

# Role of Payback Period, ROI, and NPV for Investment in Clinical Health Business

**Stevanus Stelling<sup>1</sup>, Tantri Yanuar R Syah<sup>2</sup>, Ratna Indrawati<sup>3</sup>, Deddy Dewanto<sup>4</sup>**

Economics and Business Department, Esa Unggul University, Jakarta, Indonesia<sup>1,2,3,4</sup>

**Abstract:** Health businesses are needed by everyone and quite profitable because of the many who need health services such as the need for general practitioner services, specialist doctors, many also require the services of nurse midwives and pharmacists as well as other professions. Referring to the ever increasing number of births which according to BPS data can reach 5 million people per year (2015) then of course the business of birth is interesting enough to run in the form of maternity clinics and maternity hospitals. Complete and detailed business planning needs to be done on the operational process, the need for labor to the need to conduct marketing to the clinic when first operating. All of these ultimately require financial budgets in the form of initial investment capital for land and buildings, investment in equipment associated with marketing targets. Commonly used investment valuation methods include Payback period, Return of investment, Net present value, and Internal rate of return. Payback period shows how long (several years) the return on investment of a business project by comparing the initial investment or initial investment with annual cash flow. Common mistake in ROI analysis is comparing the initial investment, which is always in cash, with returns as measured by profit or (in some cases) revenue. Net present value is the present value of the cash flows at the required rate of return of your project compared to your initial investment. If the NPV is negative, the project is not a good one and if it's positive, the project should be accepted.

**Keywords:** Roi, NPV, Payback period, Investment

## I. INTRODUCTION

Today we have seen much service in the field of health both from government sources such as posyandu, puskesmas or government hospital. Besides, the private sector also takes a lot of land such as making the practice of private doctors or pharmacies or clinics and hospitals. The private sector considers that many health businesses are needed by everyone and quite profitable because of the many that need health services such as the need for general practitioner services, specialist doctors, many also require the services of nurse midwives and pharmacists as well as other professions. Therefore, in some places we can see the number of new clinics that stand and hospital flagship and well-known among the community and even a new hospital pioneered. Needs that are not less important is the delivery services assisted by obstetricians and gynecologists, general practitioners and midwives. Many have been practicing midwives to remote areas, clinics and maternity homes in big cities. Seeing these conditions and the income that can be obtained from the health business then of course very interesting for investors to invest their capital to obtain a large enough profit Referring to the ever increasing number of births which according to BPS data can reach 5 million people per year (2015) then of course the business of birth is interesting enough to run in the form of maternity clinics and maternity hospitals. But to make a clinic or hospital of course requires a large capital. For entrepreneurs with capital is not large then it can be considered by making a maternity clinic. The products that can be provided in making the maternity clinic include emergency room, child polis, midwifery and uterus, delivery room, baby room and homecare. It needs to be established clinical maternity management is the clinical management that regulates the whole process in the clinic including the supply of clinical necessities. Clinical management also needs to prepare goods ranging from operational / medical equipment to non-operational requirements. For the first step, complete and detailed business planning needs to be done on the operational process, the need for labor (HR) to the need to conduct marketing to the clinic when first operating. All of these ultimately require financial budgets in the form of initial investment capital for land and buildings, investment in equipment associated with marketing targets so that clinic income rises in line with the number of patients who visit. In doing the marketing of a clinic then the company needs to determine the target market that wants to be achieved in some society income circle. If you want to take the target consumers upper middle class then need to consider the competitive price with competitors supported by the advantages of the clinic but not owned other clinics that appeal to customers such as friendly service, service is satisfactory so as to build a good image among the people against clinic run. If the lower middle consumer target with low purchasing power, the cost factor becomes so important that marketing needs to put in place strategies to cooperate with the government with the provision of mass health insurance services such as in cooperation with the Social Security Administering Agency (BPJS) so as to reach low-income people.

