
CAPITAL BUDGETING ANALYSIS OF THE FEASIBILITY OF FIXED ASSETS INVESTMENT IN PT ALINCO

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ABSTRACT

This research aims to determine and assess the feasibility of investing in replacing and adding machines at PT. Alinco. Based on the calculation results of the investment feasibility assessment, namely, 1). The payback period value of the old investment is 2 years 6 months, longer than the value of the new investment, namely 1 year 9 months. This shows that new investments are more feasible because the return on investment is faster than investments in old assets. 2). Net Present Value of new investment worth Rp. 102,886,168, greater than the Net Present Value of the old asset investment worth only Rp. 59,096,534, which means that looking at the NPV value itself, the NPV of the new investment is greater than the NPV of the old investment because it has a different rate of return, the return rate for investing in new assets is 32%, while for investing in old assets the rate of return is 18%. In conclusion, the value of new investments is more feasible than investments in old assets. 3). The Profitability Index (PI) for investment in old assets is only 1.1 and the Profitability Index for investment in new assets is 1.3. By comparing the present value of cash flow with the investment value and calculating the present value of cash flow for each investment using a different rate of return, so that from this it can be concluded that the PI on new investments is more feasible with a greater rate of return than PI on old investments that produce a smaller rate of return. So overall, from the calculation results of the investment feasibility assessment, a final conclusion can be drawn that the new investment to be made by the company is worthy of replacing the old investment.

Keywords: Investment feasibility, fixed assets, budgeting

INTRODUCTION

Decisions regarding investment in fixed assets are decisions that greatly determine the success of the company. Because this investment decision has a direct effect on the profitability of the investment and the company's cash flow for the future. Where investment profitability itself is the company's ability to obtain profits resulting from an investment. Apart from that, investment decisions also involve large amounts of funds over a long period of time and the opportunity to change decisions that have been taken and implemented is very small.

A problem that often arises in fixed asset investment is management's difficulty in selecting the proposed investment. Overall, this form of investment requires quite large funds to implement, and the expenditure of funds or capital will generally affect the company in the long term. The expenditure of funds which is quite large and is tied to a long period of time in an investment activity means that capital owners (investors) must be careful so as not to invest funds in projects that turn out to be unprofitable (fail) in the future, for example planning errors, mistakes. in assessing the market, errors in estimating the appropriate technology to be used, and errors in estimating labor requirements. Therefore, it is necessary to conduct a project feasibility study. A project feasibility study is research on whether or not a project (usually an investment project) can be implemented successfully (Suad & Suwarsono, 2018).

Effective analysis of capital investments requires that analysis and decision making be aware of the many dimensions involved, including the time value of money. The time value of money is related to the timing of receipt and expenditure and the opportunity to generate returns on invested funds. Companies invest in fixed assets with the hope that the company

can recover the funds invested in these fixed assets (Riyanto, 2001). Several alternative investment proposals can be classified into replacement investment, capacity addition investment, investment in adding new types of products, building investment, other investments (Riyanto, 2001). Investment decisions in fixed assets made by a company are very important for the survival of the company concerned. If a company invests too much in assets, it will incur high depreciation and other expenses that should not occur. On the other hand, if investment in assets is insufficient, this will result in at least two things. Regarding this problem, every company needs to make a capital budget plan or known as capital budgeting to assess investment plans.

Considering that capital budgeting is very important in the decision-making process for management, the author chose PT Alinco as the research subject. The problem formulation taken in this research includes: a) What is the feasibility of investing in additional machinery at PT Alinco? b) What is the feasibility of investing in machine replacement at PT Alinco? c) Which is more feasible, replacing and adding machines at PT Alinco?

LITERATURE REVIEW

Time Value of Money

According to Hanafi (2020) there are two reasons why the concept of the time value of money is very important, namely the risk of future income being higher compared to current income and the existence of opportunity costs of future income. If we receive income now, we can invest that income and will get additional income from that investment in the future. The time value of money will always decrease from year to year. This is caused by the influence of inflation. The higher the inflation rate, the faster the decline in the value of the currency. The concept of the time value of money is related to the interest rate used in cash flow calculations.

The current value of money (present value) will be different from the value of that money in the future (future value) because of the interest factor. If the amount of money that will be received in the future is valued now, the amount of money must be discounted at a certain interest rate. The interest factor in question is the discount factor. On the other hand, if the amount of money must be doubled at a certain interest rate. The interest factor referred to in this case of doubling is called compounding (compound factor).

