

**BANANA PLANTATION EXPANSION THROUGH VENTURE CAPITAL WHILE
ENHANCING OPERATION EFFICIENCIES**

**EKSPANSI PERKEBUNAN PISANG MELALUI MODAL VENTURA SERTA
MENINGKATKAN EFISIENSI OPERASI**

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ABSTRACT

Indonesia, renowned for its fertile terrain, has great potential for fruit plantation due to its land and market. Bananas, especially the globally favored Cavendish variety, are predominant in both production and consumption. In this dynamic market, PT Sewu Segar Nusantara (Sunpride) stands as the dominant entity, leaving other players, like PT Lampung Banana Agri, with minimal market traction. PT Lampung Banana Agri is one of the players in the industry struggling to compete due to limitation of resources and operational challenges. Over the past five years, the company has encountered negative income, and signaling an urgent need for strategic redirection to maintain operational viability. This research ventures into understanding these challenges, deriving insights from both internal and external vantages. Employing tools like SWOT, VRIO, and financial ratio analysis, the company's intrinsic strengths and weaknesses are spotlighted. At the same time, frameworks like PESTLE and Porter's Five Forces clarify the macroeconomic and market forces at play. Central to this exploration is an analysis of the company's financial statements from 2016-2022, with a caveat: the reliance on public data means certain assumptions might need real-world validation. From these comprehensive analysis, actionable strategies emerge. The TOWS Matrix, an essential analytical tool, bridges internal capabilities with external opportunities, leading to concrete recommendations. A prime proposition is the acceleration of PT Lampung Banana Agri's production and sales, aiming for a swift return to profitability. Capital budgeting methodologies further validate the viability of farm expansion, identifying venture capital as a potential financial ally. It is noteworthy that even with the heftier interest rates inherent to venture capital, the benefits to the company are pronounced. Sensitivity analysis further underscore the pivotal role of product pricing, demonstrating its precedence over interest rate considerations. In essence, this research offers PT Lampung Banana Agri a roadmap, potentially transforming challenges into opportunities within Indonesia's competitive banana market.

Keywords: Cavendish, Net Present Value (NPV), Financial Ratios, Capital Budgeting.

ABSTRAK

Indonesia, terkenal dengan lahan subur, memiliki potensi besar untuk perkebunan buah-buahan karena tanah dan pasar yang dimilikinya. Pisang, terutama varietas Cavendish yang sangat digemari secara global, mendominasi baik dalam produksi maupun konsumsi. Di pasar yang dinamis ini, PT Sewu Segar Nusantara (Sunpride) menjadi entitas dominan, meninggalkan pemain lain, seperti PT Lampung Banana Agri, dengan sedikit daya tarik pasar. PT Lampung Banana Agri adalah salah satu pemain dalam industri ini yang kesulitan bersaing karena keterbatasan sumber daya dan tantangan operasional. Selama lima tahun terakhir, perusahaan ini mengalami pendapatan negatif, dan menandakan perlunya pengalihan strategis yang mendesak untuk menjaga kelangsungan operasional. Penelitian ini berusaha memahami tantangan-tantangan ini, mengambil wawasan dari sudut pandang internal dan eksternal. Dengan menggunakan alat seperti SWOT, VRIO, dan analisis rasio keuangan, kekuatan dan kelemahan intrinsik perusahaan menjadi sorotan. Sementara itu, kerangka kerja seperti PESTLE dan Porter's Five Forces menjelaskan faktor-faktor makroekonomi dan pasar yang berperan. Pusat dari eksplorasi ini adalah analisis laporan keuangan perusahaan dari tahun 2016-2022, dengan catatan: ketergantungan pada data publik berarti beberapa asumsi mungkin memerlukan validasi lebih lanjut di dunia nyata. Dari analisis komprehensif ini, strategi-strategi yang dapat dilaksanakan muncul. Matriks TOWS, merupakan alat analisis penting, menghubungkan kemampuan internal dengan peluang eksternal, menghasilkan rekomendasi nyata. Salah satu usulan utama adalah percepatan produksi dan penjualan PT Lampung Banana Agri, dengan tujuan untuk segera kembali ke tingkat profitabilitas. Metodologi anggaran modal lebih lanjut memvalidasi kelayakan perluasan kebun, mengidentifikasi modal ventura sebagai pilihan sumber keuangan potensial. Penting untuk dicatat bahwa bahkan dengan tingkat bunga yang lebih tinggi yang melekat pada modal ventura, manfaat bagi perusahaan

sangat terasa. Analisis sensitivitas lebih menegaskan peran penting penetapan harga produk, menunjukkan prioritasnya dibandingkan pertimbangan tingkat bunga. Pada intinya, penelitian ini menawarkan PT Lampung Banana Agri peta jalan, yang berpotensi mengubah tantangan menjadi peluang di pasar pisang yang kompetitif di Indonesia.

