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RISK-ADJUSTED CAPITAL BUDGETING FOR CLINIC DEVELOPMENT INVESTMENT FEASIBILITY AT CAMAR MANDIRI JEMBER

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Abstract

This study evaluates the investment feasibility of developing Klinik Pratama Camar Mandiri Jember through a risk-adjusted capital budgeting approach. The project concerns the acquisition of land and an existing building, partial demolition, renovation, relocation, licensing, and initial working capital for a clinic that currently operates on leased premises. A descriptive-evaluative quantitative case study was conducted using 2020-2024 clinic financial statements, patient visit data, revenue and cost structures, investment budget assumptions, and indicative bank financing information. The analysis applies Net Present Value, Internal Rate of Return, Profitability Index, Payback Period, Discounted Payback Period, sensitivity analysis, scenario analysis, Monte Carlo simulation, and Debt Service Coverage Ratio. Under the base scenario, the project generates a positive NPV of IDR 311,469,830, IRR of 9.68%, PI of 1.13, and payback period of 12.36 years, indicating conditional economic feasibility. However, discounted payback exceeds 15 years, revenue growth is the most sensitive variable, the probability of positive NPV is 51.70%, and full bank financing is not supported by clinic cash flow. The investment is therefore feasible only with strict cost control, revenue stabilization, and prudent financing structure.

Keywords: capital budgeting, clinic investment, debt service coverage ratio, monte carlo simulation; risk-adjusted capital budgeting.

INTRODUCTION

Primary healthcare facilities have become an important part of Indonesia's health service ecosystem because they support access to basic care, preventive services, outpatient treatment, and the implementation of the national health insurance system. The growth of registered clinics also indicates that healthcare is not only a public service domain but also an investment field that requires careful financial governance. In this environment, non-government providers, including cooperatives, must maintain service continuity while ensuring that operating cash flows are sufficient to cover personnel, medicines, maintenance, equipment, and facility investment (Kementerian Kesehatan RI, 2024; Vassolo et al., 2021).

Klinik Pratama Camar Mandiri Jember is a primary healthcare unit managed by KOPEGTEL Camar Jember. The clinic serves BPJS Health participants, Telkom employees and their families, general patients, and pharmaceutical customers. At the time of the study, the clinic still operated on leased premises, creating recurring rental obligations and limiting managerial flexibility in adapting the building to long-term operational needs. KOPEGTEL Camar Jember therefore planned to acquire land and an existing building, retain the main structure, conduct partial demolition and renovation, relocate usable medical and nonmedical inventory, and provide initial working capital.

The planned investment is strategic because it changes the clinic's location status from leased premises to owned assets. Nevertheless, the project is not designed as a new clinic or a major service expansion. It does not assume additional service types, doctors, employees, operating hours, or service capacity. Therefore, the economic benefit in the base case is not based on automatic revenue growth from a new building, but on operational continuity, rent elimination, asset ownership, and the ability to preserve cash flow during the projection period. This characteristic makes the investment closer to a replacement-relocation project than a greenfield project. The initial investment is material for a cooperative-owned clinic. The planned outlay reaches IDR 2,416,000,000, consisting of land and building acquisition of IDR 2,000,000,000, transaction costs of IDR 166,000,000, partial demolition and renovation of IDR 80,000,000, relocation and licensing of IDR 60,000,000, and initial working capital of IDR

110,000,000. This amount is substantially larger than the clinic's annual operating profit during the historical period. Consequently, investment feasibility cannot be assessed only from accounting profit; it must be assessed through cash flow, time value of money, uncertainty, and financing capacity. As shown in Table 1, historical data indicate that the clinic's revenue and patient visits are not linear. Revenue increased from IDR 1.617 billion in 2020 to IDR 1.897 billion in 2023 but declined to IDR 1.740 billion in 2024. The compound annual revenue growth for 2020-2024 was only approximately 1.85%. Patient visits also fluctuated from 19,652 visits in 2020 to 29,324 in 2023, then decreased to 25,737 in 2024. These patterns suggest that an overly optimistic projection would not be consistent with the clinic's historical characteristics.

