

Business Analysis of Investment Feasibility and Risk Mitigation of the “Best Gas” Cooking Stove Business (Case Study of PT Bestindo Jaya Indonesia)

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ABSTRACT

This research was aimed to determine the financial feasibility of the Best Gas cooking stove business and analyze the company's risk mitigation methods in its business. The methods included financial feasibility analysis and risk assessment analysis. The results showed that PT Bestindo Jaya Indonesia's finances were feasible with an NPV value of Rp.6,404.249,760, IRR value of 31%, and a payback period of 3.43 years. Based on risk management analysis, the company's risks were internal and external risks, namely production and distributors. PT Bestindo Jaya Indonesia's risk mitigation analysis took six stages, namely risk identification, risk assessment, risk evaluation, communication and consulting, recording and reporting, and determination of risk cost. PT Bestindo Jaya Indonesia's mitigation actions reduced the level of risk impact from high to medium levels and from medium to low levels.

Keywords: Cooking Stove Business, Business Feasibility Analysis, Risk Management, Risk Mitigation

INTRODUCTION

The stove is a cooking utensil that produces high heat, and the technological developments result as knowledge advances. The clear evidence of technological developments is the various designs, shapes, and ways of using stoves

on the market. For examples, the use of electric lighter technology that simplify to use so that it saves gas. There is also the use of Teflon on the body so that it is easy to clean. In addition, the use of smart burn technology can save gas and heat up faster than other stoves.

Indonesia has a demographic bonus, namely the high growth in the number of productive age population of 70.2% (Indonesian Statistic Center, 2020). The need for household appliances such as gas stoves is increasing due to the increasing Indonesia's population. It encourages the growth of gas stove sales in Indonesia (Setiyawan, 2018). Data on supply and demand for gas stoves in 2020 showed that Win Gas products had 8% market share, Rinnai had 42% market share, Moderna had 28% market share, Electrolux had 14% market share and the rest had 9% market share (Ministry of Industry, 2019).

One of the gas stove companies in Indonesia is PT Bestindo Jaya Indonesia. During competitive gas stove sales, PT Bestindo Jaya Indonesia has great potential as a gas stove producer that creates advantages. Therefore, the researchers analyzed the business feasibility to determine the level of business feasibility from the financial aspect and business risk.

The research aimed to determine the financial feasibility of the “Best Gas”

cooking stove business from PT Bestindo Jaya Indonesia and analyze the company’s risk mitigation methods. The research method included financial feasibility analysis and risk mitigation analysis. This research involved internal parties and various external parties related to the gas stove business.

LITERATURE REVIEW

Financial Feasibility Analysis

The criteria for the financial feasibility of this research are as follows:

1. Net Present Value (NPV)

Net Present Value (NPV) is the present value of future cash flows. The value is discounted by the appropriate cost of capital, then the value is reduced by the initial outlay of the business. Businesses with positive NPV are accepted and businesses with negative NPV are rejected. NPV is the difference between the total present value of benefits and the total present value of costs. Mathematically, NPV is calculated using the following formula:

$$NPV = \sum_{t=0/1}^n \frac{Bt - Ct}{(1 + i)^t}$$

Description:

Bt = Benefits in year t

Ct = Cost in year t

t = Year of business activity, initial year (year 0 or year 1)

i = DR rate (discount rate)

2. Payback Period (PP)

This method is used to measure the investment return time. Businesses with a short or fast payback period is the selected businesses. Mathematically, the Payback Period is calculated using the following formula (Nurmalina et al., 2018):

$$PP = \frac{I}{Ab}$$

Description:

I = investment cost

Ab = Annual net benefit

3. Internal Rate of Return (IRR)

IRR is the discount rate (DR) that produces an NPV equal to 0. The IRR calculation uses the interpolation method between the lower DR level (positive NPV) and the higher DR level (negative NPV). Mathematically, IRR is calculated using the following formula (Nurmalina et al., 2018).