Kata Kunci: Cavendish, Net Present Value (NPV), Rasio Finansial, Penganggaran Modal

INTRODUCTION

Indonesia is a country that has a significant agricultural sector and is one of the world’s largest producers of various agricultural commodities. The agribusiness sector is essential to the Indonesian economy, providing employment opportunities for millions of people and contributing significantly to the country’s export earnings. According to the World Bank, the agriculture sector contributed around 12.5% to Indonesia’s GDP in 2020, increasing to 13.3% in 2021. The agribusiness sector in Indonesia is quite diverse and consists of a wide range of activities related to the production, processing, marketing, and distribution of agricultural products. Some significant crops produced in Indonesia include rice, palm oil, rubber, cocoa, coffee, and spices. Indonesia also significantly produces fruits and vegetables such as bananas, pineapples, mangos, and cassava. Indonesia is one of the world’s top producers and exporters of bananas, and the fruit is an important export commodity. More than 300 different types of bananas grow in the country. In 2020, Indonesia produced around 8.2 million metric tons of bananas, making it the third-largest producer of fruit in the world. Almost 30% of the total production is the Cavendish banana, which become the major banana variety produced in Indonesia.

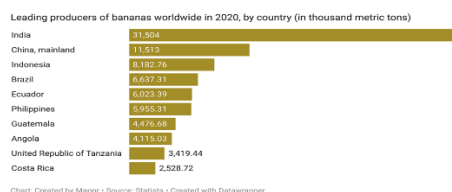
Figure 1. Leading Producers of Bananas Worldwide

Source: Statista, 2020

Cavendish bananas are the most commonly traded banana variety in the world because of the characteristic Cavendish that they can be easily transported. From the business perspective, the Cavendish banana has an advantage as a commodity to reach the long-distance market without worrying about the production location. Hence, it became the most widely cultivated and commercialized banana variety, representing 50% of global banana production and the primary variety exported to the international market. In Indonesia, Cavendish banana production is concentrated in several provinces across the country. Some central banana-producing regions are North Sumatra, Lampung, West Java, and East Java.

RESEARCH METHODOLOGY

In the research design, given the nature of the research question, a quantitative approach was chosen for this study, informed by the overarching conceptual framework that seeks to diagnose the business challenges of PT Lampung Banana Agri. This approach is most suitable to gain a comprehensive understanding of the research problem and to efficiently address the research objectives. Quantitative research is usually associated with deductive approach, where data are collected and analyzed to test theory. The quantitative research examines relationship between variables, which are measured numerically and analyzed using a range of statistical and graphical techniques



(Saunders, Lewis & Thornhill, 2019). Regression analysis and financial modeling, tools well-aligned with our conceptual approach, will be employed to analyze financial performance indicators and forecast future financial scenarios.

RESULTS AND DISCUSSION

TOWS Matrix

TOWS Matrix is a strategic management tool used to analyze an organization's internal strengths and weaknesses as well as its external opportunities and threats. It is a variation of the well-known SWOT analysis. However, it focuses more on how the external opportunities and threats facing a company can be matched with its internal strengths and weaknesses to create specific strategic alternatives. The TOWS Matrix is a powerful tool that goes beyond mere analysis by integrating internal and external factors to generate practical strategic options. It can be a valuable part of strategic planning, helping organizations to align their internal capabilities with external possibilities for growth, risk mitigation, and enhancement of competitive positioning. By examining both internal factors (strengths and weaknesses) and external factors (opportunities and threats) of PT Lampung Banana Agri and combining the SWOT analysis from both operational and financial perspective we can provide the TOWS Matrix for PT Lampung Banana Agri to generate strategic recommendation:

Table 1. PT Lampung Banana Agri TOWS Matrix

SO Strategies (Strengths- Opportunities) <i>leverage strengths to capitalize on opportunities</i>	S1O1	Utilize the company's experienced personnel and superior product quality to forge partnerships with local farmers, enhancing supply diversity and production capacity.
	S2O2	Extend end-to-end business operations to approach local farmers, increasing overall

