

FEASIBILITY STUDY OF FINANCIAL DEVELOPMENT OF NILAM

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ABSTRACT

The background of the study was that there needs to be available information on factors that influence income/and profits in the feasibility of a patchouli commodity development business. This study analyzed the feasibility of investing in developing patchouli commodities in several regions, both on an individual and industrial scale. Investment analysis studies were carried out to see whether or not a business is feasible from a financial perspective besides being used as a material consideration in determining business decisions. The method used is a literature study using secondary data obtained from eleven journals which include analysis criteria for Net B/C, NPV, IRR, and PP as the main criteria and PI, BEP, ARR, and ROI as supporting criteria. Based on the results of a study on Medium Scale Patchouli Agroindustry Development in East Java, this was the most viable investment based on NPV and IRR calculations. Meanwhile, the Feasibility Analysis of the Patchouli Oil Refining Business in North Luwu Regency, South Sulawesi, was a business that has the smallest payback period.

Keywords: patchouli, agroindustry, capital budgeting, investment feasibility

ABSTRAK

Latar belakang kajian adalah tidak tersedia informasi faktor yang mempengaruhi pendapatan/ dan keuntungan dalam kelayakan usaha pengembangan komoditas nilam. Studi ini menganalisis kelayakan investasi pada pengembangan komoditas nilam di beberapa wilayah, baik ini skala individu maupun industri. Kajian analisis investasi dilakukan untuk melihat layak atau tidaknya suatu usaha dari segi finansial selain digunakan sebagai bahan pertimbangan dalam penentuan keputusan usaha. Metode yang digunakan adalah studi literatur dengan penggunaan data sekunder yang diperoleh dari sebelas jurnal yang meliputi kriteria analisis Net B/C, NPV, IRR dan PP sebagai kriteria utama dan PI, BEP, ARR dan ROI sebagai kriteria pendukung. Berdasarkan hasil kajian Pengembangan Agroindustry Nilam Skala Menengah di Jawa Timur merupakan investasi yang paling layak diusahakan berdasarkan perhitungan NPV dan IRR. Sementara itu, Analisis Kelayakan Usaha Penyulingan Minyak Nilam Kabupaten Luwu Utara, Sulawesi Selatan merupakan usaha yang memiliki payback period paling kecil.

Kata kunci: nilam, agroindustry, penganggaran modal, kelayakan investasi,

INTRODUCTION

The Patchouli plant is a tropical plant. Based on the nature of its growth, patchouli is an annual plant (perennial)

and belongs to the plantation group (Idal Bahri, 2021).

The patchouli plant is shrub-shaped, not very tall, at most 120 cm, grows in clumps, and the color of the

leaves is reddish green. (Hidayatullah, 2022). This plant belongs to the Labiatae family and is a shrub with a height of about 0.3-1.3 meters. In nature, this plant squirms irregularly and tends to point toward the arrival of sunlight, but in patchouli plantations, the growth can be straight up or in short clumps if given a bamboo enforcer (Taslim et al., 2022). The results obtained from patchouli plants are in the form of patchouli oil. Patchouli oil is obtained by distilling the patchouli plant's leaves, stems, or branches. Patchouli oil is an essential oil with bright economic prospects in capturing local and global markets. Patchouli oil commodity in international trade terms is known as Patchouli Oil (Essential Oil Of Patchouli) (Hidayatullah, 2022). Around 85% of Indonesia's essential oil exports are dominated by patchouli essential oil, with a volume of 1,200-1,500 tons/year, exported to several countries, including Singapore, the United States, Spain, France, Switzerland, England, and other countries. (Destria et al., 2022).

Some of the obstacles in the patchouli oil industry include low quantity of oil (yield) yield, various oil qualities, non-continuous production, and fluctuating prices, thereby reducing the competitiveness of the national

patchouli oil industry. The use of conventional extraction technology is one of the reasons for the low yield of the industry (Effendy et al., 2019). Processing of patchouli oil in Indonesia is still at the upstream level, only using traditional methods. Such a situation has resulted in Indonesia's inability to compete with other producing countries, which can guarantee the amount of production with consistent quality. The current condition of the patchouli oil agro-industry in Indonesia generally has yet to show excellent performance. The main problem faced is the instability of production and quality; this is because most of the production efforts are carried out straightforwardly, both in terms of selecting planting locations, cultivation, and varieties that exist, as well as processing the results (Hidayatullah, 2022).