$$IRR = i_1 + \frac{NPV_1}{NPV_1 - NPV_2} (i_2 - i_1)$$

Description:

i_1 = Discount Rate for positive NPV

i_2 = Discount Rate for negative NPV

NPV₁ = positive NPV

NPV₂ = negative NPV

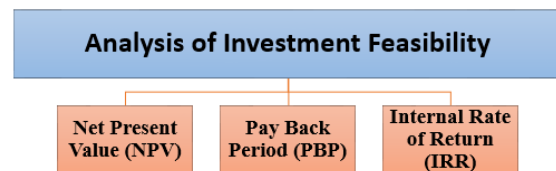


Figure 1. Investment Analysis Framework

Risk Management

Risk management is an important part of project management in recent years. Business managers should undertake a process of identification, analysis, and probability assessment to mitigate the risks of a complex business. This plan assists business managers to deal with difficult situations as the business progresses and assists in the successful completion of the business (Kwak & Ingall, 2009).

RESEARCH METHOD

This research was conducted in August – October 2021 at PT Bestindo Jaya Indonesia, which is located at Tangerang - Banten. The data sources of this research were primary and secondary data in the form of quantitative and qualitative. The types of data were primary and secondary data. Primary data was the observations of research location and the discussions with businessmen results. Secondary data were literature studies, documentation data, and report data from other parties and officially published.

This research used descriptive qualitative method. According to Sugiyono (2013), qualitative research methods aim to obtain in-depth data, actual data and the value of visible data. While quantitative research methods are scientific methods that fulfill scientific principles, namely concrete, objective, measurable, rational, and systematic. Furthermore, the financial aspect analysis used investment feasibility criteria which consists of calculating NPV, Payback Period, and IRR. The project proposal was accepted if the NPV value was more than zero ($NPV > 0$), the IRR was higher than the specified rate of return, the Net B/C Ratio > 1 and the payback period

was faster than the project’s economic life. Then the data were analyzed using Microsoft Excel 2013 software.

RESULTS AND DISCUSSION

Identify of Financial Planning Elements

1. Revenue Planning

Estimated sales were divided into two parts, namely price and volume. Both of them were based on several factors, namely target market, constraints and market growth. The sales volume results estimated, and price were obtained from the analysis and market needs forecast. The estimated sales of BestGas in five years were as follows:

Table 1. Revenue planning

	Year 1	Year 2	Year 3	Year 4	Year 5
Quantity	15,900	27,480	32,976	39,571	47,485
Price	1,100,000	1,100,000	1,210,000	1,331,000	1,464,100
Total	17,490,000,000	30,228,000,000	39,900,960,000	52,669,267,200	69,523,432,704
Growth	-	73%	32%	32%	32%
Incremental Price Start Form Year 3			10%	10%	10%

2. Investment Planning

Investment planning was very important because investments funds were large. In addition, investments returned cannot be made in the short term or obtained all at once. So, PT Bestindo Jaya Indonesia needed to wait to be able to get the funds back.

3. Capital Needs Planning

At the beginning, planning the company’s funding sources was a capital deposit from shareholders, such as the founder or initiator of the company and outside investors. In terms of capital structure and shareholders, the founders provided 54% of capital while the remaining 46% sought from other investors.

Table 2. Company’s Capital and Shareholders Structure

Capital Need's Planning	
Description	Amount
Pra Operational	85,000,000
Asset Cost	1,067,400,000
Operational Cost (6 Months)	2,303,189,000
Raw material (3 Months Stock/Production)	2,820,000,000
Total	6,275,589,000
Rounding	6,500,000,000

Shareholders Structure

Source	Shares	%	Share Value per Share (Rp)	Total (Rp)
Ismail	700	11%	1,000,000	700,000,000
Irvan	700	11%	1,000,000	700,000,000
Ida	700	11%	1,000,000	700,000,000
Wardani	700	11%	1,000,000	700,000,000
Tri Astuti	700	11%	1,000,000	700,000,000
Investor Lain	3,000	46%	1,000,000	3,000,000,000
	6,500	100%		6,500,000,000

