

Project Financial Feasibility Study of New Junior High School Class Building Construction (Case Study of XYZ Foundation)

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ABSTRACT

As a foundation engaged in education, XYZ Foundation seeks to provide the availability and quality of education in Indonesia by establishing Islamic boarding schools consisting of various education levels. XYZ Junior High School is one of the school units formed by the XYZ Foundation, which has increased the interest of new students in recent years. Hence, the foundation must increase its capacity to accept new students by building a new class at XYZ Junior High School.

The financial feasibility study on the XYZ junior high school new class building construction project aims to assess whether the project is financially feasible or not. This study uses several parameters to assess the financial feasibility of the project, namely the net present value (NPV), internal rate return (IRR), payback period (PBP), and profitability index (PI). Risk analysis in the form of sensitivity and scenario analysis is also carried out to determine the factors influencing the project's financial feasibility.

Keywords: Class building construction, Educational foundations, Financial feasibility study, Investment project.

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I. INTRODUCTION

Education is an important factor in the development of a nation. As a country whose position is said to be developing, Indonesia is looking for ways to become more developed, especially in education (Munirah, 2015). Indonesia's education system is divided into three levels: primary, secondary, and tertiary.

According to dapo.kemdikbud.go.id, there has been an increase in the total number of students in Indonesia by 5,22% from 2019/2020 to 2022/2023. Private institutions cooperate with the government to meet the increasing public demand for education by establishing private educational institutions.

XYZ Foundation is a private institution that has established and manages several units of the school, consisting of various levels ranging from kindergarten to elementary school, junior high school, senior high school, vocational high school, and Islamic college. From the several school units, the junior high school has had a significant development in the admission of students each year. With a total of students in 2022/2023 totalling around 800 students, the school needs to construct a new classroom building to fulfil the increasing demand.

It is a concern for the foundation to increase the number of classrooms for new students, considering the demand for admission of the new prospective students increasing yearly.

Therefore, the foundation needs a financial feasibility analysis of the construction of a new

classroom building so that the foundation can measure how feasible the project is and make decisions based on the result of the analysis.

A. Statement of Problem

XYZ School experiences an increase in demand every year for accepting new students, so it needs to construct a new building to support educational activities. There is an increase in the number of new student applicants yearly. The school capacity in 2018-2023 is 27 classes, so some classes experience overcapacity because the effective number of students per class is 30. Hence, the school is unable to increase the number of enrollments for the following year. This is what makes schools and foundations feel the need to construct a new building that contains new classes to increase the capacity of the students they accept each year. By constructing new classroom buildings, the school plans to accept more students so that they can contribute more to the state in the advancement and development of national education.

B. Research Objectives

The objective of this research is to find feasible scenarios for the project to continue and determine the factors influencing the financial feasibility of the projects.

C. Research Scope

In order to focus more on conducting a financial feasibility analysis of the project, the scope sets around:

- All data and assumptions are acquired from XYZ school financial report and interviews with the source inside the school and foundation.
- The XYZ school financial report is obtained from the school's annual financial reports from 2020/2021-2022/2023 of school years.
- The investment data is provided by the foundation.
- The financial data analysis is specific to cover the financial feasibility aspect of the project.
- Financial analysis is specific to the XYZ junior high school operational activity.
- The research focuses on the financial feasibility study of the project. Therefore, aspects that are not directly related to the financial feasibility study, such as marketing or operation will not be discussed.

II. RESEARCH METHODOLOGY

This study uses primary and secondary data sources to analyze and obtain conclusions. Primary data is obtained from interviews and observations, while secondary data is obtained from reports, books, articles, and journals (Sugiyono, 2017). This study's primary data was obtained from interviews and observations with the foundation and schools. In contrast, secondary data was obtained from the school's annual financial report, books, journals, and articles.

Business situation analysis is also required to understand a business's situation based on internal and external factors of business conditions. Internal analysis uses the SWOT method, while external analysis uses the PESTLE method. SWOT analysis is a method to find out the situation of a business by analyzing strengths, weaknesses, opportunities, and threats, whether they are profitable or not, as an effort for a business to perform better (Hitt *et al.*, 2017). To mitigate threats and leverage opportunities, firms must conduct an external environment that includes all the factors that can affect potential gain and sustain a competitive advantage (Rothaermel, 2017). The PESTEL framework allows firms to scan, monitor, and evaluate the important external factors and trends that might affect a firm. The PESTEL model has six segments: Political, Economic, Sociocultural, Technological, Ecological, and Legal.