ST Strategies (Strengths- Threats) <i>Utilize strengths to mitigate threats</i>	S2O4	production without heavily impacting waste. Discover a new way of to run the operation more effectively by applying the latest technology improvement on end-to-end business
	S2O5	Capitalize on the end-to-end business model to maximize market reach and meet the high demand for quality product and explore outsourcing other fruits
	S1T23	Collaborate with agricultural experts to develop strategies and innovative solution for managing pests, diseases and adapting to climate changes impact
WO Strategies (Weaknesses- Opportunities) <i>Use opportunities to overcome weaknesses</i>	S2T4	Controlling distribution meaning the company can be selective on customer selection and prioritizing customer that have short order to cash cycle
	S3T1	Employ the distinct quality of PT Lampung Banana Agri's Cavendish bananas to stand out against competitors.
	W1O2	Leverage high demand and collaboration opportunities with local farmers to expand distribution centers and improve coverage.
WT Strategies (Weakness- Threats) <i>Develop strategies to minimize weaknesses and avoid threats</i>	W2O1	Increase production output through collaboration with local farmers, connecting the high demand for the product.
	W34O5	Improve SOP and Quality control to support and maintain efficient inventory turnover and positive market reception.
	W1T1	Partner with established distributors to overcome the limitation of having only one distribution center to expand the sales area.
WT Strategies (Weakness- Threats) <i>Develop strategies to minimize weaknesses and avoid threats</i>	W2T2	Enhance farm operation through research, investment, and the possibility of collaboration with local farmers to improve production output and counter the risks of pests and disease.
	W4T3	Focus on quality control and invest in technological advancement to overcome quality inconsistency and adapt to climate change.
	W5T5	Enhance financial management to mitigate risks associated with operational vulnerabilities such as

market fluctuation and
environmental changes

The TOWS Matrix focuses on maximizing PT Lampung Banana Agri's unique product characteristics, networking, and end-to-end business model. Considering the financial analysis, PT Lampung Banana Agri's situation underscores an urgent need for robust strategic interventions. With declining sales, potential liquidity risks, and a pronounced lack of profitability, the company faces significant challenges. The TOWS Matrix outlines several strategies that not only address the company's inherent operational strengths and weaknesses but also offer solutions tailored to its current financial challenges. Collaborations with local farmers can potentially alleviate some of the sales declines, introducing diversified revenue streams and cost-sharing benefits. Addressing distribution limitations can also help in capturing a larger market share, potentially leading to increased sales. However, given the company's liquidity concerns, strategic partnerships, rather than capital-intensive expansions, might be the more prudent approach. Moreover, a strategic investment in research, technology and engaging experts on the industry could help PT Lampung Banana Agri navigate the competitive landscape, weather-related challenges, and the ongoing threats of pests and diseases, this might help reduce the high COGS, enhancing profitability in the long run.

While the TOWS Matrix presents a strategic direction, the financial state of PT Lampung Banana Agri necessitates that any proposed strategies be implemented with a sharp focus on cost efficiency, immediate revenue generation, and long-term financial sustainability. The outlined strategies need to be refined into actionable plans that align with the company's mission, vision, and resources. Balancing the

insights from the TOWS Matrix with the pressing financial needs of the company will be crucial for PT Lampung Banana Agri's resurgence and success.

Farm Expansion

One of the options to overcome productivity issues in a long term is farm expansion, but it will require huge funding. For PT Lampung Banana Agri, the possible funding option is through venture capital because they still have an ongoing loan with the bank, so having another loan from the bank will be a difficult option. In this chapter, we will simulate the expansion project with the purpose of investment project analysis, proposed business solutions, and sensitivity analysis.

Assumption

In this project simulation, the author will use the following assumption to support the analysis of the project:

1. **Population Density:** Each hectare will have 2,000 banana stems.
2. **Productivity Rate:** The yield will be 1.1 boxes per stem in the first year, increasing to 1.2 boxes per stem from the second year onwards.
3. **Loan Interest:** The interest rate on borrowed funds is set at 14%.
4. **Project Duration:** The simulation covers a period of six years.
5. **Grace Period for Loan Repayment:** There will be a one-year grace period before starting loan repayments.
6. **Depreciation Method:** Assets will be depreciated using the straight-line method.
7. **Marketing Costs:** These are projected to be 1% of the total revenue.
8. **Farm Expansion:** The project includes an expansion of 50 hectares to the existing farm.
9. **Tax Rate:** A tax rate of 20%, as per Law No. 1 Year 2020, will be applied.

