Potential Value of Ornamental Horticulture MSME Assets: A Financial Evaluation Approach

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ABSTRACT

This study aims to assess the potential value of the ornamental plant sector through a financial evaluation approach, with a focus on micro, small, and medium enterprises (MSMEs) in Indonesia. The main objective of this study is to evaluate the financial feasibility of ornamental plant projects using key indicators such as Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), and Benefit-Cost Ratio (BCR). This study uses a financial analysis method that utilises projected cash flow and operational cost data over a five-year period. The results show that the ornamental plant project has a positive NPV of IDR 196,798,211, an IRR of 59.4%, and a Payback Period of 1 year, 9 months, and 14 days. This analysis confirms that the ornamental plant project is financially feasible for investment, with a fast return on investment and a cost-benefit ratio that indicates high efficiency. In conclusion, this study makes an important contribution to the development of the ornamental plant sector, particularly in the context of MSMEs, and provides useful practical guidance for investment decision-makers in this industry.

1. Introduction

The ornamental horticulture industry constitutes a dynamic segment of agriculture distinguished by extensive product diversity[1]. This sector encompasses the cultivation and distribution of ornamental plants and flowers for decorative purposes[2] . Its products, including potted plants, cut flowers, garden plants, and landscaping materials, enhance the aesthetics of public and private spaces and promote community well-being. The industry also offers supporting services such as garden design, landscape management, and horticultural equipment supply.

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The ornamental plant industry has grown rapidly in recent decades. It is now a dynamic part of horticulture[3]. Social, economic, and environmental factors have changed how ornamental plants are produced, distributed, and consumed[4,5]. These changes have impacted domestic markets and created complex global connections. As a result, producing and consuming countries are now more interdependent.

Urbanization is a main factor influencing this phenomenon. As the urban population rises, so does the demand for ornamental plants to beautify living spaces, offices, and public areas[6,7]. Bigger cities need natural elements to provide comfort and raise residents' quality of life. Ornamental plants, potted, cut flowers, or decorative are now central to modern space design[8,9]. This trend is fueled by the 'green living' movement, as people become more aware of the importance of bringing nature into daily life.

The ornamental plant industry has grown significantly worldwide, mainly due to globalization, urbanization, and evolving consumption patterns[10]. Increased international trade has dispersed products from Europe, Africa, Latin America, and Asia, intensifying competition[11]. In response, companies now prioritize efficiency, differentiation, and quality to maintain or expand their market share, as shown by higher import and export volumes.

Indonesia is projected to experience substantial expansion in the ornamental horticulture market over the next decade[12]. Analysis should prioritize the identification of social and economic factors that drive increased demand for ornamental horticultural products[13]. Emerging consumer trends include an emphasis on product quality, sustainability, and transparency within supply chains. Growing public awareness of environmental concerns and climate change, combined with consumer interest in both aesthetic and functional plant

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products, is creating opportunities for innovation and sustainable product development [14,15]. Systematic assessment of these factors will facilitate the identification of growth segments, potential risks, and effective strategies for achieving competitive advantage.

Urbanization fuels dynamic growth in the ornamental horticulture sector[16]. As cities expand, people increasingly seek ornamental plants to enrich homes, workplaces, and public spaces[17]. Forward-thinking initiatives to enhance city life only add momentum, making ornamental plants key players in creating vibrant, healthier environments.

To address these developments, the ornamental horticulture sector should adopt specific actions: embrace sustainable practices, increase transparency throughout production, and consider products' social and ecological impacts[18]. Additionally, adapting to globalization, climate change, and digitalization requires revising both consumption and marketing approaches. Stakeholders in the public and private sectors should collaborate to develop innovative marketing strategies that clearly communicate economic benefits[19].

The ornamental plant industry in Indonesia, despite its large market potential, faces several challenges related to project evaluation and investment assessment in the financial sector[20]. The main gaps in this regard arise from several factors that need to be considered by investors, entrepreneurs, and related parties in an effort to develop this industry to its optimal value.

One of the biggest gaps in the evaluation of ornamental plant projects in Indonesia is the lack of complete and structured financial data[21] . Many industry players, especially small and medium enterprises (SMEs), do not have adequate financial recording systems[22]. Without clear data on production costs, income, and profit and loss projections, it is difficult for investors to accurately evaluate the financial feasibility of a project. Proper financial evaluation requires valid data, including fixed and variable costs, profit margins, and clearly measurable return on investment (ROI). The unavailability of consistent financial data hinders objective assessment of the potential profits and risks associated with investment in the ornamental plant sector.