The concept of the time value of money consists of the present value of money and the future value. 1) Present Value (Present Value) According to Keown (2019) present value is the present value or a sum of money with a non-year compound interest period. According to Martono and Harjito (2005) present value is the amount of money at the beginning of the period which is calculated on the basis of a certain interest rate on a new amount of money that will be received or paid some period later. From these definitions it can be interpreted that present value shows how much money is worth now and how much it will be worth in the future. 2) Future Value, According to Keown (2019) Future Value is the future value of a sum of money with a non-year compound interest period. Brigham and Houston (2001) Compounding is a process that goes from today's value or present value (PV) to future value (FV). From the definition above, compounding is the process of calculating the final value from today's value when compound interest is used. Compound interest is often called compound interest, indicating that the interest paid on a loan (investment) is added to the principal loan periodically. As a result, the interest generated from the loan product is added back to the principal of the loan and so on.

Cash Flow in Investments

In a company, investment decisions are very important for the survival of the company, because investment decisions involve large amounts of funds, the difficulty of changing decisions that have been taken and there are elements of uncertainty and risks that may arise. To analyze the decision on an investment proposal whether the proposal is feasible

or not to be implemented, the concept used is the cash flow concept, not the profit concept. Because the profits reported in the financial statements are not necessarily in the form of cash. To be able to assess the profitability of an investment project, to make investment decisions, data is needed regarding the net cash flow of the investment project in question. The net cash flow referred to here is before depreciation but after tax, if the investment project is financed with its own capital. If an investment project is refinanced which has a fixed interest expense, then the net cash flow is before interest and depreciation remains after tax. Cash flow itself consists of: a) Cash inflow (cash inflow), namely the cash flow that will be obtained in connection with the investment that will be taken; b) Cash outflow (cash out flow), namely the cash flow issued by the company.

According to Martono and Harjito (2005), there are 3 types of cash flows that occur in investment, namely: a) Initial cash flow, Cash flow related to the first cash outlay for the purposes of an investment. To determine an initial cash flow, the cash flow pattern associated with investment expenditures must be identified. This means you have to know how the investment expenses will be paid. In addition to expenses for preliminary and pre-operation costs, including working capital provisions need to be included. cash flow related to the first cash outlay for investment purposes such as the acquisition price of land purchases, factory and building construction, machine purchases, machine repairs and other fixed asset investments in rupiah units.; b) Rational cash flow, Cash flows that occur over the life of an investment. Determining the amount of operational cash flow each year is the starting point for assessing the profitability of the investment proposal. Operational cash flow comes from the income earned (cash inflow) minus the costs incurred by the company to cover investments (cash outflow). Operational cash flow (cash inflow) is usually received every year during the economic life of the investment in the form of net cash flow or what is called proceeds. Proceeds consist of two sources, namely profit after tax or Earning After Tax (EAT) plus depreciation; c) Cash Flow Terminals, Cash inflows received by a company because of the end of the economic life of an investment. Terminal Cash Flow will be obtained at the end of the economic life of an investment project and can also be obtained from the residual value of the assets and working capital used for investment. The residual value of an investment is the value of the asset at the end of its economic life which is calculated from the book value of the equipment. Some projects sometimes still have residual value even though the fixed assets no longer have economic value. The cash flow from this residual value needs to be linked to any taxes that may be imposed.

METHODS

Research Objects

This research was conducted at the company PT Alinco in 2023 using 2018-2022 financial data. The reason the researcher took this object is the rapid development of business with the management of long-term and short-term funds which are used to meet customer needs in order to achieve company profits and help provide employment opportunities.

Data Types and Sources

The type of data used in this research is secondary data from financial report data for 2018-2022.