Prior studies on capital budgeting emphasize that NPV, IRR, PI, and payback-based indicators provide a structured basis for long-term investment appraisal, but deterministic models can be misleading when project cash flows are uncertain (Ardyn et al., 2023; Damodaran, 2018; Shou, 2022). Healthcare investment studies further underline the need to incorporate risk, sensitivity, scenarios, and probabilistic simulation because healthcare facilities face demand uncertainty, cost escalation, regulation, and technology-related challenges (Alwakeel, 2025; Nandy, 2025; Yuanwei, 2023). However, investment appraisal for cooperative-owned clinics remains underexplored, even though cooperatives differ from private corporations in terms of member-based capital, governance, and benefit orientation (Hsiao & Yip, 2024; Lauer et al., 2024). Based on this background, this study analyzes the investment feasibility of developing Klinik Pratama Camar Mandiri Jember using capital budgeting and risk-adjusted capital budgeting. The analysis addresses five questions: whether the project is feasible based on NPV, IRR, PI, PP, and DPP; which variable is most sensitive; how feasibility changes across pessimistic, moderate, and optimistic scenarios; what probability of success is obtained from Monte Carlo simulation; and whether clinic cash flow can meet bank financing obligations based on DSCR.

Table 1. Historical Performance of Klinik Pratama Camar Mandiri Jember

Year	Revenue	Growth	Operating Profit	Net Profit	Patient Visits
2020	IDR 1,616,590,245	-	IDR 185,338,528	IDR 185,496,103	19,652
2021	IDR 1,731,938,494	7.14%	IDR 179,569,366	IDR 179,692,754	19,048
2022	IDR 1,770,916,034	2.25%	IDR 145,370,209	IDR 145,641,479	29,048
2023	IDR 1,896,532,712	7.09%	IDR 264,105,054	IDR 264,272,180	29,324
2024	IDR 1,739,910,444	-8.26%	IDR 161,537,456	IDR 161,840,850	25,737

Source: Processed from Klinik Pratama Camar Mandiri Jember financial statements and patient visit data (2020-2024)

LITERATURE REVIEW

Financial management concerns the allocation of financial resources over time and the management of risks associated with those allocations. For corporate entities, financial decisions aim to create value for owners; for cooperatives, value creation is broader because it also includes operational sustainability, the ability to meet obligations, benefits for members, and protection of organizational funds (Titman et al., 2018). These objectives make investment feasibility analysis essential before a cooperative commits a large amount of capital to long-term fixed assets. Investment feasibility analysis is a systematic process for assessing whether a proposed project is worth undertaking before the final investment decision is made. In healthcare, feasibility is important because facilities must satisfy service needs while remaining financially sustainable. For an operating clinic, feasibility analysis must consider historical revenue, patient visits, cost behavior, working capital, taxation, asset treatment, and the distinction between operational feasibility and financing feasibility. In this study, the planned project is evaluated as a replacement-relocation investment because the clinic already has existing operations and the investment primarily concerns the change from leasing to asset ownership.

Capital budgeting translates investment feasibility into quantitative financial appraisal. Net Present Value measures the difference between the present value of future cash inflows and the initial outlay; a positive NPV indicates that the project adds economic value. Internal Rate of Return represents the discount rate that makes NPV equal to zero; the project is acceptable when IRR exceeds the required return. Profitability Index compares the present value of inflows with the initial investment, while Payback Period and Discounted Payback Period provide information on liquidity and recovery time (Ardyn et al., 2023; Shou, 2022; Wang, 2021). In investment appraisal, the required rate of return is closely related to the relationship between risk and return. (Yunita, 2023) compares the use of the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT) in determining expected return,

showing that return estimation should consider systematic risk and market factors. In this study, this understanding is relevant because the discount rate is used as the basis for converting future cash flow into present value; therefore, the discount rate reflects not only technical calculation but also the risk and expected return of the investment. The analysis uses Free Cash Flow to Firm because project feasibility should be based on cash generated by operations rather than accounting profit alone. FCFF is calculated from net operating profit after tax, adjusted by noncash depreciation, capital expenditure, and changes in net working capital. Financing costs are not deducted from FCFF to avoid double counting, since financing risk is separately represented through the discount rate and DSCR analysis (Burgess, 2020; Delapedra-Silva et al., 2022).

