

Financial Feasibility for Project Machining Under Bracket PT. Karya Komponen Presisi

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Abstract. The automotive and machinery industry nowadays has been very competitive and volatile also. Automotive component producer should consider cautiously. This study do financial analysis of the new project 'Machining Under Bracket' in PT Karya Komponen Presisi. In addition, company wants to find minimum feasible selling price. Therefore, Capital Budgeting Methods are used for project feasibility analysis such as Payback Period (PP), Internal Rate of Returns (IRR), Net Present Value (NPV), and Profitability Index (PI), sensitivity analysis, risk analysis and decision tree. The research data are taken from previous similar project that has been done and used to forecast new project production cost, investment cost and sales forecast. The findings show the New Project „Machining Under Bracket“ feasible to run by the company with coefficient of variances is 19,97%, minimum selling price IDR 20.349 /pcs, expected NPV IDR 1.227.613.848. In addition the result for normal condition IRR is 21,48%, NPV as IDR 1.272.346.624, Payback Period will take three years and three months with Profitability index 1,157.

Keywords: Payback Period, Internal Rate of Returns, Net Present Value, Profitability Index, Financial Feasibility, Decision Tree, Risk Analysis, Sensitivity Analysis

1 Introduction

In 2016, United Nations Statistics Division, recorded Indonesia as the fourth ranking in manufacturing industry contribute to Gross Domestic Product after South Korea, China and German. In line with, Statistics Indonesia recorded in 2018 Gross Domestic Bruto on Update Report Index Industrial Small and Middle Manufacturing showed GDP portion from Industrial Manufacture Non Oil is around 19% and the trend show positively increased year on year 2015- 2018. Highly contribution from Small and Middle Industrial highly correlated from the changes and advance technology. Therefore, GAIKINDO, Indonesia Joint Industrial Motor Vehicle, forecast the sales of motor vehicle in Indonesia will continue increasingly trend positive. In the mean time Indonesia Motor Vehicle Industrial Association recorded the fluctuation result from distribution and production motor vehicle for period of lately ten years ago.

The situation in uncertainty economy recently, it is more difficult for small and middle business, this study use example of spare part producer of Under Bracket Motor vehicle, this. PT Karya Komponen Presisi as manufacturer of automotive parts in Cikarang, West Java, Indonesia, starting in 2015 in machineries and. The company wants to create a new project to a new type of bracket for the next five years start in 2019 with affordable price as IDR 22.610/ pcs and offering discount around 0,5% - 10%. Previous project which is categorized as similar typical project with this Bracket A, the company experience loss after decreasing demand of

domestic automotive market. After a previous loss experience, management of PT Karya Komponen Presisi decide wants to do a financial feasibility study carefully. To support its mission as manufacturing company in the field of metal cutting for producing good quality automotive parts at competitive price.

2 Conceptual Framework

Feasibility Study, Kasmir and Jakfar (2012) explained that business feasibility study is an in depth analysis to study about business or investment whether feasible to run or not, equipped by quantitative and qualitative method and consider several aspects such as from market perspective, technical, financial, management, production, human resources and environmental aspect as recommendation tools.

Mixed methods with quantitative data from PDB forecast, inflation Central Bank, historic time series data from relevant project such as investment costs, forecast project calculation, operational cost and production cost. In addition, qualitative data including assumption scenario sensitivity analysis, five porter forces and business risks. The data study conducting in PT Karya Komponen Presisi from Mei 2018 until September 2018.

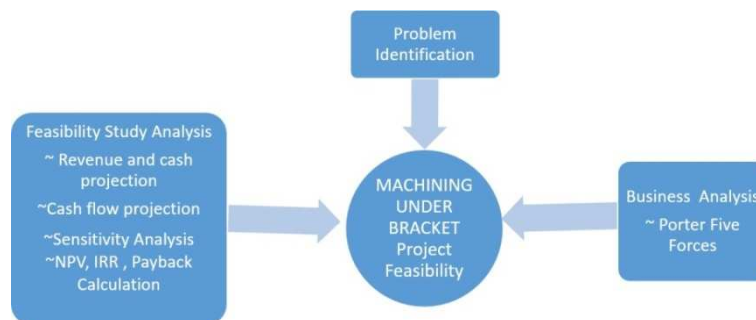


Fig.1. Conceptual Framework

3 Result and Discussion

The Range of selling price has minimum price with 10% discount as Rp 20.349/pcs , maximum price with 0% discount Rp 22.610/ pcs, and middle range discount 5% as Rp 21.480 assume as normal price.