With these phenomena and problems, conducting an analysis, especially the patchouli financial feasibility analysis, is crucial. Financial feasibility analysis can be used to reference whether a business is feasible or not to run. Whether it is feasible or not can be seen from how much profit is obtained and how long it takes to return the capital, and it can be a guide in

determining what decisions must be made related to the business.

This study aims to review by comparing: 1) research study methodology and 2) financial feasibility analysis in eleven journals of investment feasibility analysis for patchouli development by first analyzing the components of financial feasibility criteria, namely Net B/C Ratio, Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP) and see some analysis of Break Even Point (BEP), Profitability Index (PI), Average Rate of Return (ARR) and Return of Investment (ROI). This study was carried out considering the enormous potential of the patchouli business. It can be used as material for investors to see the potential for the type of business with the best investment feasibility. This study is interesting to carry out considering the great potential of patchouli. It can be used as material for investors to see the potential for future patchouli development.

RESEARCH METHODS

The research method used in this study is a literature study method with secondary data types. The literature study method in question is a research method that utilizes data collection tools

to reveal theories related to the phenomenon under study as a discussion of the results obtained from books or journals relevant to the study's content. The written study did not go through the data collection process directly but by collecting 11 (eleven) journals as a reference for the study and review process, which aims to carry out an in-depth understanding of the problem being studied and the actual conditions in the field as a comparison to determine whether or not the farming is feasible. Literature can focus on the results of previous studies, study methods, theories, applications, or all of these. Meanwhile, the review method is carried out to determine the actual conditions or cases in the field, which can be used as a comparison and reference in determining whether a business is feasible or not at the research location.

RESULTS AND DISCUSSION

Feasibility analysis is research on whether or not a project (usually an investment project) can be implemented successfully. What is meant here is whether or not it is feasible to estimate that the project will or may not generate profits or benefits if it has been put into operation. Measuring tools in the

feasibility study are determined by several aspects. A feasibility study is a research on a business plan that analyzes whether or not a business is feasible to build and when it is operationalized routine to achieve maximum profit for an indefinite period. A feasibility study can be translated as research on whether or not an investment can be carried out successfully. Success can be interpreted more broadly or limited, mainly used by more private parties.

Investment valuation is generally based on cash flow. However, other factors must include legal considerations, environmental impact, social impact (quality of life, benefits of life), operational benefits, and risks. Investment forms include replacement of fixed assets, expansion/expansion, product diversification, exploration, and research and development. Cash flow/cash flow occurs from transaction activities that provide cash benefits. The definition of Financial Assessment is described in Tables 1 and 2.

Table 1. Definition of Financial Valuation (Group based on the Use of Discounted Cash Flow)

Valuation	Definition
<i>Non-Discounted Cash Flow</i>	
1. Average Rate of Return	<ul style="list-style-type: none"> Using profit after tax divided by the average book value of the investment over the life of the investment. Measures the size of the annual average net return of an investment. Provide an overview to investors about the potential income received during the investment period.
2. Payback Period	<ul style="list-style-type: none"> Is a certain period needed to return the original investment capital (Aliqadri et al., 2022) To find out how long the investment funds will return It is recommended as additional information to find out the speed of return of funds that have been invested
<i>Discounted Cash Flow</i>	
1. Net Present Value (NPV)	<ul style="list-style-type: none"> Calculating the difference between the present value of cash inflows and the present value of cash outflows Judging from the present value of the net cash flow to be received compared to the present value of the amount of investment issued (Siregar et al., 2020) Required data on estimated operating and maintenance costs, investment costs, and estimated profits from the planned investment. Considered the best (theoretically the most robust method) because investors can calculate the value of investment flows in the future
2. Profitability Index (PI)	<ul style="list-style-type: none"> Is an investment feasibility analysis method that calculates the ratio between cash inflows' present value and cash outflows' present value. Also known as the profit investment ratio and value investment ratio. Calculation based on the profit index compared to the value of net cash receipts as a whole and the value of the current investment.
3. Internal Rate Return (IRR)	<ul style="list-style-type: none"> Calculating the expected rate of return on investment from incoming and outgoing cash flows.