## II. LITERATURE REVIEW

Cash flow in finance plays an important role as an analysis of the financial feasibility of the investment plan as measured by the current cash flows. If the present value of the incoming cash flow is greater than the present value of the outflow of cash then the business plan is reviewed from the financial aspect feasible to be implemented. Applicable otherwise if the cash outflow value is greater than the value of cash inflows current conditions then the investment plan in the business is not profitable and not feasible to be implemented. According to Sugiharto (2002), in investing each company will generally try to expand its expansion in accordance with the company's goal is to get the maximum profit for the survival of the company so that the period or period of investment returns invested in the project becomes very important. Commonly used investment valuation methods include payback period, return of investment, and net present value.

**Payback period:** Payback Period is the period or period of time required to be able to recoup the expenditures on investments made through the profits derived from a project that has been run or operated (Botchkarev A, 2015). Payback is the simplest of the measures and is often used as a quick check on the attractiveness of an investment. It is probably one of the most popular techniques among individual investors. This calculation is simply the number of years it would take for the project's cash flows to pay back the initial investment (HBR, 2015). The theory being that after the original cost of investment is recuperated the remaining cash flows goes towards creating shareholder value. Payback period shows how long (several years) the return on investment of a business project by comparing the initial investment or initial investment with annual cash flow.

$$\text{Payback Period} = \frac{\text{Initial Investment}}{\text{Cash Inflow per period}}$$

For example: The EU company with 50 billion rupiahs and daily cash income is 12 billion rupiah. Terms of return on investment are determined for 5 years. From the data wants want long calculated payback period then it can be calculated by:

$$\text{Payback Period} = \frac{50.000.000.000}{12.000.000.000}$$

$$\text{Payback Period} = 4,1 \text{ Years}$$

From these results it can be concluded that the project with an initial investment of 50 billion so if each year the company gets an income of at least 12 billion then it will get a long repayment period for 4.1 years. With the determination of the return of investment is 5 (five) years then the project is accepted to proceed because the return time is faster than the time specified. Benefits of the payback period include the ease in calculating the return on capital, it can be a measure of the risk of assessing a project in which cash flows are uncertain because they depend on the revenue received. The payback period can also be used to assess two investment projects that have the same risk so that which investment can be chosen which is faster in its repayment period (Ardalan 2012). The weakness of the payback period is difficult to avoid such as not paying attention to the time value of money so that it can lead to mistakes to make decisions but can be prevented by the variation of the payback method of discounted payback period, other weaknesses do not take into account the cash flow that occurs after the payback period and does not take into account the value of residual investment (Yard 2000). In the discounted payback period variation method we have to calculate the present value of each cash inflow in the initial period as the zero point so that management needs to set the appropriate discount rate.

**Return of Investment:** Make large investments in land, buildings, production equipment needs to be done if we want to run a new business field. But before anyone writes a check, we need to calculate the return on investment (ROI) by comparing the expected benefits with the costs (Rohs 2004). Analyzing ROI isn't always as simple as it sounds and there's one mistake that many managers make confusing cash and profit. Profit and cash are really two different things. Profit appears on a company's income statement. It indicates what is left after all costs and expenses are subtracted from the company's revenue. But it isn't directly related to cash. For example, revenue isn't a cash-based number. A company can record revenue whenever it ships a good or delivers a service to a customer, whether or not the customer has paid the bill. Some of those costs and expenses aren't cash-based, either. Income statements almost always include an allowance for depreciation of capital assets (Rohs 2004). To calculate ROI, the net benefit (return) of an investment is divided by the cost of the investment; the result is expressed as a percentage or ratio. Example: Company X wants to

calculate the percentage of return on investment within five (5) years with a net profit forecast of 5 billion with a total investment of 12.5 billion, it can be calculated in the following formula.