10. **Terminal Value Assumption:** At the end of the six-year project duration, a terminal value will be calculated to estimate the continuing value of the project beyond the simulation period. This will be based on the final year's cash flow, projected growth rates of 2%, and a discount rate that reflects the risk profile of the project.

Other assumptions related to the calculation are used to simplify the calculation and understanding using the industry standard and best practices. For example, we will use the box as the unit of measurement for productivity instead of Kg; one box of banana cavendish is equal to 13 Kg. Besides industry standards, the author also uses the internal budgeting information as references.

Capital Expenditure

In farm expansion, the company will spend much of its capital expenditure. For this simulation, we will also make several assumptions on the capital expenditure based on PT Lampung Banana Agri when they developed their farm in the Lampung area. Below are the assumptions for the capital expenditure for farm expansion of the 50 Ha module.

Table 2. Capex Assumption for 50 Ha Module

CAPEX	Qty	UOM	Price	Amount	Remarks
Land	60	Ha	160,000,000	9,600,000,000	20% for Roads and Emplacement
Banana Seeds	110,000	Pes	15,000	1,650,000,000	Including Transport & Paperwork
Land Clearing	60	Ha	16,500,000	990,000,000	Rent including operator and fuel
Land Preparation	50	Ha	22,500,000	1,125,000,000	Rent including operator and fuel
Deep Ripping	50	Ha	10,100,000	505,000,000	Rent including operator and fuel
Harrowing	50	Ha	10,100,000	505,000,000	Rent including operator and fuel
Drainage	50	Ha	6,300,000	315,000,000	Rent including operator and fuel
Road	50	Ha	11,900,000	595,000,000	Main road using gravel stone
Geoelectrical survey	1	Lot	120,000,000	60,000,000	Including pumping test

Deep Well	3	Titik	630,000,000	1,890,000,000	>50 meter
Irrigation Electricity	50	Ha	15,000,000	750,000,000	Cable and panel to water pump
Dripline	50	Ha	60,000,000	3,000,000,000	Including Pump for Nursery, Office, Packing Plant
Shallow Well	2	Titik	42,000,000	84,000,000	
Nursery	375	m2	200,000	75,000,000	Temporary structure including production line
Packing Plant	500	m2	2,000,000	1,000,000,000	for packing plant (IPAL purpose)
Water Treatment	1	Unit	200,000,000	100,000,000	Workshop & Storage
Dry Storage	175	m2	1,200,000	210,000,000	
Chemical Mix Shed	35	m2	3,400,000	119,000,000	Building
Office	50	m2	2,000,000	100,000,000	Building
Main Gate	50	m2	1,500,000	75,000,000	Gate & fence
Security Post + Toilet	25	m2	2,000,000	50,000,000	4 Posts
Electricity Infrastructure	1	Lot	400,000,000	200,000,000	Utility pole, cable and panel
Lighting Infrastructure	6	Unit	20,000,000	120,000,000	Main road lighting
Lightning Rod	2	Unit	50,000,000	100,000,000	Office and packing house area
Furniture & Interior Office	1	Lot	125,000,000	125,000,000	Office Equipment
Generators	1	Unit	250,000,000	250,000,000	200 KVA
Packing Equipment	1	Lot	600,000,000	300,000,000	Gluing and packaging machine
Safety Equipment	7	Unit	1,000,000	7,000,000	Fire extinguisher
Chemical Sprayer + Truck	1	Unit	1,930,000,000	1,930,000,000	Martignani sprayers
Motorevcle	3	Unit	20,000,000	60,000,000	for farm leader
Total Investment				25,890,000,000	

Source: PT Lampung Banana Agri Internal Budgeting Report

Using the 50-hectare (ha) module for expansion, the cost of the capital expense will be IDR 517,800,000 per ha. This data was acquired from the budgeting report from the development of their existing farm.

Cost of Goods Sold

Based on their operations on the farm, PT Lampung Banana Agri has two kinds of cost of goods sold (COGS). The first is operation farm cost or product cost, which is the cost of producing bananas on the farm up until the product is ready to deliver to the warehouse. This cost includes material, labor, and packaging costs. The average cost for fruit cost will be IDR 85,250 per box and can vary depending on the composition of the product class since each class has its own packaging cost. The second

COGS is cost of sales or sales and distribution cost, which is the cost related to distribution (inbound-outbound), warehouse, sales promotion, waste, and GA cost of the warehouse. The cost per box for Sales and Distribution will be IDR 25,000 per box.