Risk-adjusted capital budgeting extends deterministic appraisal by evaluating how uncertainty affects project value. In long-term investment decisions, risk is not only related to uncertainty in revenue and costs, but also to the possibility of financial pressure when cash flow cannot meet obligations. (Kristanti et al., 2016) shows that financial distress can be influenced by corporate governance and company financial characteristics. In the investment context, (Kristanti et al., 2022) emphasizes that investment strategy should consider changes in risk and uncertainty, especially under unstable market conditions. In line with this(Fitrizal Salim et al., 2022) shows that risk-based investment strategy is needed to face uncertainty. These studies strengthen the relevance of risk-adjusted capital budgeting in this research because investment feasibility should not only be assessed through NPV, IRR, PI, PP, and DPP, but also through sensitivity analysis, scenario analysis, Monte Carlo simulation, and DSCR.

Debt Service Coverage Ratio complements capital budgeting when a project is financed by debt. DSCR compares cash available for debt service with annual principal and financing margin payments. Economic feasibility is not always the same as financing feasibility: a project can generate positive NPV but still face financial pressure when annual cash flow is insufficient to meet installment obligations. (Kristanti et al., 2016) emphasizes that financial distress risk needs attention because it can disrupt business sustainability. In this study, DSCR is used to assess whether the cash flow of Klinik Pratama Camar Mandiri Jember can bear bank financing obligations for five- and ten-year tenors. Thus, DSCR complements capital budgeting by assessing payment capacity, not only economic value creation.

METHOD

This study applies a quantitative descriptive-evaluative design with a case study approach. The object of analysis is the planned investment for developing Klinik Pratama Camar Mandiri Jember, a business unit of KOPEGTEL Camar Jember. The study does not analyze patient satisfaction or clinical service outcomes; it focuses on the financial feasibility of the investment decision and the ability of the clinic's operating cash flow to support financing. The data consists of the clinic's income statements for 2020-2024, patient visit data, revenue composition, cost structure, investment budget plan, initial working capital assumptions, and indicative bank financing information. The historical data were used to establish baseline operating behavior, determine revenue growth assumptions, estimate cost ratios, and define risk distributions for simulation. The investment budget consists of acquisition, transaction cost, renovation, relocation, licensing, and working capital components. The calculations were performed using Microsoft Excel.

The analysis was conducted in several stages. First, historical financial performance was reconciled and summarized to identify revenue growth, operating margin, cost ratios, and patient visit dynamics. Second, the initial investment and working capital requirement were determined. Third, the model projected revenue, costs, EBITDA, EBIT, tax, net operating profit after tax, depreciation, replacement capital expenditure, working capital changes, and FCFF. Fourth, NPV, IRR, PI, PP, and DPP were calculated using a 15-year explicit projection period and terminal value. Fifth, sensitivity analysis was performed for revenue growth, discount rate, initial investment, and analysis horizon. Sixth, scenario analysis was conducted using pessimistic, moderate, and optimistic assumptions. Seventh, Monte Carlo simulation was run for 1,000 trials. Finally, financing capacity was assessed using DSCR for 5-year and 10-year 100% bank financing options.

As detailed in Table 2, the base model uses an initial investment of IDR 2,416,000,000, a discount rate of 8.35%, and a terminal growth rate of 2.00%. The discount rate was approximated from the after-tax cost of the indicative 10-year financing because the cooperative's complete weighted average cost of capital was not available. The tax proxy is 22% corporate income tax, and renovation costs are depreciated using the straight-line method over 20 years in accordance with the model assumptions. Land is not depreciated, and the acquisition package is treated conservatively due to the absence of a reliable allocation between land and building.