$$\text{Return On Investment (ROI)} = \frac{\text{Net Benefit}}{\text{Total Investment}}$$

$$\text{Return On Investment (ROI)} = \frac{5.000.000.000}{12.500.000.000}$$

$$\text{Return On Investment (ROI)} = 40\%$$

From the above results it can be seen that from the initial investment of 12.5 billion in company X, with the targeted profit achieved in the fifth year worth 5 billion then obtained a value of ROI of 40 percent which means that this project can attract investors to make an investment because of the profits will be obtained. A common mistake in ROI analysis is comparing the initial investment, which is always in cash, with returns as measured by profit or (in some cases) revenue. The correct approach is always to use cash flow — the actual amount of cash moving in and out of a business over a period of time. Occasionally companies analyze investments in terms of their effect on revenue. That's because many young companies focus on hitting certain revenue targets to satisfy their investors. But revenue figures say nothing about profitability, let alone cash flow. True ROI analysis has to convert revenue to profit, and profit to cash (Jasson and Govender 2017). Four basic steps of ROI analysis is determine the initial cash outlay. Usually this is the simplest part of the analysis. We just add up all the costs of the investment. This includes items such as equipment costs, shipping costs, installation costs, start-up costs, training for the people involved, and so on. Forecast the cash flows from the investment. This step is the toughest part. We need to estimate the net cash the investment will generate, allowing for variables such as increased working capital, changes in taxes, adjustments for noncash expenses, and so on. Putting the cash flows on a calendar will allow you to estimate returns year by year or even month by month. Most of our time will be spent on this step. Next step is determine the minimum return required by our company. The minimum rate of return is often called a hurdle rate, and it is determined by our company's finance department. Companies may have more than one hurdle rate depending on the risk involved in proposed investments. The finance people determine hurdle rates by looking at the company's cost of capital, at the risk involved in a given project, and at the opportunity cost of forgoing other investments (Jasson and Govender 2017). Evaluate the investment. This is the final step. We can use one or more of four ROI calculation methods: payback, net present value, internal rate of return, and profitability index. The results will tell you whether the proposed investment offers a return more or less than the company's hurdle rate. Some of the calculations will also help us compare this investment with alternative investment possibilities.

**Net present value:** Most people know that money we have in hand now is more valuable than money we collect later on. That's because we can use it to make more money by running a business, or buying something now and selling it later for more, or simply putting it in the bank and earning interest. Future money is also less valuable because inflation erodes its buying power. This is called the time value of money. But how exactly do we compare the value of money now with the value of money in the future that is where net present value comes in. (Botchkarev A, 2015). Net present value is the present value of the cash flows at the required rate of return of our project compared to your initial investment. In practical terms, it's a method of calculating our return on investment, or ROI, for a project or expenditure. By looking at all of the money we expect to make from the investment and translating those returns into today's dollars, we can decide whether the project is worthwhile.

$$\text{Net Present Value (NPV)} = \sum \frac{\text{Year n Total CashFlow}}{(1 + \text{Discount Rate})^n}$$

If the NPV is negative, the project is not a good one. It will ultimately drain cash from the business. However, if it's positive, the project should be accepted (Ardalan 2012). The larger the positive number, the greater the benefit to the company. The discount rate will be company-specific as it's related to how the company gets its funds. It's the rate of return that the investors expect or the cost of borrowing money. If shareholders expect a 12% return, that is the discount rate the company will use to calculate NPV (Banerjee 2015). If the firm pays 4% interest on its debt, then it may use that figure as the discount rate. There are two things that managers need to be aware of when using NPV. The first is that it can be hard to explain to others. not a phrase that trips easily off the nonfinancial tongue it's worth the extra effort to explain and present NPV because of its superiority as a method. Example Company Y has an initial investment fund of 14,189,930,965 Rupiah with the investment the company is required to report the NPV value to the shareholders in the fifth year with the determination of the interest rate (discount rate) of 10 percent. Then it can be calculated by looking at the table below.

Table I NET PRESENT VALUE

Interest rate = 10%       $PV=1/(1+i)^n$

Year	Net profit	Pv factor	Present value
0	14.189.930.965	1	14.189.930.965
1	5.347.456.438	0,91	4.861.324.035
2	7.014.736.136	0,83	5.797.302.592
3	8.984.050.277	0,75	6.749.849.945
4	11.369.094.607	0,68	7.765.244.592
5	14.254.169.098	0,62	8.850.717.536
		PV	34.024.438.700
		NPV	19.834.507.735