At the beginning of the year, the source of funding came from investors’ capital deposits. In the current year, the source of funding was obtained from retained earnings as a result of the company’s operations starting from the second year when the operating position was positive income with an initial percentage of 55-56%. In the long term, the company issued new shares and borrowed from other third parties (banks or other parties interested in investing). In Table 2, the shareholders’ funds were paid based on the company’s cash flow projections. The stock structure policy included higher share earnings of the

company’s founders, namely 54% (majority shareholders) and the rest was for outside investors. Investors had the perception that the industry had a high enough risk so higher returns than the market should be given in the end. It caused the founders to use personal funds as initial business capital. The founders also believe that their business was successful because the Best Gas product was a new product and there was no similar product in Indonesia currently.

Every investment plan wants a rate of return in the future. Therefore, it is necessary to analyze the financial feasibility analysis. BestGas’s financial feasibility analysis used the Internal Net Present Value (NPV), Payback Period (PP) and Rate of Return (IRR) approach.

Table 3. Investment Analysis Summary

Investment Analysis Indicator	Result	Conclusion
NPV (DF: 15 %)	IDR 6.4 billion	Feasible
Payback Period	3.43 Years	Feasible
IRR	31 %	Feasible

4. Financial Feasibility Analysis

Year	Cash In	Cash Out	Net Cash Flow	Accum. NCF	Discount Factor	Present Value	Accum PV (NPV)	Payback Period
a	b	c	d	e	f	$g = d / (1+f)^a$	h	i
0	-	(6,500,000,000.00)	(6,500,000,000)	(6,500,000,000)	15%	(6,500,000,000)	(6,500,000,000)	0.00
1	11,780,000,000	(17,019,133,286)	(5,239,133,286)	(11,739,133,286)	15%	(4,555,768,075)	(11,055,768,075)	0.00
2	29,096,608,667	(25,238,510,999)	3,858,097,668	(7,881,035,618)	15%	2,917,276,120	(8,138,491,955)	0.00
3	37,755,669,644	(33,331,839,902)	4,423,829,742	(3,457,205,876)	15%	2,908,739,865	(5,229,752,090)	0.00
4	49,851,041,654	(41,805,023,281)	8,046,018,374	4,588,812,498	15%	4,600,337,119	(629,414,971)	3.43
5	65,838,835,410	(51,691,623,298)	14,147,212,112	18,736,024,609	15%	7,033,664,731	6,404,249,760	0.00

Hurdle Rate	15%	based on WACC/CAPM
NPV	6,404,249,760	
IRR	31%	

a. Net Present Value (NPV)

NPV is a tool or way to measure the feasibility of an investment opportunity. A positive NPV indicated that the projected income from the investment or project was higher than the expenditure. The NPV value with a discount factor/hurdle rate of 15% in BestGas’ economic calculation was positive Rp. 6.40 billion. Thus, the NPV indicator showed that Bestgas’ investment was feasible.

b. Payback Period (PP)

Payback Period is the period of time required to return the value of the investment that has been issued, the shorter Payback Period is better and shows the investment feasible. The results of Best Gas investment analysis show that the Payback Period in the 3rd year is 3.43, this shows

that BestGas's investment yields a fairly good return, which is still in the 3rd year.

c. Internal Rate of Return (IRR)

Internal rate of return (IRR) is an indicator of financial analysis to estimate investment profitability. IRR is also defined as a method for calculating the interest rate of an investment and equating the current investment value based on the calculation of net cash in the future. IRR shows a percentage representation of the speed of investment to generate funds. Best Gas investment analysis results showed that the IRR value was 31%. This value indicated a very good rate of return, which was far above the hurdle rate set at 15%.