Table 2. Base Assumptions and Initial Investment Components

Component	Value/Assumption	Description
Land and building acquisition	IDR 2,000,000,000	Main acquisition cost
Transaction cost	IDR 166,000,000	Administrative and transaction-related costs
Partial demolition and renovation	IDR 80,000,000	Adaptation of existing buildings for clinic use
Relocation and licensing	IDR 60,000,000	Relocation of facilities and required permits
Initial working capital	IDR 110,000,000	Initial operating liquidity requirement
Total initial investment	IDR 2,416,000,000	Initial outlay used in the model
Discount rate	8.35%	After-tax indicative financing cost proxy
Terminal growth	2.00%	Long-term stable growth assumption

RESULTS AND DISCUSSION

Historical financial condition

The historical analysis shows that Klinik Pratama Camar Mandiri Jember generated positive operating profit in each year during 2020-2024, but the magnitude of profit fluctuated. Revenue rose until 2023 and declined in 2024, while patient visits also fell after reaching the highest level in 2023. This pattern confirms that the clinic's demand and revenue should be projected conservatively. In 2024, capitation revenue accounted for 74.30% of total revenue, while pharmaceutical revenue accounted for 21.67%. The high share of capitation provides recurring revenue, but it also creates dependence on participant numbers and payment policy. The cost structure is also important. The clinic's gross margin remained above 84% during the historical period, but the operating margin ranged from 8.21% to 13.93%. The 2024 operating margin was 9.28%, indicating that small revenue declines or cost increases can materially reduce cash flow. This finding supports the use of risk-adjusted analysis because a single deterministic projection does not sufficiently capture the uncertainty faced by the clinic.

Capital budgeting results

The base scenario results are presented in Table 3, showing a positive NPV of IDR 311,469,830, IRR of 9.68%, PI of 1.13, and PP of 12.36 years. Since the NPV is positive, the IRR is higher than the 8.35% discount rate, and PI is greater than one, the investment is economically feasible under the base assumptions. However, the margin of feasibility is not strong. The DPP exceeds 15 years, meaning that the initial investment is not fully recovered in present value terms within the explicit projection period. The positive NPV is supported by projected FCFF and terminal value, but the gap between IRR and discount rate is narrow. This indicates that the project is sensitive to relatively small changes in assumptions. In practical terms, the investment can be considered feasible only when KOPEGTEL Camar Jember is able to maintain revenue, prevent significant cost overrun, and control operating costs after relocation.

Table 3. Capital Budgeting Results Under the Base Scenario

Indicator	Result	Decision/Interpretation
Initial investment	IDR 2,416,000,000	Project outlay
Discount rate	8.35%	Required return proxy
PV of explicit FCFF	IDR 1,633,131,836	Present value of projection period
PV of terminal value	IDR 1,094,337,994	Present value after explicit period
Net Present Value	IDR 311,469,830	Feasible because NPV is positive
Internal Rate of Return	9.68%	Feasible because IRR exceeds discount rate
Profitability Index	1.13x	Feasible because PI is above 1
Payback Period	12.36 years	Recovered within 15-year projection
Discounted Payback Period	More than 15 years	Not recovered in present value terms

Source: Processed by the researcher (2026)

Sensitivity analysis

Sensitivity analysis indicates that revenue growth is the most critical variable. When revenue growth is negative or close to zero, NPV becomes negative. At 0% growth, NPV is approximately negative IDR 250.85 million, while at 1% growth, NPV becomes positive at approximately IDR 48.54 million. This means the project requires at least

modest revenue growth to preserve economic value. The result is consistent with the clinic's operating context because the project does not add services, doctors, employees, or operating hours. Thus, the feasibility of the project depends largely on maintaining participants, patient visits, pharmaceutical revenue, and operational efficiency rather than on capacity expansion.

