of the company which amounts to IDR 13,054, 005,556,00 and the remaining will be financed by using debt of IDR 4,000,000,000,00. PT. XYZ requires a financial feasibility study assessment to provide information that will help the Board of Director to decide the investment project and help to assess the risk when the investment project is being implemented

**RESULT AND DISCUSSION**

**Net Present Value**

The Net Present Value of the project is IDR 7,633,426,960.54, this indicates that the expected cash flow of the project investment exceeds the initial investment. Since the value of the NPV > 0, the investment project is considered profitable and the decision should be accepted.

**Profitability Index**

The profitability index of the investment project is 1.78. Because the profitability index > 1, the project should be accepted.

**Internal Rate of Return**

The result of the IRR is 38.75% and the cost of capital of the investment project is 11.53%. Since the IRR > cost of capital, the company should accept this investment project.

**Payback Period**

The project needs 2 years 1 months 10 days to recover the cost of investment. While the project life is 4 years that is based on the period of the project. Since the payback period of the project < the maximum payback period of the project, the project should be accepted.

**Sensitive Analysis**

The sensitivity analysis of the project is done by using all of the assumptions and change the input variable increase about 10% and decrease about 10% from the assumptions. The result of the sensitivity analysis can be seen in table 1. The input variables price per house can only be decrease by 10% and increase by 0.33% because the price of subsidized house has price limit based on the government regulations. The price limit of subsidized house is Rp150,500,000 which is 0.33% from the price of house that is offered by the company and the input variables quantity sold per month can only be decrease by 10% because the construction area to build the house is limited to build the amount of houses that is planned by the company

Price per house	-10%	0.33%	-49%	2%
Quantity sold per month	-10%	0%	-49%	0%
House building cost per house	-10%	10%	-16%	16%
Infrastructure facilities per house	-10%	10%	-4%	4%
Long term debt interest	-10%	10%	-1%	1%
Salary expense	-10%	10%	-1%	1%
Certificate per house	-10%	10%	-1%	1%
Marketing (Sales)	-10%	10%	-1%	1%

**CONCLUSION**

PT XYZ is a national private company that has activity in property business. The company has purpose on build housing for low income communities. The feasibility study of housing project of PT. XYZ focuses on the financial techniques in capital budgeting that consist of Net Present Value, Internal Rate of Return, Payback Period, and Profitability Index and the risk that will be faced by PT. XYZ when the investment project is being implemented. Based on the techniques in capital budgeting system, the investment project of PT. XYZ can be fulfill the decision criteria rule of each technique. Since this investment is suitable with the company's goal of increasing the revenue of the company, the investment project is feasible to be implemented by PT. XYZ. Based on the sensitivity analysis that is conducted in research, the price per house, quantity sold per month, and house building cost per house, can be considered as sensitive variable to the project's NPV and the company should aware of this variables.

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**Table 1 - Sensitivity Analysis Result**

Input Variable	Swing of Input	Swing of NPV		
	Downside	Upside	Downside	Upside