Risk Analysis

1. Risk Identification

Risk identification is a process to find, analyze, and investigate a risk. The company’s risk is usually based on

experience, the company’s internal history, and the characteristics of an object. Risk identification at PT Bestindo Jaya Indonesia was as follows.

Table 4. Risk Identification at PT Bestindo Jaya Indonesia

Code	Risk
Internal	
R001	The production machine is broken
R002	Sales target is not achieved but the promotion budget is fixed
R003	Conflict among employees
R004	Criminality
R005	Employees resign
R006	There is corruption
R007	Late arrival of raw materials
R008	Distributor resigns
R009	Distributor closed
R010	Employee conflict
R011	Salary increase (Regional Minimum Wage)
R012	Broken raw material
R013	Changes in government regulations
R014	Items are not known/accepted by the market
R016	Power outage/production shutdown
R017	Fire
R018	Natural disasters
R019	IDR fluctuation against RMB
R020	New competitors

Risk identification based on operations and risk impact grouping.

Table 5. Identification of PT Bestindo Jaya Indonesia’s Risk Impacts

Code	Risk	Impact
Internal risk		
R001	The production machine is broken	Production stopped
R002	Sales target is not achieved but the promotion budget is fixed	Profit reduced/loss
R003	Conflict among employees	Inhibits production
R004	Criminality	Loss
R005	Employees resign	Production is hampered
R006	There is corruption	Loss
External Risk		
R007	Late arrival of raw materials	Production stopped
R008	Distributor resigns	Item not absorbed
R009	Distributor closed	Item not absorbed
R010	Employee conflict	Operation stopped
R011	Salary increase (Regional Minimum Wage)	Costs are getting higher
R012	Broken raw material	Production is interrupted waiting for raw materials
R013	Changes in government regulations	Production is hampered
R014	Items are not known/accepted by the market	Inappropriate sales target
R016	Power outage/production shutdown	Production stopped
R017	Fire	Production Process Stops
R018	Natural disasters	Production Process Stops
R019	IDR fluctuation against RMB	Raw materials are expensive
R020	New competitors	Inappropriate sales target
	Marketing	
	SDM	
	Other causative factors	
	Operational	
	Financial	

2. Risk Assessment

Next, the researchers analyzed the results and impact of risk identification. Risk

analysis was conducted by assessing each risk from the impact caused by the frequency of risk.

Table 6. Assessment of Risk Possibility and Impact at PT Bestindo Jaya Indonesia

Code	Risk	Possibility	Impact
Internal			
R001	The production machine is broken	3	5
R002	Sales target is not achieved but the promotion budget is fixed	1	3
R003	Conflict among employees	1	3
R004	Criminality	2	3
R005	Employees resign	2	2
R006	There is corruption	2	3
External			
R007	Late arrival of raw materials	2	5
R008	Distributor resigns	1	5
R009	Distributor closed	2	5
R010	Employee conflict	1	3
R011	Salary increase (Regional Minimum Wage)	4	2
R012	Broken raw material	2	5
R013	Changes in government regulations	1	1
R014	Items are not known/accepted by the market	1	5
R016	Power outage/production shutdown	3	5
R017	Fire	2	5
R018	Natural disasters	1	5
R019	IDR fluctuation against RMB	1	2
R020	New competitors	1	4

Based on the table above, the risk faced by the company with the highest impact (number 5) was the risk of production and distributors.