The discount rate is also sensitive. NPV remains positive at 9% but becomes negative at 10%, showing that higher financing cost or risk premium can eliminate project feasibility. Initial investment sensitivity shows that cost overrun above approximately 13%-14% can turn NPV negative. This finding is practically important because acquisition, transaction, renovation, relocation, and licensing costs must be tightly controlled. Meanwhile, the analysis horizon has relatively low sensitivity because the project remains feasible under 10-, 15-, and 20-year horizons. Overall, sensitivity analysis shows that revenue growth, discount rate, and investment cost are the key risk drivers.

Scenario analysis

Scenario analysis provides a wider view of possible investment outcomes. Table 4 presents the comparison between three generated scenarios. The pessimistic scenario combines revenue decline, higher cost ratios, investment cost overrun, a higher discount rate, and lower terminal growth. Under this condition, the project produces a negative NPV of IDR 1.901 billion, IRR of -3.90%, and PI of 0.28, indicating infeasibility. The moderate scenario corresponds to the base case and shows positive but limited feasibility. The optimistic scenario generates NPV of IDR 3.368 billion, IRR of 17.99%, and PI of 2.47, indicating strong feasibility. The wide gap between pessimistic and optimistic outcomes confirms that the investment decision should not rely only on the base projection. Management should prepare mitigation measures for revenue underperformance, cost escalation, and financing risk. A feasible base scenario does not automatically mean that the project is safe; it means that the project can be accepted only if key assumptions are actively managed.

Table 4. Scenario Analysis Results

Scenario	NPV	IRR	PI	Decision
Pessimistic	-IDR 1,900,606,781	-3.90%	0.28	Not feasible
Moderate	IDR 311,469,830	9.68%	1.13	Feasible
Optimistic	IDR 3,367,747,942	17.99%	2.47	Feasible

Source: Processed by the researcher (2026).

Monte Carlo simulation

Monte Carlo simulation was conducted to estimate the probability of investment success under simultaneous uncertainty. Revenue growth was modeled using a normal distribution based on historical year-on-year revenue growth, while cost of goods sold ratio, operating expense ratio, initial investment, discount rate, and terminal growth were modeled using triangular distributions. The simulation used 1,000 trials and recalculated NPV and IRR in each trial. As summarized in Table 5, the simulation produces an average NPV of IDR 1.041 billion, a median NPV of IDR 101.35 million, a minimum NPV of negative IDR 2.234 billion, and a maximum NPV of IDR 9.270 billion. The probability of positive NPV is 51.70%, while 48.30% of trials generate negative NPV. The average IRR is 8.65%, only slightly above the base discount rate. These results indicate that the project has a positive opportunity but not a high level of certainty. The distribution is right-skewed, suggesting that some optimistic combinations produce high upside value, but the median outcome remains close to the break-even threshold.

Table 5. Summary of Monte Carlo Simulation Results

Parameter	Result	Interpretation
Mean NPV	IDR 1,040,609,122	Average simulation result
Median NPV	IDR 101,347,677	Middle value
Minimum NPV	-IDR 2,233,617,337	Worst simulated condition
Maximum NPV	IDR 9,269,989,060	Best simulated condition
NPV standard deviation	IDR 2,739,473,140	High volatility
Probability of NPV > 0	51.70%	Moderate probability of feasibility
Average IRR	8.65%	Average valid IRR

Source: Processed by the researcher (2026).