Table 3. COGS Farm Cost

Activity	Cost/ Box (IDR)
Agriservice labor	9,000
Agriservice materials	8,000
Plantcare labor	9,000
Plantcare materials	5,000
Fruitcare labor	9,000
Fruitcare materials	5,000
Manufacture labor	12,500
Manufacture materials	5,000
Packaging materials Class A Kids	25,000
Packaging materials Class A Cluster	17,500
Packaging materials Class B	15,000
Packaging materials Singles	15,000
Replanting Cost	6,000
Total Average Farm Cost	85,250

Table 4. COGS Sales and Distribution Cost

Activity	Cost/ Box (IDR)
Farm inbound cost	5,000
Warehouse rental	6,000
Warehouse Utilities	1,500
Warehouse Handling	1,500
Promotion and rebate	2,000
Outbound Cost	7,500
Waste / Spoilage	500
Other GA	1,000
Total Sales and Distribution cost	25,000

Revenue

PT Lampung Banana Agri farm revenue is generated from selling the products produced by their farm; the project expansion is expected to generate more volume to increase their production capacity so that they can achieve the economics of scale of their business. Increasing their productivity not only

increases their revenue but will also decrease their overall overhead cost so that the company can operate efficiently.

Table 5. Productivity Projection after Farm Expansion

Product	Y1	Y2	Y3	Y4	Y5
Class A - Kids	57,974	88,092	99,072	99,072	99,072
Class A - Cluster	144,936	220,230	247,680	247,680	247,680
Class B	28,987	44,046	49,536	49,536	49,536
Singles	28,987	44,046	49,536	49,536	49,536
Class C/ Waste	28,987	44,046	49,536	49,536	49,536
Total Production	289,872	440,460	495,360	495,360	495,360

The revenue is based on the projection of the most likely scenario of the farm expansion that affects productivity gradually over time. Aside from productivity, the revenue also depends on the class of the product. The best quality is classified as class A, which has a better sales price. The lowest quality, or class C, has the lowest selling price since usually it will be sold to local buyers within the farm area or chopped to become soil.

Table 6. PT Lampung Banana Agri Average Selling Price and Class Composition

Product	Price	Class %
Class A - Kids	230,000	20%
Class A - Cluster	195,000	50%
Class B	135,000	10%
Singles	130,000	10%
Class C/ Waste	30,000	10%
Average Selling Price	173,000	100%

The above-average selling prices are the current price of PT Lampung Banana Agri products in the market. With this, average selling prices and estimated productivity from the existing and expansion farm will get the estimated revenue for the company for the next five years.

Table 7. PT Lampung Banana Agri Estimate Revenue

Period	Product Sold	Total Revenue
Y1	289,872	50,147,856,000
Y2	440,460	76,199,580,000
Y3	495,360	85,697,280,000
Y4	495,360	85,697,280,000
Y5	495,360	85,697,280,000
Y6	495,360	85,697,280,000

From the revenue projection for six years, the farm expansion increase the

revenue significantly every year. In the first year, the company projected to have better revenue than the previous year because, with improvement and efficiency of the existing farm, they can achieve a better revenue if the production is able to meet their standard. In the second year, the revenue increased by 52% due to the increase in productivity from the expansion of the farm. In the third year and above, the revenue was able to increase by 12%. This increase in productivity also means that the company will operate efficiently and reduce its overhead cost per box.

Discounted Cashflow Analysis

The discounted cash flow is developed based on the above company's production plan and revenue projection.