Capital budgeting techniques and risk analysis from Gitman and Zutter (2015) and Vernimmen (2014) are used to determine the project's financial feasibility and analyze what variables greatly influence it.

A. Capital Budgeting Techniques

Several parameters can be used to conduct a financial feasibility study.

1) Net Present Value

Net Present Value (NPV) can be used in investment planning to analyze the projected profitability of an investment or project. NPV calculates the difference between the value of the present cash flows and cash outflows within a certain period.

$$NPV = \sum_{t=1}^n \frac{CF}{(1+r)^t} - CF_0 \quad (1)$$

2) Internal Rate of Return

The internal rate of return (IRR) is one of the parameters of financial analysis to estimate profitability in an investment activity. The IRR is the discount rate that makes the NPV of all cash flows zero in a discounted cash flow analysis. IRR is not a percentage but rather an annual rate of return that makes the NPV equal to zero. The higher the IRR value, the better the investment to make.

$$\$0 = NPV = \sum_{t=1}^n \frac{CF}{(1+IRR)^t} - CF_0 \quad (2)$$

3) Payback Period

The payback Period is the time it takes for the investment to reach a turning point. PBP determines how long a company or individual can benefit from an investment activity or project, so it is very important to know. The shorter the payback period, the faster the company can gain profits and recover investment costs. The longer the return, the more relatively undesirable.

$$PBP = \text{Years Before Break Even} + \left(\frac{\text{Unrecovered Amount}}{\text{Cash Flow in Recovery Year}} \right) \quad (3)$$

4) Profitability Index

The Profitability Index describes the index between the costs and benefits of a project or investment. PI is calculated as the ratio between the present cash flow value of the expected future cash flows and the initial amount invested in the project. The higher the PI, the more attractive a project or investment.

$$PI = \frac{(NPV + \text{Initial Investment})}{\text{Initial Investment}} \quad (4)$$

B. Risk Analysis

1) Sensitivity Analysis

Sensitivity analysis changes many assumptions simultaneously, so it must be able to estimate which variables move together and the intensity of the relationship. The analysis needs optimistic and pessimistic assumptions for each underlying variable to consider the assumption that drives cash flow and recalculate NPV.

2) Scenario Analysis

Scenario analysis is a risk assessment technique that uses several various possible outcomes (scenarios) to determine the variability of returns, commonly determined by pessimistic (worst), most likely (expected), and optimistic (best), with the return associated with them for a given asset. This study uses NPV to measure the scenario analysis, thus generating response changes in the outcome.

III. BUSINESS SITUATION ANALYSIS

Business situation analysis is a method for analyzing internal or external factors of a business to understand the business environment and its impact on business (Hitt *et al.*, 2017). This study uses the SWOT analysis method for internal analysis and the PESTLE method for external analysis of foundations.

A. PESTLE Analysis

PESTLE categorizes and analyzes several important external factors that affect a firm, such as political, economic, sociocultural, technological, and ecological factors that can create opportunities and threats to the firms. Based on those five factors, PESTLE can scan, monitor, and evaluate the important external factors and trends that might influence a firm.

1) Political

Political factors are the outcomes of government processes and activities that might impact the decisions and behavior of the education system in Indonesia. According to the *National Medium Term Development Plan 2020-2024* (Narasi, 2020), the Indonesian government plans to increase quality equity in quality education services. This includes a plan to improve the quality of religious education, including the quality of *Pesantren*.

2) Economical

Macroeconomics is very influential on a firm's economic factors. There are five macroeconomic factors in the external analysis of a firm, including growth rates, level of employment, interest rates, price stability (inflation and deflation), and currency exchange rates. According to KEMDIKBUD (2021), there is a significant growth in the ratio of students at a level of education to the population of school age from year to year (APK). According to the latest data in 2021, the APK in the school domain is 95.77%. While in 2020 is 90.65%. The contribution of education services to the Gross Regional Domestic Product of the school domain in 2019-2021 continues to increase, namely 2.99%, 3.92%, and 4.34% (bandungkab.go.id, 2023). According to dapokemdikbud.go.id (2022), the school domain ranks second in the number of teaching staff at province level. In the last five years, Indonesia's interest rates have stabilized at approximately 4% to 6% and maintained price stability at 2% to 4% inflation.