3. Risk Evaluation

PT Bestindo Jaya Indonesia’s risk parameters were as follows:

Table 7. PT Bestindo Jaya Indonesia Risk Parameters

Possibility	Impact	Risk Level
Rare	Insignificant	Low
Rare	Insignificant	
Rare	Minor	
Rare	Moderate	
Unlikely	Insignificant	
Unlikely	Minor	
Unlikely	Minor	
Possible	Moderate	
Possible	Insignificant	
Possible	Insignificant	
Rare	Major	Moderate
Rare	Catastrophic	
Unlikely	Moderate	
Unlikely	Major	
Unlikely	Catastrophic	
Possible	Moderate	
Possible	Major	
Possible	Moderate	
Possible	Minor	
Likely	Insignificant	
Certain	Minor	High
Certain	Insignificant	
Possible	Catastrophic	
Likely	Catastrophic	
Likely	Major	
Certain	Catastrophic	
Certain	Major	
Certain	Moderate	

Table 8. PT Bestindo Jaya Indonesia Risk Evaluation Matrix

Impact Possibility		Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
	Certain (5)					
	Likely (4)		R011			
	Possible (3)					R001 R016
	Unlikely (2)		R005	R004 R006		R007 R012 R009 R017
	Rare (1)	R013	R019 R015	R002 R003 R010	R020	R008 R014 R018
	High					
	Moderate					
	Low					

Table 9. Matrix for Evaluation of Possible Impact and Risk Level

Code	Risk	Possibility	Impact	Level
Internal				
R001	The production machine is broken	3	5	High
R002	Sales target is not achieved but the promotion budget is fixed	1	3	Low
R003	Conflict among employees	1	3	Low
R004	Criminality	2	3	Moderate
R005	Employees resign	2	2	Moderate
R006	There is corruption	2	3	Moderate
Company external				
R007	Late arrival of raw materials	2	5	Moderate
R008	Distributor resigns	1	5	Moderate
R009	Distributor closed	2	5	Moderate
R010	Employee conflict	1	3	Low
R011	Salary increase (Regional Minimum Wage)	4	2	Moderate
R012	Broken raw material	2	5	Moderate
R013	Changes in government regulations	1	1	Low
R014	Items are not known/accepted by the market	1	5	Moderate
R016	Power outage/production shutdown	3	5	High
R017	Fire	2	5	Moderate
R018	Natural disasters	1	5	Moderate
R019	IDR fluctuation against RMB	1	2	Low
R020	New competitors	1	4	Moderate

Based on the possible impacts and risks at PT Bestindo Jaya Indonesia, mitigation was developed to control the disaster. Mitigation

aims to reduce or minimize the impact of a disaster. The mitigations conducted by PT Bestindo Jaya Indonesia were as follows.

Table 10. Risk Mitigation Matrix

Code	Risk	Impact	Possibility	Impact	Level	Mitigation Plan	Possibility	Impact	Level
Internal Risk									
R001	The production machine is broken	Production stopped	3	5	High	Make regular repairs	2	4	Moderate
R002	Sales target is not achieved	Profit reduced/loss	1	3	Low	Controlling sales targets versus promotion costs	1	3	Low
R003	Conflict among employees	Inhibits production	1	3	Low	Resolved based on deliberation and applicable provisions	1	3	Low
R004	Criminality	Loss	2	3	Moderate	The company issues and processes according to applicable law	2	2	Low
R005	Employees resign	Production is hampered	2	2	Low	Welfare and work culture evaluation	2	2	Low
R006	There is corruption	Loss	2	3	Moderate	The company issues and processes according to applicable law	2	2	Low
To be Continued									

Code	Risk	Impact	Possibility	Impact	Level	Mitigation Plan	Possibility	Impact	Level
External Risk									
R007	Late arrival of raw materials	Production stopped	2	5	Moderate	Providing stock in warehouse	2	3	Moderate
R008	Distributor resigns	Item not absorbed	1	5	Moderate	Selective in choosing distributors, Have a database of sales distributors	1	4	Moderate
R009	Distributor closed	Item not absorbed	2	5	Moderate	Creating a bank guarantee	2	4	Moderate

After mitigation was conducted by PT Bestindo Jaya Indonesia, several risks experienced significant changes. High risk and impact are decreased to moderate impact. The changes were seen in the following table:

Table 11. Risk Evaluation Matrix After Mitigation

		Impact				
		Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Catastrophic (5)
Possibility	Certain (5)					
	Likely (4)					
	Possible (3)					
	Unlikely (2)		R004 R005 R006 R011	R016 R007 R017	R001 R009	
	Rare (1)	R013	R019 R015 R018	R002 R003 R010 R020	R008 R014	R012

4. Communication and Consultation

Risk management consists of communication and consultation.