- Is the amount of interest rate that makes the Present Value of investment and benefits expected during the project equal to zero.
- It is the most widely used rate of return method for conducting technical, economic analysis.
- Measure investment from the interest rate that makes the present value of the expected profit equal to the total value of the cost of capital.
- Finding the interest rate that equates the present value of the present value of the yield and investment (initial outlay).
- The IRR value indicates the Discount Factor (DF) level where the NPV=0.

Resources: Aliqadri et al., (2022), Siregar Husein Qory et al.,(2020)

Table 2. Formulas and Criteria for Financial Assessment (Group based on the Use of Discounted Cash Flow)

Valuation	Formula	Criteria
<i>Non-Discounted Cash Flow</i>		
1. <i>Average Rate of Return</i>	$ARR = \text{average annual profit} / \text{investment or asset's initial cost}$	If > 0% then it is feasible to choose. If < 0%, then it is not worth choosing
2. <i>Payback Period</i>	If the cash flows are even: Payback Period = Initial Investment / Net Cash Flow per period If the cash flows are uneven you have: Payback Period = Years before full recovery + Unrecovered cost at the start of the year / Cash flow during the year $PBP = n + (a - b/c - b) \times 1 \text{ year}$	<ul style="list-style-type: none"> • If the PBP is faster or shorter than the provisions, the investment is feasible because it is profitable. • If the PBP is longer than the initial provisions, the investment is not feasible because it is detrimental.
<i>Discounted Cash Flow</i>		
1. <i>Net Present Value (NPV)</i>	$NPV = \sum_{t=0/1}^n \frac{(B_t - C_t)}{(1+i)^t}$	<ul style="list-style-type: none"> • If $NPV_0 > NPV_1$, the investment is not feasible because it can cause losses. • If $NPV_0 < NPV_1$, the investment is feasible because it can be profitable. • If $NPV_0 = NPV_1$, the investment is not feasible because it can cause losses.
2. <i>Profitability Index (PI)</i>	$PI = PV/I$	<ul style="list-style-type: none"> • If $PI > 1$, the investment is feasible because it is profitable. • If $PI < 1$, the investment is not feasible because it can be detrimental.
3. <i>Internal Rate Return (IRR)</i>	$IRR = R1 + (PV1 - PV0/PV1 - PV2) \times (R1 - R2)$	If the expected rate of return on investment is greater than the cost of capital, then the investment is feasible.

Resources: Aliqadri et al., (2022), Siregar Husein Qory et al.,(2020)

Calculations can also be grouped based on the variables being calculated and the purpose of the calculation to facilitate understanding of several financial assessments (Tables 3 and 4). This grouping makes it easier for investors to determine which calculations to use and

is adjusted to the timeframe, data availability, and the primary purpose of an investment. Of the five methods above, the most widely used are the NPV, IRR, and PI methods because these methods have a strong foundation by considering the time value of money

in investment proposals. Under normal circumstances, the three methods yield the same conclusion. However, it does

not rule out the possibility of conflict or confusion from the three methods when faced with several situations.

Table 3. Financial Assessment Based on the Variables that Are Calculated:

Variable	ARR	PP	NPV	PI	IRR
Cash flow		v	v	v	v
Capital Cost/Initial investat cost	v	v	v	v	
Project duration		v			
Task Implication	v				
Currency			v	v	v
Account calculation	v				

Resources: Aliqadri et al., (2022), Siregar Husein Qory et al.,(2020)

Table 4. Financial Assessment Based on the purpose valuation

Purposes	ARR	PP	NPV	PI	IRR
Value/Invest ratio			v	v	
Invest return Time (PP)		v			
Invest risk		v			
BEP		v			
Invest choicei		v			
Invest Profitability	v				v
Invest residual value			v		
Long term			v	v	v

Resources: Aliqadri et al., (2022), Siregar Husein Qory et al.,(2020)

According to (Putra et al., 2020), a study methodology is a scientific method or process that aims to obtain data that can be utilized in the interests of scientific studies. The research method used is

a quantitative analysis by conducting a financial feasibility analysis. A comparison of the use of financial feasibility assessment calculations in 11 journals can be seen in Table 5 as follows.