3) Sociocultural

Annur (2023) reported that Islam is the majority religion in Indonesia, with a total population of 237.55 million or 86,7% of the total population. This influences the school since it is based on *Pesantren*.

4) Technological

Through the RPJMN 2020-2024, the Indonesian government plans to increase the use of information and communication technology in learning, especially to create synergies between distance learning models and online learning systems.

5) Legal

The Government of Indonesia provides financial assistance to education units to support operational costs and infrastructure and improve the quality of education. Some of

these financial assistances include School Operational Assistance (BOS), Educational Operational Assistance (BOP), and the Smart Indonesia Program (PIP).

6) Ecological

Ecological factors do not influence the foundation and the school. They should stay updated with any changes.

B. SWOT Analysis

SWOT analysis (strengths, weaknesses, opportunities, threats) is a strategic planning analysis method to determine a firm's internal and external conditions. This study's SWOT analysis uses primary data from interviews with the XYZ school principal.

1) Strengths

XYZ School is a *pesantren*-based junior high school under the XYZ Foundation. The data shows that the community is highly interested in continuing their education at XYZ school, as evidenced by the increasing number of new student applicants yearly. XYZ school combines the curriculum and teaching methods from the government with the *pesantren* to have its characteristics in its school model. XYZ school has also continued to achieve achievements in the field of religion, which has become one of the models for *pesantren*-based schools at the regional level. Graduates who are qualified and spread across all regions make XYZ schools well known because students come from the local area and various regions in Indonesia. The teachers or teaching staff also have special expertise compared to other schools, especially in Islamic knowledge, so it becomes a special strength of XYZ school. In Indonesia, XYZ school is quite well-known because it makes *pesantren* a base in the educational process. A good relationship between the foundation, the government, and the community is the key to success in conducting educational activities.

2) Weaknesses

The achievements of the XYZ school students are something to be proud of. However, the achievements achieved yearly are still in one field, namely the religious field. XYZ School has not been able to demonstrate its quality in non-religious fields such as science, arts, or sports. The limited learning infrastructure is also a weakness for XYZ school because the class conditions are not proportional to the number of students, which disrupts the learning process. After all, it does not comply with national standards.

3) Opportunities

With student registrants increasing yearly, XYZ school continues to develop, especially in terms of school infrastructure, so the school increases the number of new student admissions each year. The school's good reputation because it has been proven to produce quality graduates has the potential to make XYZ school proud in the community. The independent curriculum echoed by the Indonesian Ministry of Education is an opportunity for XYZ schools to take part on a broader scale because it can integrate the independent curriculum with Islamic boarding schools so that students can adjust their competencies and talents based on Islamic boarding school education.

4) Threats

Educational regulations continue to change every time the central government changes and constitute a challenge for XYZ schools because they must continue to be able to adapt to the changes that occur. At the regional level, teachers are no longer receiving allowances from the government, so it has the potential to reduce teachers' performance due to limited living necessities.

IV. FINANCIAL FEASIBILITY STUDY

A. Project Outlook

The construction project for this new class building was carried out by XYZ school based on the foundation's strategic plan and development master plan to increase the number of new student admissions in the following years. This construction is planned to start in mid-2023 and be completed in mid-2024. Following the plans made by the school, the new classroom building can accommodate up to 9 classes of students, with 30 people per class, so the total class owned by the school will increase from 27 classes to 36 classes. The total capital expenditure required to complete this project is Rp. 3,808,806,711.

B. Revenue and Expense Projection

The school revenue sources are from students' registration, students admission, students monthly tuition, and school operational assistance from government.

The projection of school revenue uses the assumption that revenue will continue to increase in line with the increase in new student admissions, so this assumption is also used for projecting school expenses because it impacts the rate of school expenses. The average number of expenses in year to year is 92.01% from revenue.

C. Cash Flow Calculation

This study uses free cash flow and discounted cash flow within ten years and adds the terminal value in the last year, assuming GDP growth in the education sector is 4.28% (BPS, 2023), assuming a terminal value of Rp. 10,313,312,225.

D. Financial Feasibility Study

Table I shows the results of calculating several parameters to determine this project's financial feasibility study.