The ornamental plant industry in Indonesia is greatly influenced by seasons and changing market trends. Many ornamental plants only have high selling value during certain seasons, or

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when certain trends are popular in the market[23]. This creates uncertainty in financial planning and project evaluation. At the same time, this industry is also vulnerable to market phenomena such as import restrictions or fluctuations in raw material prices that can affect profit margins[24]. In this case, financial evaluation must consider external factors that are not always predictable, such as climate change, government policies, and rapidly changing consumer preferences.

The ornamental plant industry often requires a large amount of working capital for the purchase of raw materials (plant seeds, fertilizers, and agricultural tools), operational costs (worker salaries, transportation, and utilities), and marketing costs. However, many businesses in this sector face difficulties in managing working capital effectively. This is related to a low level of understanding of cash flow management, limited access to financing, and difficulties in obtaining loans from financial institutions. Without good working capital management, ornamental plant projects cannot survive in the long term, and the risk of financial failure increases.

Many entrepreneurs in the ornamental plant sector in Indonesia may have limited understanding of financial evaluation and other technical aspects of investment assessment[25]. They often focus more on operational and production aspects, such as plant maintenance and garden management, without paying attention to the importance of comprehensive financial evaluation. These limitations can lead to errors in budget planning, inefficient resource allocation, and unfavorable investment decisions.

Related to the above gap in understanding, there is also a lack of capacity building for human resources (HR) capable of managing ornamental plant projects from a financial perspective. Many business actors do not have the skills to use modern financial evaluation tools, such as accounting software or risk analysis models. This hinders their ability to evaluate the long-term profitability and risks involved in each project. Human resources trained in financial aspects will enable them to make more informed and strategic decisions in running their ornamental plant businesses.

In an increasingly complex market context, evaluating the financial benefits of ornamental plant business projects is crucial to ensuring appropriate and sustainable investment decisions. A deep understanding of the factors that influence investment outcomes, including macro and microeconomic elements and market conditions, is crucial in formulating effective investment strategies. However, existing methods for predicting investment benefits often have limitations, unable to capture the inherent complexity of such projects. This study aims to address this by developing a comprehensive financial benefit evaluation that effectively utilizes financial data in a manner. The main focus of this study is the analysis of financial data from ornamental plant businesses, with the hope of increasing the financial benefits of investment projects in the ornamental plant business.

2. Research Method

Financial feasibility analysis of a project, selecting the appropriate method is very important to ensure that investment decisions are based on accurate and relevant data. This study refers to five main criteria used to evaluate the financial feasibility of ornamental plant business projects, namely financial analysis in the form of Payback Period, Net Present Value (NPV),

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Internal Rate of Return (IRR), and Break Even Point (BEP) as well as cost-benefit analysis in the form of Benefit-Cost Ratio (BCR). Each of these criteria plays an important role in providing a comprehensive picture of the economic and financial benefits of the proposed investment[26]. The role of this method as an analysis is to provide an in-depth understanding of the potential benefits, risks, and feasibility of ornamental plant business projects, in order to provide stakeholders with alternatives for making comprehensive, informed strategic decisions[27]. The object of this study is the ornamental plant MSME CV XYZ.

3. Results and Discussion

The investment feasibility assessment of CV XYZ Tanaman Hias Yogyakarta requires key data including initial investment amount, operational costs, income from plant and service sales, and net profit per period. This data is used to calculate investment feasibility indicators, including Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), Benefit Cost Ratio (BCR), and Break Even Point (BEP).

Table 1. Cash Flow

Item	Year					
	0	1	2	3	4	5
1. Income						
a. Production Output		195,000,000	208,650,000	223,255,500	238,883,385	255,605,221
b. Scrub Value						
Gross Benefit	0	195,000,000	208,650,000	223,255,500	238,883,385	255,605,221
2. Initial Investment	170,000,000					
3. Operating Cost		80,000,000	80,800,000	81,608,000	82,424,080	83,248,321
Total Cost		80,000,000	80,800,000	81,608,000	82,424,080	83,248,320
4. Benefits	-170,000,000	115,000,000	127,850,000	141,647,500	156,459,305	172,356,901
5. 15% tax		17,250,000	19,177,500	21,247,125	23,468,895	25,853,535
6. Net Benefit After Tax	-170,000,000	97,750,000	108,672,500	120,400,375	132,990,409	146,503,365
7. D.F 18%	1	0.8475	0.7182	0.6086	0.5158	0.4371
Present Value	-170,000,000	82,838,983	78,046,897	73,279,385	68,594,973	64,037,971
NPV	196,798,211					

This analysis is based on the assumptions listed in Table 1. The investment projection used is IDR 170,000,000 for a five-year period, starting from 2023 to 2025. The discount factor (DF) applied is 18%, which is higher than the average bank investment loan interest rate, which ranges from 10% per annum. The assumed operating costs are Rp 80,000,000, while the

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estimated sales revenue in the first year is estimated to reach Rp 195,000,000, with an income tax of 15%.