Tabel 5. Perbandingan Penggunaan Penilaian Kelayakan Finansial di 11 Jurnal Kajian

No	Kriteria	No Jurnal											Total
		1	2	3	4	5	6	7	8	9	10	11	
1	Net B/C	V	-	V	V	V	-	V	V	V	V	V	9
2	NPV	V	-	-	-	V	V	V	V	V	V	V	8
3	IRR	V	-	-	-	V	V	V	V	V	V	-	7
4	PP	V	V	-	-	-	V	V	V	V	V	-	7
5	PI	-	-	-	-	-	V	-	-	-	V	-	2
6	BEP		V		V	V	V	-	-	-	V	-	5
7	ARR	-	-	-	-		V	-	-	-	-	-	1
8	ROI	V	-	-	-	-	-	-	-	-	-	-	1

Resources: Aliqadri et al., (2022), Siregar Husein Qory et al.,(2020)

Comparison of Financial Feasibility Assessment Results in 11 Journals

Financial feasibility analysis is used to analyze whether or not a business is feasible based on financial aspects. Financial analysis criteria can vary to

measure business feasibility, including NPV, IRR, and Net B/C (Putra et al., 2020). The results of assessing the financial feasibility criteria for the 11 journals studied can be seen in Table 6, Table 7, and Table 8.

Table 6. Scale, Total Cost, Initial Investment Value and Investment Period in Several Study Journals

No	Journal Title	Location	Study Scale	Total	Initial Investment Value	Investment Period
1.	Patchouli Oil Farming: An Alternative to Poverty Alleviation through Smallholders Business	Kabupaten Gayo Luwes, Kabupaten Aceh Selatan, dan Kabupaten Aceh Jaya	60 responden	N/A	22.550.000/ responden	Per year
2	Analisis Kelayakan Finansial Usaha Penyulingan Minyak Nilam	Kabupaten Konawe, Sulawesi Tenggara	BUMDES	160,565,133	160,565,133	Per year
3	Analisis Kelayakan Usaha Dan Strategis Pengembangan Usaha Penyulingan Minyak Nilam	Kabupaten Muna Barat, Sulawesi Tenggara,	Personal (39 ha)	154.250.000	N/A	Per year
4	Analisis kelayakan usaha penyulingan minyak nilam	Kabupaten Aceh Barat Daya, Aceh	Personal	238.290.000	N/A	Per year
5	Kelayakan Finansial Pembangunan Kawasan Agribisnis Nilam	Kab. Aceh Jaya, Aceh	village (3000 ha)	43,983,747	461,841,000	3 years
6	Business Feasibility Analysis of Citronella and Patchouli Essential Oil	Kota Sawahlunto, Sumatera Barat	district	N/A	N/A	10 years
7	Analisis Kelayakan Usaha Penyulingan Minyak Nilam	Kabupaten Luwu Utara, Sulawesi Selatan	Personal	18,125,875	167,851,000	3 years
8	Financial Analysis of Annual Plant-Cocoa Intercropping Farming	District Kolaka, Sulawesi Tenggara,	270 respondents	7,546,050,-	per Ha between IDR 2.500.000 and IDR 15.000.000	Per tahun
9	Shifting from Agriculture to Agribusiness: The Case of Aromatic Plants	Negara Bagian Uttarakhand, Republik India	41 growers - 13 for patchouli.	Rs 32,919	N/A	5 tahun

10	Design of Medium Scale Integrated Patchouli Oil Agro-industry	East Java	Province (756 ha)	N/A	Rp 45,165,097,91 8.93.	20 years
11	Prospek Pengembangan Agroindustri Minyak Nilam	district Padang North Lawas, North Sumatera	village	19,774,458	19,774,458	3 years

Sumber: Ernawati et al., (2019), Aliqadri et al., (2022), Taslim et al., (2022), Hidayatullah (2022), Idal Bahri (2021), Ahmad & Heriyanto (2020), Madina et al., (2018), Budiman et al., (2020), Singh (2007), Ayu et al., (2016), dan Siregar Husein Qory et al., (2020)