TABLE I: Financial Feasibility Results

Parameters	Value	Assumption
NPV	Rp.10.301.967.042	>Rp.0
IRR	25.39%	>10% (Hurdle Rate)
PBP	1.95	<10 Years
PI	3.70	>1

Net Present Value is used to find out whether the project will generate profits or losses. A positive NPV indicates that investment in a project generates a decent profit, while a negative NPV indicates that a project generates losses. Based on calculations, the NPV in this project is positive, with a value of Rp. 10,301,967,042.

Internal Rate of Return is used to provide an overview of the expected rate of return from an investment activity. In this study, the percentage of IRR is compared with the

hurdle rate to determine the profit or loss of the project. Based on calculations, the IRR is 25.39%, with a hurdle rate of 10%.

The payback period determines the time needed for an investment activity to generate cash flow equivalent to the initial investment amount. The smaller the payback period value, the faster the investment returns the initial capital. Based on calculations, this project has a payback period value of 1.95 or the equivalent of 23 months over a 10-year investment period.

The Profitability Index is used to measure a more favorable relationship between the present value of cash inflows and the present value of cash outflows in an investment activity so that if the $PI > 1$ is considered profitable, $PI = 1$ is considered comparable or break-even, and $PI < 1$ is considered unfavorable. Based on calculations, the PI value for this project is 3.70, so it can be considered profitable.

E. Sensitivity Analysis

Sensitivity Analysis is used to identify risks and uncertainties in a project by looking at their effect on the NPV value in optimistic and pessimistic assumptions so that it can assist decision-makers in understanding changes in certain variables that affect investment decisions. The assumption is to change the input variable by +20% for the optimistic and -20% for the pessimistic.

There are three variables influence the NPV value: the realization of new students, new student registrants, and the inflation rate. Of the three variables, the variable realization of new students greatly influences the NPV with a percentage change of 59.13%, the realization of new students' registrant is 2.39%, and the inflation rate is 1.78% for -20% swing and -1.89% for +20% swings. Based on the sensitivity analysis results, XYZ schools must pay attention to the level of enrolled students because it greatly affects the NPV.

F. Scenario Analysis

Scenario analysis is used to find out the impact of changing variables that greatly affect the performance of a business or investment. In this study, the variable that influences XYZ schools is the realization of new students. There are three scenarios in this analysis, namely pessimistic (worst), most likely (expected/base), and optimistic (best). The base scenario is when the school desires to accept the number of students per class. The best scenario is based on the maximum capacity of the number of students in one class. In contrast, according to historical data, the worst scenario is based on the minimum number of students per class at school XYZ.

Table II shows that the highest NPV is Rp. 12,332,516,630, while the lowest NPV is Rp. 8,271,417,454, so it can be concluded that the project is feasible because the NPV of each scenario is positive.

TABLE II: Scenario Analysis

Variables	Worst	Base	Best
Realization of New Students (each class)	28	30	32
NPV	Rp.8.271.417.454	Rp.10.301.967.042	Rp.12.332.516.630

V. CONCLUSION

The business situation analysis shows that political, economic, sociocultural, and legal factors significantly influence the foundation's external factors. Therefore, the school must pay more attention to those factors. For internal analysis, there are several strategies in the SWOT Matrix for the foundation to implement for the school, which is considered able to utilize internal strengths, overcome weaknesses, pursue opportunities, and deal with existing threats.

The financial feasibility study of this project shows that each parameter is feasible, so the project is worth continuing. The NPV of this project is positive or generates a value of more than 0 with a value of IDR 10,301,967,042. IRR, with a percentage of 25.39%, is greater than the hurdle rate, with a percentage of 10%. PBP for 1.95 or the equivalent of 23 months within a 10-year investment period. The profitability index is greater than 1, with a value of 3.70.

The Sensitivity analysis shows that the factor that significantly influences the NPV in this project is the realization of new students, with a percentage change of 59.13%. In contrast, the factors of realization of new registrants and inflation do not significantly affect the NPV. The realization of the new registrant factor has a percentage change in the NPV of 2.39%, while the inflation factor has a percentage of 1.78% (-20% swing) and -1.89% (+20% swing). The realization factor of new students is also a critical factor in scenario analysis calculations, with the NPV for the best scenario of Rp.12,332,516,630 and the worst scenario of Rp.8,271,417,454. The project is considered financially feasible based on the risk analysis results because the NPV generated in each scenario is always positive.

CONFLICT OF INTEREST

The authors declare that they do not have any conflict of interest.

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