The table above explains that the initial investment fund of company Y amounted to 14,189,930,965 Rupiah in the year to zero. With a discount rate or interest rate of 10 percent then the value of Present Value in the initial year is still the same as the initial investment. In the first year the company gets net profit from the sale of goods or services as much as 5.347.456.438 rupiah. Then calculated the PV factor with the formula  $PV = 1 / (1 + i)^n$  so that the calculation of net profit value multiplied by PV factor and obtained present value value. From the value of PV each year summed results obtained 34,024,438,700 rupiah and then added to the value of the initial investment of negative value so that obtained NPV 19.834.507.735 rupiah. Looking at the above calculation obtained NPV value > 0, meaning that the investment is done to provide benefits for the company so that the project can run. When a manager needs to compare projects and decide which ones to pursue, there are generally three options available: internal rate of return, payback method, and net present value. Knight says that net present value, often referred to as NPV, is the tool of choice for most financial analysts (Banerjee 2015). There are two reasons for that. One, NPV considers the time value of money, translating future cash flows into today's dollars. Two, it provides a concrete number that managers can use to easily compare an initial outlay of cash against the present value of the return.

### III. DISCUSSION

In calculating the financial budget in addition to calculate the amount of investment that has been planned then the required components of the calculation of operational and non-operational costs which then calculate the cost of sales of each product sold. In making clinics it is necessary to determine also the coverage of clinics or market share or market opportunities for business to be run that can predict clinical income for a certain period. For clinic expenditure, it is necessary to calculate the depreciation of buildings and investment of operational tools, licensing, employee salaries, water utility expenses, telephone, medical waste, training costs, clinical marketing costs, consumable fees, physician and partner fees, income. In the break even analysis analysis, the required components including the fixed cost which is the calculation of the non-operational cost budget and the variable cost including among others the registration of the patient administration, the doctor's consultation, the cost of renting the treatment room and others which can then be determined sales volume target to reach breakeven immediately. In the field of business that has some service products it is necessary to value the contribution of margin which then sought the average of all contributed margin products. From the calculation of the fixed cost divided by the average cost of contributed margin then get the breakeven value of sales volume target for each product available and afterwards can be made BEP graph. To calculate the projected profit and loss, it is necessary to have components, among others, the amount of net operating income minus the income tax paid to the government. Operating net income is derived from total sales that have been reduced by cost of goods sold and total operational costs. After obtaining a projection of profit and loss in the first year then it is also necessary to calculate until the second year and beyond in the following year. Similarly, in some conditions such as optimistic conditions, normal and pessimistic because considering the start of the best conditions to the worst sales conditions that can be obtained within a certain period. The calculation of Return on Investment (ROI) is a profitability ratio to measure the ability of the company with the overall funds invested to generate profits. The components needed to calculate the ROI are total sales / margins and total operational costs. ROI calculation results in the percentage where the more positive the results of business projects conducted more attractive to investors Neither is the payback period which is the time period required for the return of investment from the planned business. Components needed to calculate the payback period include year of achievement, net profit up to the initial investment and income difference until the last year before investment is no longer negative but positive. The payback period results in the number of years of return of investment with information that the faster the return of investment, the business becomes very attractive for investors to invest.

#### **IV. CONCLUSION**

Payback period, Return On Investment, Net Present Value and Internal Rate of Ratio is important to make a decision for investment. Payback period shows how long (several years) the return on investment of a business project by comparing the initial investment or initial investment with annual cash flow. The payback period can also be used to assess two investment projects that have the same risk so that which investment can be chosen which is faster in its repayment period. The weakness of the payback period is difficult to avoid such as not paying attention to the time value of money so that it can lead to mistakes to make decisions but can be prevented by the variation of the payback method of discounted payback period. Analyzing ROI isn't always as simple as it sounds and there's one mistake that many managers make confusing cash and profit. A common mistake in ROI analysis is comparing the initial investment, which is always in cash, with returns as measured by profit or (in some cases) revenue. Basic steps of ROI analysis is determine the initial cash outlay, determine the minimum return required by company and evaluate the investment. Net present value is the present value of the cash flows at the required rate of return of your project compared to your initial investment. With IRR we can calculate the actual return provided by the project's cash flows, then compare that rate of return with our company's hurdle rate (how much it mandates that investments return). If the IRR is higher, it's a worthwhile investment.

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