Tabel 7. *Revenue*, B/C, R/C dan BEP di 11 Jurnal Kajian

No	Judul Jurnal	Lokasi	Revenue (IDR)	B/C	R/C	BEP (IDR)
1.	<i>Patchouli Oil Farming: An Alternative to Poverty Alleviation through Smallholders Business</i>	Kabupaten Gayo Luwes, Kabupaten Aceh Selatan, dan Kabupaten Aceh Jaya	47,520,000	1,9	-	-
2	Analisis Kelayakan Finansial Usaha Penyulingan Minyak Nilam	Kabupaten Konawe, Sulawesi Tenggara	187,200,000	-	1.17	160,565.133
3	Analisis Kelayakan Usaha Dan Strategis Pengembangan Usaha Penyulingan Minyak Nilam	Kabupaten Muna Barat, Sulawesi Tenggara,	176,650,000	1.14.	-	-
4	Analisis kelayakan usaha penyulingan minyak nilam	Kabupaten Aceh Barat Daya, Aceh	172,110,000	0.72	1.72	<ul style="list-style-type: none"> • BEP Produksi: 627 kg (< produksi) • BEP Harga: Rp. 220.639,-/ kg (< harga jual)
5	Kelayakan Finansial Pembangunan Kawasan Agribisnis Nilam	Kab. Aceh Jaya, Aceh	-	5.162	-	6 th years
6	<i>Business Feasibility Analysis of Citronella and Patchouli Essential Oil</i>	Kota Sawahlunto, Sumatera Barat	-	-	-	10 years
7	Analisis Kelayakan Usaha Penyulingan Minyak Nilam	Kabupaten Luwu Utara, Sulawesi Selatan	34,161,786	1,40	1,65	-
8	<i>Financial Analysis of Annual Plant-Cocoa Intercropping Farming</i>	District Kolaka, Sulawesi Tenggara,	30,441,007	2,44	-	-
9	<i>Shifting from Agriculture to Agribusiness: The Case of Aromatic Plants</i>	Negara Bagian Uttarakhand, Republik India	-	1.12	-	-

10	<i>Design of Medium Scale Integrated Patchouli Oil Agro-industry</i>	East Java	USD 25,200,000, 000.00	1.39			BEP (liter): 3,398 BEP (IDR) : 2,038,795,816.51
11	Prospek Pengembangan Agroindustri Minyak Nilam	district Padang North Lawas, North Sumatera	64,890,133.	2.28	-	-	

Sumber: Ernawati et al., (2019), Aliqadri et al., (2022), Taslim et al., (2022), Hidayatullah (2022), Idal Bahri (2021), Ahmad & Heriyanto (2020), Madina et al., (2018), Budiman et al., (2020), Singh (2007), Ayu et al., (2016), dan Siregar Husein Qory et al., (2020)

Tabel 8. Perhitungan Kelayakan Finansial di 11 Jurnal Kajian

No	Journal Title	Location	Investment Feasibility Assessment					Decision
			NPV (>1)	IRR (%)	PP (month, year)	PI (>1)	ARR (>0)	
1.	<i>Patchouli Oil Farming: An Alternative to Poverty Alleviation through Smallholders Business</i>	Kabupaten Gayo Luwes, Kabupaten Aceh Selatan, dan Kabupaten Aceh Jaya	IDR 17,130,000	93,6% (> 14%)	7,9 months	-	-	Feasible
2	Analysis of Financial Feasibility of Patchouli essential Oil Refining Business	Kabupaten Konawe, Sulawesi Tenggara	-	-	6 years 3 months	-	-	Feasible
3	Analysis of business feasibility and strategy development patchouli essential oil refinery	Kabupaten Muna Barat, Sulawesi Tenggara,	-	-	-	-	-	Feasible
4	Analysis of agribusiness feasibility patchouli essential oil refinery	Kabupaten Aceh Barat Daya, Aceh	-	-	-	-	-	Feasible
5	Finansial Feasibility Agribusiness Nilam Region Development	District Aceh Jaya, Aceh	IDR 1,472,550,521,950	50% (> 12%)	-	-	-	Feasible
6	Business Feasibility Analysis of Citronella and Patchouli Essential Oil	Municipality Sawahlunto, Sumatera Barat	IDR 41,390,526	66,97% (> Range 9.95% - 11.56%)	-	2.05	65.14 %.	Feasible
7	Patchouli Essential Oil Refining Business Feasibility Analysis	District Luwu Utara, Sulawesi Selatan	IDR 9,350.258	41,058% (> 12%)	3 rd monts	-	-	Feasible
8	<i>Financial Analysis of Annual Plant-Cocoa Intercropping Farming</i>	District Kolaka, Sulawesi Tenggara,	IDR 68,191.434,-	66,33% (> 13%)	8 years	-	-	Feasible