Communication regarding risk issues such as the causes of the risk, the impact of the risk, as well as the steps to manage the risk.

Table 12. Communication and Consultation Report

Time	Activity	Monitoring
0 - 2 months	Prepare manuals, work guidelines, and work instructions	Supervisor
3 months	Creating a guide with pictures or practical instructions that are easy to understand	Supervisor
> 3 months	Making evaluations of the work guidelines results, making new rules, and conducting regular internal meetings.	Manager and Supervisor

5. Recording and Reporting

The last stage was recording and taping risks. The unit that manages and responsible for risk management analyzed and

submitted the analysis results then they recorded and reported to the company periodically. The reports were as follows:

Table 13. Recording and Reporting

Nb	Time	Activity	Monitoring
1	First month	Created and presented a report on risk during the first month	Supervisor
2	3 months	Note the risks that occurred during the last three months	Supervisor
3	6 months	Drawing conclusions from all the events during the last four months	Supervisor
4	Annual	Create a risk management report	Manager

6. Risk Management Expense

PT Bestindo Jaya Indonesia spent risk management costs for the mitigation

actions. The costs incurred by PT Bestindo Jaya Indonesia were as follows.

Table 14. Risk Management Budget

Cost	Year 1	Year 2	Year 3	Year 4	Year 5
Machine and Building Maintenance	96,000,000	100,800,000	105,840,000	111,132,000	116,688,600
Generator + Fire Extinguisher	40,000,000	-	-	-	-
Insurance	16,250,000	17,062,500	17,915,625	18,811,406	19,751,977

Note: Risk Mitigation Costs have been considered in operating planning costs

The table above showed the costs for reducing risk, consisting of maintenance costs for machines and buildings, procurement of generators and fire extinguishers in anticipation of power outages and fires, as well as insurance costs to protect company assets such as buildings and its contents.

CONCLUSIONS AND SUGGESTIONS

The financial feasibility analysis results of PT Bestindo Jaya Indonesia shows that the eligibility criteria were related to three investment criteria, namely NPV more than zero, IRR value above the hurdle rate, and Payback Period value less than the age of the business. NPV of Rp 6,404,249,760, IRR of 31%, and Payback Period of 3.43 years. The analytical method is similar to Farah Nabila & Nurmalina (2019) which analyzed the feasibility of a business at PT Musim Harvest Harmonis.

The risk mitigation analysis results reveals that the risks of the company are production and distributor risks. PT Bestindo Jaya Indonesia's risk mitigation analysis is conducted in six stages, namely risk identification, risk assessment, risk evaluation, communication and consulting, recording and reporting, and risk costing. PT Bestindo Jaya Indonesia's mitigation actions succeeded in reducing the level of risk impact from high to medium levels and from medium to low levels. Risk mitigation analysis is in line with Handayani (2016) regarding the case study of PT MSA Kargo Surakarta Branch on risk mitigation analysis through several stages, namely risk identification, risk assessment, risk management, and risk communication. Researchers find several additional mitigation measures as preventive measures. Researchers suggest that Best Gas company consistently optimizes internal and external risk mitigation so that investment feasibility and business continuity are maintained. Investment feasibility analysis and risk mitigation analysis are very important for business continuity. It is mainly to assess the feasibility of the business and minimize

the impact of risk. Researchers suggest businessmen to analyze investment feasibility and mitigate risks to the company's business so that business continues and profits increase. In assessing business feasibility and risk mitigation, this research limits the analysis to three investment criteria and six stages of risk mitigation analysis. Therefore, further research is expected to develop other methods.

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