3.1 Profit and Loss Forecast

Profit and loss forecast in 2019 – 2023 show positive trend year on year. Total nett profit after tax from machining bracket project is IDR 13.594.180.460 at normal scenario production. Profit and Loss forecast will use to assume as cash in flow for the next year.

3.2 Cash Flow Forecast

Cashflow forecast in and out flow from three activities : Operating activity, Investing

activities and Financing activities. Cashflow forecast found decreased trend from the first year of the new project until the fourth year because of fixed income. On the fifth year of the cashflow forecast, will have increased trend due to additional income assumption from salvage value as amount IDR 3.920.184.495.

This study used indirect method for cash flow forecast, the total cumulative statements of cash flow in the fifth year reached as IDR 14.398.370.285.

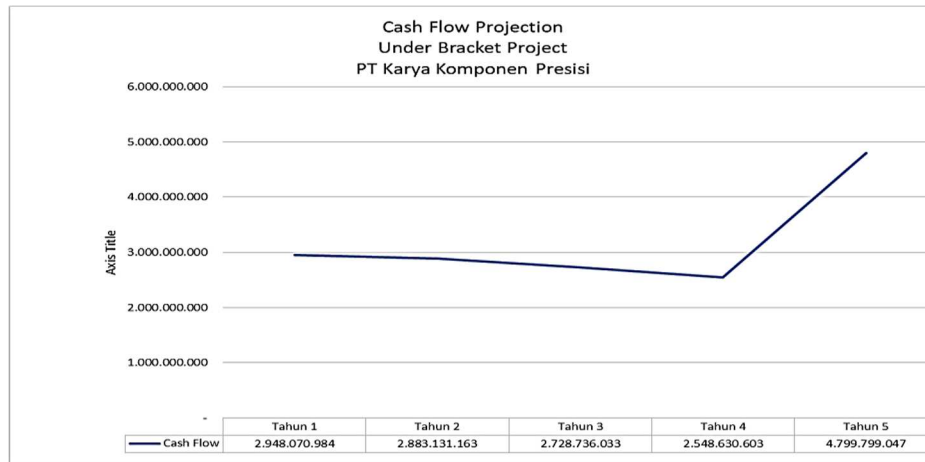


Fig.2. Cashflow Projection

Table 1. Cash flow projection
Cash Flow Projection (By Price Rp 21.480) PT Karya Komponen Presisi

Cash in Flow (CIF)	2019	2020	2021	2022	2023
Earning After Tax	2.407.454.475	2.331.054.685	2.149.413.356	1.937.524.614	4.768.733.328
Machine Depreciation	444.376.209	444.376.209	444.376.209	444.376.209	444.376.209
Jig Depreciation	119.250.659	119.250.659	119.250.659	119.250.659	-
Prod Equipment Depreciation	31.821.596	31.821.596	31.821.596	31.821.596	-
Office Equipment Depreciation	4.286.708	4.286.708	4.286.708	4.286.708	-
Total Cash in Flow	3.007.189.647	2.930.789.857	2.749.148.527	2.537.259.786	5.213.109.537
Cash out Flow					
Lease Payable		-	-	-	-
Deviden Payout	361.118.171,30	349.658.202,82	322.412.003,40	290.628.692,17	715.309.999,27
Total Cash out Flow	361.118.171	349.658.203	322.412.003	290.628.692	715.309.999
Net Cash Flow	2.646.071.475	2.581.131.654	2.426.736.524	2.246.631.094	4.497.799.538
Beginning cash		-	2.646.071.475	5.227.203.129	7.653.939.653
Cummulative Cash	2.646.071.475	5.227.203.129	7.653.939.653	9.900.570.747	14.398.370.284

3.3 Investment Criteria Analysis

a) Net Present Value (NPV)

Present value of cash flows minus initial investments. Discount rate assume as targeted profit company from the new project as 15%. NPV value from the Machining Under Bracket project show positive value means this project feasible. The table below for five year calculate NPV as amount IDR 1.272.346.624.

Table 2. NPV calculation

Year	Cash Flow	Disc Factor 15%	PV 15%
Year 0	(8.096.630.014)		
Year 1	2.646.071.475	0,869565217	2.300.931.718
Year 2	2.581.131.654	0,756143667	1.951.706.355
Year 3	2.426.736.524	0,657516232	1.595.618.656
Year 4	2.246.631.094	0,571753246	1.284.518.619
Year 5	4.497.799.538	0,497176735	2.236.201.290
		Total PV	9.368.976.638
		Cash Investment	8.096.630.014
		NPV	1.272.346.624

b) Internal Rate of Return (IRR)

Discount rate at which NPV = 0 or PV inflows = PV investment costs. Profitability index (PI)