Period	Y1	Y2	Y3	Y4	Y5	Y6
REVENUES	Rp 50,147,856,000	Rp 76,199,980,000	Rp 85,697,280,000	Rp 85,697,280,000	Rp 85,697,280,000	Rp 85,697,280,000
Farm Cost	-Rp 24,711,588,000	-Rp 37,549,215,000	-Rp 42,229,440,000	-Rp 42,229,440,000	-Rp 42,229,440,000	-Rp 42,229,440,000
Sales & Distribution Cost	-Rp 7,246,800,000	-Rp 11,011,500,000	-Rp 12,384,000,000	-Rp 12,384,000,000	-Rp 12,384,000,000	-Rp 12,384,000,000
COGS	-Rp 31,958,388,000	-Rp 48,560,715,000	-Rp 54,613,440,000	-Rp 54,613,440,000	-Rp 54,613,440,000	-Rp 54,613,440,000
Employee Cost	-Rp 11,381,500,000	-Rp 13,453,612,076	-Rp 14,359,218,023	-Rp 14,359,218,023	-Rp 14,359,218,023	-Rp 14,359,218,023
Office Cost	-Rp 565,000,000	-Rp 667,863,711	-Rp 712,819,767	-Rp 712,819,767	-Rp 712,819,767	-Rp 712,819,767
Other GA Cost	-Rp 719,478,560	-Rp 1,158,413,507	-Rp 1,356,215,684	-Rp 1,356,215,684	-Rp 1,356,215,684	-Rp 1,356,215,684
General and Administration Cost	-Rp 12,665,978,560	-Rp 15,279,889,294	-Rp 16,428,253,474	-Rp 16,428,253,474	-Rp 16,428,253,474	-Rp 16,428,253,474
EBITDA	Rp 5,523,489,440	Rp 12,358,975,706	Rp 14,655,586,526	Rp 14,655,586,526	Rp 14,655,586,526	Rp 14,655,586,526
Depreciation Cost	-Rp 2,768,100,000	-Rp 4,152,150,000	-Rp 4,152,150,000	-Rp 4,152,150,000	-Rp 4,152,150,000	-Rp 4,152,150,000
EBIT	Rp 2,755,389,440	Rp 8,206,825,706	Rp 10,503,436,526	Rp 10,503,436,526	Rp 10,503,436,526	Rp 10,503,436,526
Interest	- 3,610,600,000	- 3,610,600,000	- 2,888,480,000	- 2,166,360,000	- 1,444,240,000	- 722,120,000
EBT	-Rp 855,210,560	Rp 4,596,225,706	Rp 7,614,956,526	Rp 8,337,076,526	Rp 9,059,196,526	Rp 9,781,316,526
Income Tax	-Rp -	-Rp 919,245,141	-Rp 1,522,991,305	-Rp 1,667,415,305	-Rp 1,811,839,305	-Rp 1,956,263,305
NET INCOME	-Rp 855,210,560	Rp 3,676,980,565	Rp 6,091,965,220	Rp 6,669,661,220	Rp 7,247,357,220	Rp 7,825,053,220

Figure 2. Projected Income Statement for 6 Years

The figure above shows the impact of efficiency and farm expansion. The project had a positive result for the company, especially from the 2nd year when the expansion farm was already productive and delivered a significant economic performance. To get a better understanding of the financial impact, we can see it on the cash flow statement below:

Period	0	1	2	3	4	5	6	Terminal Value
Operating Cashflow								
NPVt = CFt x (1-Tax Rate)	Rp 2,204,321,552	Rp 6,566,403,565	Rp 8,402,749,220	Rp 8,402,749,220	Rp 8,402,749,220	Rp 8,402,749,220	Rp 8,402,749,220	
Depreciation	Rp 2,768,100,000	Rp 4,152,150,000	Rp 4,152,150,000	Rp 4,152,150,000	Rp 4,152,150,000	Rp 4,152,150,000	Rp 4,152,150,000	
Free Cashflow	Rp -	Rp 4,972,411,552	Rp 10,717,603,565	Rp 11,554,899,220	Rp 11,554,899,220	Rp 11,554,899,220	Rp 11,554,899,220	
Investing Cashflow								
Expansion Project	-Rp 25,790,000,000							
Financing Cashflow								
Loan Interest	-Rp 3,610,600,000	-Rp 3,610,600,000	-Rp 2,888,480,000	-Rp 2,166,360,000	-Rp 1,444,240,000	-Rp 722,120,000		
Loan	Rp 25,790,000,000							
Net Cashflow	Rp -	Rp 1,361,811,552	Rp 7,829,123,565	Rp 9,666,419,220	Rp 10,388,539,220	Rp 11,110,659,220	Rp 11,832,779,220	Rp 13,804,905,874
Beginning Cash	Rp -	Rp -	Rp 1,361,811,552	Rp 4,490,922,117	Rp 10,152,241,338	Rp 20,521,900,558	Rp 29,654,449,778	
Ending Cash	Rp -	Rp 1,361,811,552	Rp 4,490,922,117	Rp 10,152,241,338	Rp 20,521,900,558	Rp 29,654,449,778	Rp 51,467,218,599	
Discounted Cash Flow	Rp -	Rp 1,184,571,537	Rp 5,468,613,854	Rp 6,534,557,637	Rp 6,150,849,109	Rp 5,770,538,239	Rp 5,300,855,655	Rp 6,389,330,874