Data analysis technique

The data analysis technique uses Cash Flow Analysis and Investment Appraisal Analysis. Calculating cash flow/proceeds can be formulated (1) as follows:

$$\text{Proceeds} = \text{Net Profit After Tax} + \text{Depreciation} \quad (1)$$

Then analyze the investment assessment using the following method: 1) Payback Period Method (PBP), Measuring the period required to recoup the expenditure on an investment using cash flow. Based on the PBP method, a project is considered feasible if the return

on capital is faster or shorter than the economic life of the investment, whereas if it is longer than the economic life then the project is rejected; 2) Net Present Value Method, Calculate the difference between the present value of future net cash receipts and the relevant interest rate. Based on the NPV method, the decision to make whether a proposed investment project is accepted or rejected is by comparing the NPV calculation value with the value 0, if the NPV > 0 or is positive, then the investment plan is not worthy of being accepted or rejected; 3) Profitability Index (PI) Method, Compare the present value of cash out. Based on the PI method, the decision to make whether an investment project proposal is accepted or rejected is by comparing the PI calculation value with the number 1 (one). If PI > 1, then the investment plan is acceptable. On the other hand, if PI < 1, then the investment plan is not worthy of being accepted or rejected.

RESULTS

The discussion is based on research results from company financial data as follows:
 Basic Assumptions: (1) The company estimates that the investment funds in the investment plan (replacement investment) as well as the funds in the old investment will be recouped within 4 years (Source: PT. Alinco), (2) The depreciation method used to calculate expenses depreciation is the Straight Line Method, (3) The level of profit expected by the company from the investment is the same as the result of calculating the rate of return on investment (ROI). Assessment of the Feasibility of Investment in Replacement Investment Plans and Evaluation of the Feasibility of Old Investments.

Payback Period

The formula used to calculate the payback period is as follows:

Payback period = 1 year

Payback Period (PP) on replacement investment plans (new investments):

Because the net cash received by PT. Every year Alinco is different, the payback period can be found as follows:

Initial Investment	Rp. 7,862,200,002
Net Cash in year I	(-) Rp. 184,342,500
	Rp. 154,657,500

Because the remainder cannot be reduced by the second year's net cash, the remaining first year's net cash is divided by the second year's net cash, namely:

$$\text{Payback period} = \text{Rp. } 154,657,500 / \text{Rp. } 207,174,375 \times 12 \text{ Months} \\ = 8.9 \text{ months} = 9 \text{ months}$$

So the payback period is 1 year 9 months, and from the calculation above it shows that the company can get back the funds it invested within a period of 1 year 9 months, and apart from that it is also due to the good net cash flow in the first year, so that it can almost cover the investment value, it can be concluded that the results obtained from the payback period calculation indicate the investment that will be made by PT. Alinco is worth implementing, because the payback period is smaller than that indicated by the company and this can give the company an idea that the risk of uncertainty that can arise from this investment is very small. Apart from that, the payback period for this new investment is faster than the payback period for the old investment.

Payback Period (PP) on old, fixed asset investments:

Investment value	Rp. 332,000,000
Cash inflow in year I	Rp. 111,956,250
	Rp. 220,043,750
Year II cash inflow	Rp. 146,460,000
	Rp. 73,583,750

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Because the remainder cannot be reduced by the third year's net cash, the second year's remaining net cash is divided by the third year's net cash, namely:

$$\begin{aligned} \text{Payback period} &= 2 + 0,750/1,000 \times 12 \text{ Months} \\ &= 2 \text{ years } 5.6 \text{ months} \\ &= 2 \text{ years } 6 \text{ months} \end{aligned}$$

So the payback period for this investment is 2 years 6 months, and the calculation above shows that the company can get back the funds it invested within a period of 2 years 6 months and the results obtained from the payback period calculation show that the investment is feasible to carry out. because it is smaller than the time indicated by the company, namely 4 years. However, the payback period on this old investment shows a longer return on investment than the payback period on new investments planned by the company, and this implies that the risk of uncertainty that can arise in this old investment is greater than the risk of uncertainty that can arise from the investment new.

Net Present Value

Calculation of Net Present Value for replacement investment plans (new investments)

Present value of cash flow	Rp.	341,886,168
Initial Investment		(Rp. 239,000,000)
Net Present Value	Rp.	102.886.168

In the calculation results above, it can be seen that the Present value of cash flow is greater than the Initial Investment, where the Present Value of cash flow is obtained from the estimated cash flow for the next four years and what can be seen in the table is that the cash flow for the next four years continues has increased from year to year, and from this calculation the NPV is obtained at Rp. 102,886,168 whose value is greater than zero or has a positive value, and this gives an idea that if the company wants to realize this investment in the future then the company will gain a profit because of the value of the cash flow which has been calculated based on the expected rate of return by the company, which is 32% greater than the initial investment value so that the investment is accepted or feasible to carry out.