The table above presents an analysis of the feasibility of the CV XYZ Ornamental Plants project based on annual cash flow records for five periods. Production output is projected to increase by 1.07% annually, reaching IDR 208,650,000 in the second year and IDR 255,605,221 in the fifth year, without taking into account the scrap value, where all revenue comes from main operations. On the expenditure side, operating costs will increase gradually, starting from IDR 80,000,000 in the first year and reaching IDR 83,248,321 in the fifth year. This increase in operating costs reflects the expansion of the scale of operations and inflation, which affects business costs from year to year. The benefit calculation shows a positive difference between gross revenue and operating costs, which continues to increase from IDR 115,000,000 in the first year to IDR 172,356,901 in the fifth year. After being subject to a 15% tax, the net benefit after tax value continues to show a positive figure that keeps growing. This condition indicates strong and sustainable profitability potential throughout the projection period.

A Discount Factor (DF) of 18% discounts the net cash flow after tax to obtain the Present Value (PV) for each year. This discounting process considers time as an important factor in the value of money, where money received today has a higher value than the same amount of money in the future. The discount calculation results show a decrease in present value over time, which is consistent with the principle of time value of money. The total present value results in a Net Present Value (NPV) of IDR 196,798,211. A positive NPV, far exceeding the initial investment, indicates that this project is economically feasible. A positive NPV indicates that the project has the ability to return the invested capital and provide a significant net surplus value to investors, making it an attractive and profitable investment. Although the investment feasibility analysis based on NPV shows positive and stable results throughout the projection period, external factors such as economic and political conditions can affect the uncertainty of cash flows that need to be taken into account in further planning.

Table 2. NPV 1 and NPV 2 Results

Year	Net Benefit after Tax	DF 18%	PV DF 18%	DF 60%	PV DF 60%
0	-170,000,000	1	-170,000,000	1	-170,000,000
1	97,750,000.00	0.8475	82,838,983.05	0.625	61,093,750.00
2	108,672,500.00	0.7182	78,046,897.44	0.390625	42,450,195.31
3	120,400,375.00	0.6086	73,279,385.31	0.244140625	29,394,622.80
4	132,990,409.25	0.5158	68,594,973.59	0.152587891	20,292,726.02
5	146,503,365.98	0.4371	64,037,971.48	0.095367432	13,971,649.74
		NPV 1	196,798,211	NPV 2	- 2,797,056.12

The results in Table 1 show a positive value for NPV 1 of IDR 196,798,211 with a discount rate of 18%, and a negative value for NPV 2 of IDR (2,797,056.12) at a discount rate of 60%. The Internal Rate of Return (IRR) method produces a value of 59.4%. The IRR value obtained shows that the internal rate of return of the project is much higher than the discount rate used, which is 18%. Based on investment theory, a project is considered feasible if the IRR exceeds the cost of capital or the prevailing interest rate[28]. Since the IRR value exceeds the discount rate used, this investment is declared economically feasible. The investment in CV XYZ Ornamental

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Plants shows competitive and efficient returns and meets the feasibility criteria based on the IRR method. The XXX study reveals that the application of the Markov Chain model enables probabilistic analysis of possible future project conditions, both in terms of profits and losses. Therefore, the XYZ Ornamental Plant Investment can be evaluated not only from a static feasibility perspective through IRR and NPV, but also in terms of the resilience and consistency of investment returns in the long term, especially if external factors affect cash flow.

Table 3. Calculation of Payback Period, Break-Even Point, Profitability Index, and Break-Even Point

Year	Investment	Cost	Benefit	DF 18%	PV Investment	PV Cost	PV Benefit
0	170,000,000		-170,000,000	1	170,000,000	0	-170,000,000
1		80,000,000.00	115,000,000.00	0.847457627	0	67,796,610.17	97,457,627.12
2		80,800,000.00	127,850,000.00	0.71818443	0	58,029,301.92	91,819,879.35
3		81,608,000.00	141,647,500.00	0.608630873	0	49,669,148.26	86,211,041.54
4		82,424,080.00	156,459,305.00	0.515788875	0	42,513,423.51	80,699,968.93
5		83,248,320.80	172,356,901.15	0.437109216	0	36,388,608.26	75,338,789.97
					170,000,000	254,397,092.12	261,527,306.91