Figure 3. Projected Cashflow Statement for 6 Years

The projected cash flow clearly shows that the company is able to increase its free cash flow through the project expansion gradually and adding terminal value on the last calculation assuming the growth rate will be constant 2% each period, we can find that the discounted cash flow for terminal value will be Rp 6,289,330,874. From the above figure, we can calculate the NPV, IRR, Payback period of the expansion project.

Table 8. Project Performance

Sum DCF	36,789,306,359
Initial Outlay	-25,790,000,000
NPV	10,999,306,359
IRR	23.4%
Payback period	3.74 years

The result above indicating that the project is expected to generate positive cash flows beyond the forecast period which indicates long term viability and profitability. The positive outlook for PT Lampung Banana Agri reflecting sustainable venture well into the future and potentially good investment for the business.

Sensitivity Analysis

In this project calculation, we are using several assumptions to generate the financial performance of the model and to assess the sensitivity of the economic modeling based on the most likely scenario of the project. We will use these four criteria.

Table 9. Sensitivity Parameters

Component	Low	Base	High
COGS	-10%	Base	10%
CAPEX	-10%	Base	10%
Selling Price	-10%	Base	10%
Productivity	-10%	Base	10%
Discount Rate	-10%	Base	10%

The assessment of the above factors has been conducted to identify the sensitivity of the model in responding to uncertainty and market conditions. On the calculation, we will test the sensitivity of each component that becomes the driver of the model and how far it will affect the outcome of project performance. We can see the result below.

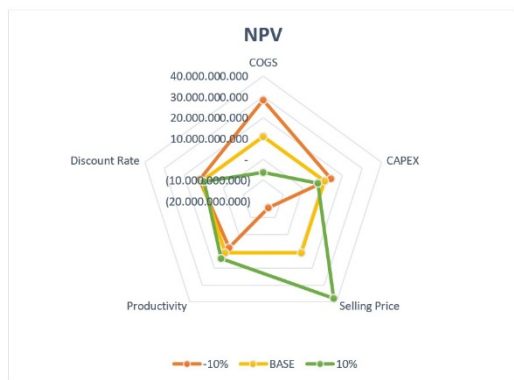


Figure 4. NPV Sensitivity Analysis

In our comprehensive analysis, it becomes unmistakably clear that the selling price stands out as the most sensitive parameter when assessing the Net Present Value (NPV). This sensitivity is underscored by the fact that a relatively modest increase of just 10% in the selling price can lead to a dramatic shift, amplifying the NPV by an astonishing 245%. Such a significant change in NPV resulting from a moderate alteration in the selling price highlights the crucial role that pricing strategies can play in influencing the financial outcomes and potential profitability of an investment. On the other hand, the discount rate, often regarded as a pivotal factor in NPV calculations, demonstrates lesser sensitivity in this particular scenario. It is

noteworthy that adjustments to the discount rate result in a comparatively muted impact on the NPV, influencing it by a mere 11%. In this context, the discount rate is a more stable and less volatile parameter. As we venture further into financial planning and decision-making, understanding these sensitivities becomes paramount for informed and strategic choices.

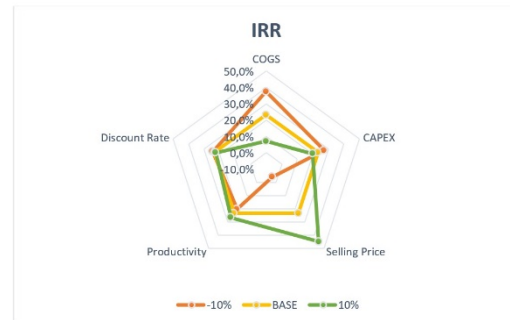


Figure 5. IRR Sensitivity Analysis

Analyzing the Internal Rate of Return (IRR) alongside the Net Present Value (NPV) provides a comprehensive understanding of a project's financial viability. From our study, the selling price stands out as the most pivotal factor influencing the IRR, echoing its significance in the NPV analysis. Even slight adjustments in selling price can have profound effects on IRR outcomes, emphasizing the importance of strategic pricing decisions. In contrast, the discount rate, while usually a critical element in many financial models, exhibits a more subdued sensitivity in relation to IRR. This comparative analysis underscores the need for businesses to prioritize price optimization when assessing project returns.