Calculation of Net Present Value on old fixed asset investments:

Present value of cash flow	Rp.	291,096,534
Initial Investment		(Rp. 232,000,000)
Net Present Value	Rp.	59,096,534

From the calculation above, the NPV is obtained at Rp. 59,096,534 whose value is greater than zero or has a positive value, so that the investment is accepted or feasible. However, this old investment shows a smaller rate of return than the new investment, so it can be concluded that the cash flow on the new investment is better compared to the cash flow on the old investment. And this shows that investment in replacing fixed assets is indeed feasible.

Profitability Index (PI)

The formula used to calculate PI is as follows:

$$\text{PI} = \text{PV of cash flow} / \text{Initial Investment}$$

Profitability Index (PI) on replacement investment plans (new investments):

$$\begin{aligned} \text{Then the PI can be calculated as follows: } & 0.168/1,000 \\ & : 1.3 \end{aligned}$$

The results of these calculations show that the Profitability Index is 1.3, which means more than one and this illustrates that the present value of cash flow from the investment is

greater than the investment value so it will bring profits to the company, so the investment is said to be profitable and worth carrying out

Profitability Index (PI) on old fixed asset investments:

Then PI can be calculated as follows:

$$PI = 0.534/0.000$$

$$PI = 1.1$$

The results of the calculation above show that the Profitability Index is 1.1, which means more than one and this illustrates that the Present value of cash flow from the investment is greater than the investment value so that it will bring profits to the company, so the investment is said to be profitable and worth carrying out. However, the old Profitability Index is still greater than the new Profitability Index, so new investments are indeed feasible.

Table 1. Recapitulation of Investment Feasibility Calculation Results from the Three Methods

No	Method for assessing investment feasibility	Measurement results on replacement investments (new investments)	Remarks	Measurement results on old investments	Remarks
1.	Payback period	1 year 9 months	Eligible	2 years 4 months	
2.	Net Present Value	Rp. 102.886.168	Eligible	Rp. 59.096.534	Eligible
3.	Profitability Index	1,3	Eligible	1,1	Eligible

Source: PT. Alinco (Data processed, 2023)

From the table above, it can be seen that all the methods used have obtained results that show that the investment is feasible to carry out, and this can also make it easier for the company to know the future prospects of the investment it will carry out and as a result of evaluating old fixed asset investments. that he has. However, from the calculation results on the new and old investments, both are stated to be feasible, but judging from the calculation results in the 3 methods, it shows that the payback period on the new investment is better than the old investment because the rate of return on the new investment is faster, namely 1 year 9 months than on the investment. long, namely 2 years 4 months, then the Net Present Value of the new investment is better than the old investment because the value of the new investment is Rp. 108,886,168 greater than the old investment, namely Rp. 59,096,534, and the Profitability Index on new investments is better than old investments because the value on new investments is greater than 1, namely 1.3 and on old investments 1.1. So this new investment is indeed worthy of being carried out by the company.

CONCLUSION

From the results of calculations using 3 investment feasibility analysis methods (Payback period, PI and NPV) it can be concluded that purchasing fixed assets in the form of new investments is feasible and good for replacing old assets with the payback period value indicator having a return time value for new investments that is faster than old investments, value The NPV of the new investment is greater than the old one and the PI of the new

investment is greater than the old investment. So overall, from the calculation results of the investment feasibility assessment, a final conclusion can be drawn that the new investment to be made by the company is worthy of replacing the old investment.

From calculations using several methods for assessing the feasibility of the investment, it can be suggested to the company owner to be able to realize the investment that has been planned by the company. However, the company should not rely too much on the results of this calculation alone, because the company's external conditions have a fairly large level of uncertainty, therefore the company should minimize it as much as possible. the risk of uncertainty, for example, by collaborating well with raw material suppliers so that the company can minimize the level of changes in raw material prices which continue to increase. Companies must carefully control the business costs they incur in the company's operational activities, so that these costs are minimized as much as possible, so that the profits obtained by the company can also be increased. For example, what happens to labor (technician) costs where companies can use rates according to working hours so that workers can be more productive in carrying out their work. Apart from that, it is also recommended for companies to be more selective in choosing skilled workers so that mistakes can be made. occur during product processing time which may occur can be minimized. For old assets that will be replaced by the company, the company should be able to take appropriate action, so that it will not cause losses and can bring profits to the company.

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