9	<i>Shifting from Agriculture to Agribusiness: The Case of Aromatic Plants</i>	Sates of Uttarakhand, India	Rs 56,207	19.74 (> prevailing market rate)	2.69 years		Feasible
10	<i>Design of Medium Scale Integrated Patchouli Oil Agro-industry</i>	East Java	USD 28,500,761,738.00	27 % (> 22 %)	3.1 years	2.31	Feasible
11	<i>Agroindustry Nilam oil development prospect (Case Study: Sipiongot Village, Dolok District, North Padang Lawas District)</i>	District Padang Lawas Utara	IDR 41,390.526	-	-		Feasible

Resources: Ernawati et al., (2019), Aliqadri et al., (2022), Taslim et al., (2022), Hidayatullah (2022), Idal Bahri (2021), Ahmad & Heriyanto (2020), Madina et al., (2018), Budiman et al., (2020), Singh (2007), Ayu et al., (2016), dan Siregar Husein Qory et al., (2020)

Based on the calculation of investment feasibility in Table 8, patchouli development in several areas with different scales is feasible. Information was also obtained that the Development of Medium-Scale Patchouli Agroindustry in East Java (Journal 10) was the investment that brought in the most revenue, namely USD 25,200,000,000.00, followed by Patchouli Oil Refining in Konawe Regency, Southeast Sulawesi (journal 2) amounting to IDR. 187,200,000 and Patchouli Oil Refining in West Muna Regency in Southeast Sulawesi (Journal 3) of IDR. 176,650,000,-. The development of medium-scale patchouli

agroindustry in East Java also has the largest NPV of USD 28,500,761,738.00. Meanwhile, the Development of the Patchouli Agribusiness Area in Kab. Aceh Jaya, Aceh (journal 5) is a business development with the highest B/C ratio, which indicates that every additional cost of IDR. 1 incurred will generate a benefit of 5,162.

Interest rates used in the analysis of the financial feasibility of businesses vary. This condition is due to investment risk, market conditions, investment duration, and applicable business policies. The higher the investment risk, the higher the interest rate required to offset this risk. Market

conditions can influence interest rates generally; when the market is shaken, the central bank can raise interest rates to promote economic stability. Shaking the market can impact the investment feasibility and IRR of the business or project. Interest rates may vary depending on the term of the investment. Long-term interest rates can be different from short-term interest rates. In addition, companies or investors can set different interest rates according to internal policies and investment objectives. The term interest rate, of course, will affect the feasibility of the investment and the resulting IRR.

CONCLUSION

The financial feasibility analysis widely used in patchouli development analysis is Net B/C, NPV, IRR, and PP because patchouli is categorized as a plantation and annual crop that requires a link in the plantation agribusiness management system. The development of patchouli plants, both for refining, agroindustry, intercropping plants, and alternative crops, is feasible. This study compares the analysis of the feasibility of developing patchouli commodities at several scales (individuals and

industries). Based on the NPV value, Medium Scale Patchouli Agroindustry Development in East Java (journal 10) is a business that provides an enormous average net profit of USD 28,500,761,738.00, with an IRR rate of 27%. Meanwhile, the Development of the Patchouli Agribusiness Area in Kab. Aceh Jaya, Aceh (journal 5) gives the highest Net B/C value of 5,162, and Patchouli Oil Refinery in North Luwu Regency, South Sulawesi (journal 7) has the smallest PP, namely in the third month.

Future researchers are expected to use primary data so that calculations are more accurate, while this research is limited to using only secondary data as a data source so that this research cannot know the details of actual conditions and the calculations carried out are correct and correct (the possibility of calculation errors is greater). In addition, the method used to calculate the financial eligibility criteria is limited (it does not use all calculations), so the results are not comprehensive for each purpose/benefit of the calculation.

Calculations can also be grouped based on the variables being calculated

and the purpose of the calculation to facilitate understanding of several financial assessments (Tables 3 and 4). This grouping makes it easier for investors to determine which calculations to use and is adjusted to the timeframe, data availability, and the primary purpose of an investment. Of the five methods above, the most widely used are the NPV, IRR, and PI methods because these methods have a strong foundation by considering the time value of money in investment proposals. Under normal circumstances, the three methods yield the same conclusion. However, it does not rule out the possibility of conflict or confusion from the three methods when faced with several situations.

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