Figure 6. Payback Period Sensitivity Analysis

In financial evaluations, sensitivity analysis is crucial for identifying parameters that have a pronounced effect on results. Among these parameters, the selling price emerges as the most influential factor in determining the payback period. This is evident when observing that a mere 10% reduction in the selling price can extend the payback period from a moderate 3.74 years to a staggering 9.75 years, reflecting an immense increase of 161%. Such a drastic shift underscores the pivotal role of accurate pricing in business strategy. Conversely, fluctuations in the discount rate, typically an essential variable in many financial calculations, seem to hold a diminished sway over the payback period's outcome in this scenario. This contrast highlights the importance of selling price in this context.

In conclusion, the extensive analysis conducted in this chapter directly aligns with and fulfills the primary objectives outlined in Chapter 1. These findings not only address the challenges identified but also underscore the significance of our research design and methods. Chapter 5 delves into a detailed discussion of these findings, providing actionable insights to PT Lampung Banana Agri for sustainable growth and validating the research's objectives and methodology within the agribusiness sector.

CONCLUSION

The significant decline in banana production at PT Lampung Banana Agri in 2022 can be attributed to a combination of internal, These included distribution issues, production hurdles, lack of monitoring on SOP and quality control. External challenges, the company was also impacted by various external elements encompassing political, economic, social, technological, legal, and environmental aspects. Additionally, Porter's Five Forces analysis underscored the intense competition and external market pressures in the industry. As well as financial health issues, a critical aspect of the downturn was highlighted by the financial ratio analysis, which indicated the company's financial distress. A notable concern was the overhead costs exceeding the Cost of Goods Sold (COGS). COGS includes direct costs like raw materials, labor, and manufacturing expenses, essential for producing the goods. In contrast, overhead costs cover indirect expenses such as administrative fees, rent, utilities, office supplies, marketing, and other operational costs. The fact that overhead costs surpassed COGS suggested that a large portion of the company's expenditures was not directly linked to production but to broader business operations, signalling operational inefficiencies.

REFERENCES

- Bank Indonesia, 2023, Data Inflasi, <https://www.bi.go.id/id/statistik/indikator/data-inflasi.aspx>
- Company profile PT Lampung Banana Agri, 2018
- Damodaran, Aswath, *Applied Corporate Finance 4th edition*, NYU, John Wiley & Sons
- Datar, S.M., Rajan, M.V., (2018). *Horngren's Cost Accounting A*

Managerial Emphasis 16th Edition, England: Pearson Education Limited.

McGraw-Hill Education Venture Capital

Gitman, Lawrence J., Zutter, Chad J., (2015). *Principles of Managerial Finance 14th edition*, Pearson

<https://atradiuscollections.com/global/reports/food-industry-trends-indonesia-2022.html>

https://en.wikipedia.org/wiki/Venture_capital

<https://tradingeconomics.com/indonesia/inflation-cpi>

<https://www.dtnpf.com/agriculture/web/ag/crops/article/2022/03/15/russia-ukraine-war-drives-world>

<https://www.statista.com/statistics/706727/production-of-banana-in-indonesia/>

[https://www.statista.com/statistics/716037/global-banana-market-volume/Indonesia Banana Production Indonesia Inflation Rate 2010-2022 Indonesia's Food Value Output 2022](https://www.statista.com/statistics/716037/global-banana-market-volume/Indonesia_Banana_Production_Indonesia_Inflation_Rate_2010-2022_Indonesia's_Food_Value_Output_2022)

Laporan Keuangan untuk Tahun-Tahun Yang Berakhir 31 Desember 2022 dan 2021 Dengan Laporan Auditor Independen – PT Lampung Banana Agri Leading producers of Bananas Worldwide

Mark N.K. Saunders, Philip Lewis, Adrian Thornhill, (2019). *Research Methods for Business Students 8th Edition*, England: Pearson Education Limited.

Nitrogen price for last five years
Peraturan Menteri Perdagangan Republik Indonesia Nomor 71/M-DAG/PER/9/2015 Tentang Ketentuan Impor Produk Hortikultura

Ross, S.A., Westerfield, R.W., Jaffe, J., Jordan, B.D., (2022). *Fundamentals of Corporate Finance Thirteenth Edition*, The International Student Edition