Financing feasibility and DSCR

The financing simulation shows that full bank financing with a 6% flat margin cannot be fully supported by the clinic's operating cash flow. Under a 5-year tenor, annual installments reach IDR 628,160,000, while under a 10-year tenor, annual installments reach IDR 386,560,000. The first-year FCFF is IDR 172,052,748, producing a DSCR of only 0.27x for the 5-year tenor and 0.45x for the 10-year tenor. Both ratios are below one, meaning that cash flow is insufficient to cover annual debt service. This finding is important because economic feasibility and financing feasibility are not identical. The project may generate positive NPV under base assumptions yet still create liquidity pressure if financed entirely by debt. Therefore, KOPEGTEL Camar Jember should not rely on 100% bank financing. More prudent options include using internal equity or member funds, reducing the financing amount, negotiating a longer tenor or grace period, staging the renovation, or maintaining a liquidity reserve during the early operating years after relocation.

Discussion and implications

The overall results support the use of risk-adjusted capital budgeting in cooperative healthcare investment. Traditional indicators show that the project is feasible, but risk analysis changes the interpretation from simply feasible to conditionally feasible. The project creates economic value only within a narrow safety margin. This conclusion is consistent with the argument that capital budgeting should be complemented with risk analysis when cash flows are exposed to uncertainty (Damodaran, 2018; Setiawan et al., 2024; Yuanwei, 2023). For KOPEGTEL Camar Jember, the main managerial implication is that investment execution must be linked to disciplined control of revenue and costs. Revenue growth should be monitored through capitation participant retention, patient visit trends, pharmaceutical revenue, and service utilization. Cost control should focus on medicine purchasing, medical consumables, personnel cost, utilities, building maintenance, and administrative expenses. Since the project does not expand capacity, operational improvement and revenue stability become more important than aggressive expansion assumptions.

The second implication concerns financing policy. The DSCR result shows that financing decisions should be separated from project appraisal. A positive NPV does not justify a 100% debt-financed acquisition if annual debt service cannot be supported by operating cash flow. Cooperative management should determine a financing structure that protects liquidity and member benefits. The project is more acceptable if a portion of the investment is funded internally, if debt service is reduced, or if financing terms are adjusted to match the clinic's cash generation capacity. This reinforces the financial distress concern highlighted by (Kristanti et al., 2016), because liquidity pressure can undermine business sustainability even when project value indicators are positive. Academically, this study contributes by applying an integrated deterministic and probabilistic framework to a cooperative-owned primary healthcare facility. The case emphasizes that risk-adjusted capital budgeting is useful not only for large hospitals or corporate investments but also for smaller community-based healthcare organizations. It also demonstrates the importance of combining NPV-based feasibility, sensitivity, scenarios, Monte Carlo simulation, and DSCR in one decision model.

CONCLUSION

This study concludes that the planned development investment for Klinik Pratama Camar Mandiri Jember is economically feasible under the base scenario but only with a limited margin of safety. The project generates a positive NPV of IDR 311,469,830, IRR of 9.68%, PI of 1.13, and PP of 12.36 years. However, DPP exceeds 15 years, indicating that the investment is not recovered in present value terms during the explicit projection period. Therefore, the project should be interpreted as conditionally feasible rather than strongly feasible. The most sensitive variable is revenue growth. Feasibility deteriorates when revenue growth approaches zero or turns negative, while higher growth significantly increases NPV. The discount rate and initial investment are also important because a discount rate is near 10% or cost overrun onto approximately 13%-14% can eliminate feasibility. Scenario analysis confirms that the project is infeasible in the pessimistic scenario but feasible in the moderate and optimistic scenarios. Monte Carlo simulation further indicates that the probability of positive NPV is 51.70%, meaning that the likelihood of success is only slightly higher than the likelihood of failure. Financing analysis shows that a 100% bank-financed structure with a 6% flat margin is not supported by clinic cash flow. DSCR in the first year is only 0.27x for the 5-year tenor and 0.45x for the 10-year tenor. KOPEGTEL Camar Jember is therefore advised to avoid full bank financing, control initial investment, maintain revenue stability, improve cost efficiency, and prepare liquidity reserves. Future research should compare buying versus continuing to lease using incremental analysis, increase the

number of Monte Carlo iterations, use longer historical data, and add nonfinancial aspects such as legal, technical, regulatory, governance, and social impact assessments.

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