Table 3 presents the components used to calculate the payback period, break-even point, and benefit-cost ratio. The Payback Period analysis shows that the return on investment is achieved within 1 year, 9 months, and 14 days. This calculation uses the present value approach of the Net Benefit after tax with a discount rate of 18%, which considers the time value of money. These results indicate that the investment can return the initial capital in a relatively short period of time. Compared to the assumed project life of 5 years, this payback period is much shorter than the maximum investment life limit. Based on the Payback Period feasibility criteria, a project is deemed feasible if the PP value is less than the project lifespan. The investment in CV XYZ Tanaman Hias meets this criterion, as it is able to cover the entire initial investment in a short period of time. This reflects that this business has a relatively low investment risk and can generate positive cash flow in a relatively short period of time.

The results of the investment feasibility analysis using the Net Benefit-Cost Ratio (NBCR) approach show a value of 2.92. This value was obtained by comparing the total present value of the net benefit over five years of Rp 496,859,860 with the total initial investment of Rp 170,000,000. Based on this approach, the NBCR feasibility criteria state that a project is feasible if NBCR > 1. This means that the benefits obtained are greater than the costs incurred. Conversely, a project is considered unfeasible if NBCR < 1, because the costs exceed the benefits generated. With an NBCR value of 2.92, the CV XYZ Ornamental Plants project is considered very feasible financially. Every Rp 1 of investment cost incurred can generate a net benefit of Rp 2.92.

The Break Even Point (BEP) analysis shows that the break-even point is reached in the second year, eighth month, and fifteenth day. This calculation uses a present value approach with a discount rate of 18%, which reflects the time value of money. By the end of the second year, the accumulated discounted costs (PV cost) reached IDR 254,397,092.12, while the accumulated revenue (PV benefit) only reached IDR 189,277,506. The negative difference of Rp 65,119,585.65 indicates that the project reaches its break-even point at 0.709 years or approximately 8 months and 15 days in the third year. Based on project evaluation criteria, an investment is deemed feasible if the BEP is achieved before the project's lifespan ends. In this project, the BEP was achieved before the 5-year project deadline, so the CV XYZ Ornamental Plants project was declared financially feasible and efficient in terms of return on initial

investment. The project feasibility assessment based on the BEP shows that the project can cover all costs incurred before the end of its operational period.

4. Conclusion

The results of the feasibility analysis of CV XYZ Tanaman Hias' investment using the Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PBP), Benefit Cost Ratio (BCR), and Break Even Point (BEP) methods show that this project is financially feasible. An NPV value of IDR 196,798,211 indicates positive economic value added. An IRR of 60% far exceeds the discount rate of 18% used. The Payback Period of 1 year, 9 months, and 14 days indicates a relatively quick return on investment. The BCR of 2.92 shows that every rupiah invested generates a net benefit of Rp 2.92. The BEP is achieved in the 2nd year, 8th month, and 15th day.

In terms of the ornamental plant market, public interest has increased after the pandemic, with digital marketing strategies playing an important role in reaching urban consumers. From a legal perspective, it is important to have an official business entity with an operating license, so that the business can operate legally and sustainably. Meanwhile, from a socio-economic perspective, the existence of ornamental plant businesses, can create jobs, strengthen the local economy, and support urban environmental conservation.

This study has limitations related to its dependence on assumptions of a stable market and does not fully consider macroeconomic variables such as inflation, lending rates, and changes in people's purchasing power, which counvestmenld affect future cash flow projections. In addition, risk management aspects have not been discussed comprehensively, including dependence on seed suppliers and fluctuations in logistics costs. If these limitations can be overcome in future research, the project evaluation results will be more accurate, adaptive, and relevant in facing dynamic economic conditions.

The practical implications of this study indicate that ornamental plant entrepreneurs can utilize this investment evaluation method as a basis for more measurable business planning and investment decision-making. Cost efficiency strategies, the application of digital marketing technology, and product diversification are key steps to improving competitiveness. The theoretical implications of this study contribute to strengthening the literature on investment feasibility evaluation in the ornamental plant agribusiness sector, particularly in the local Indonesian context.

Recommendations from the results of this study include: (1) CV XYZ Tanaman Hias is advised to strengthen the overall legality of its business to support expansion and partnership cooperation; (2) developing a sustainable digital marketing strategy to reach a wider range of consumers; (3) business diversification, such as plant rental and gardening services; and (4) conducting in-depth sensitivity studies on worst-case economic scenarios to remain resilient in the future.

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