Table 3. IRR & PI Calculation

	Cash Flow
Year 0	(8.096.630.014)
Year 1	2.646.071.475
Year 2	2.581.131.654
Year 3	2.426.736.524
Year 4	2.246.631.094
Year 5	4.497.799.538
Discount rate	15%
NPV	1.272.346.624
IRR	21,0275%
PI	1,1571

c) Payback Period (PP)

$$PP = 3 + \frac{Rp. 442.690.361}{Rp. 2.246.631.094}$$

PP = 3 Year 3 Months

(1)

Table 4. Payback Period

Year	Cash Flow	CF Cumulative
Year 0	(8.096.630.014)	8.096.630.014
Year 1	2.646.071.475	5.450.558.539
Year 2	2.581.131.654	2.869.426.885
Year 3	2.426.736.524	442.690.361
Year 4	2.246.631.094	1.830.940.733
Year 5	4.496.799.538	6.301.740.270

3.4 Sensitivity Analysis

Table 5. Sensitivity Analysis

Indicator	Scenario		
	Optimistic (133%)	Normal (100%)	Pessimistic (80%)
Price	Rp 22.610	Rp 21.480	Rp 20.349
Total production/Year	576.000	432.000	345.600
Sales	Rp 65.116.800.000	Rp 46.395.720.000	Rp 35.163.072.000
Total Cost	Rp 43.506.481.816	Rp 32.905.531.933	Rp 27.076.230.891
Net Cash Flow	Rp 21.076.300.248	Rp 14.398.370.284	Rp 10.899.909.186
NPV	Rp 3.545.207.631	Rp 1.272.346.624	Rp (1.091.819.842)
IRR	28,61%	21,48%	8,39%
Profitability Index	1,34	1,16	0,87
PP	2 Year 8 Months	3 Year 3 Months	4 Year 2 Months
Remarks	Feasible	Feasible	Not Feasible

3.5 Decision Tree

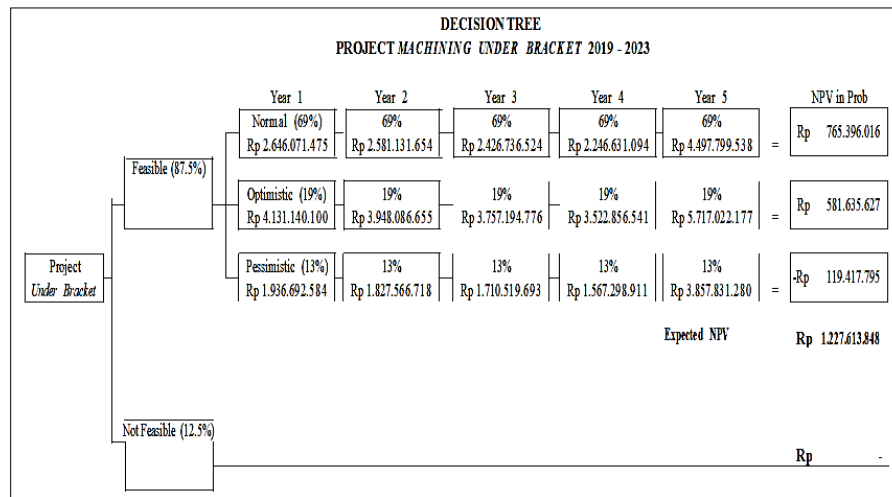


Fig.3. Decision Tree

3.6 Five Porter's Forces Analysis

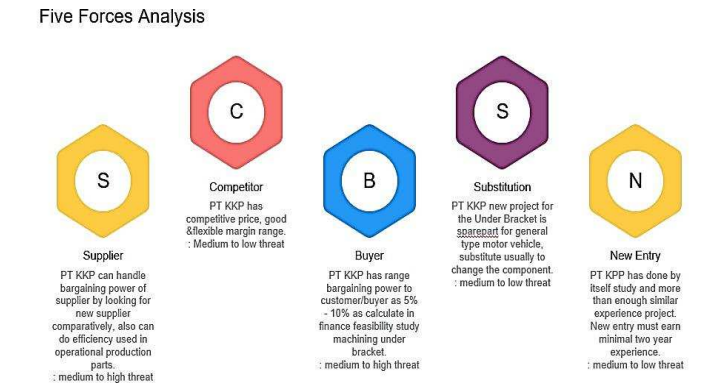


Fig.4. Five Forces Analysis

3.7 Risk Analysis

Overall probability total production volume fluctuated, with quantitative method for new project Machining Under Bracket has Standard Deviation as Rp 3.309.736.418. Distribution of risk cashflow shown as Coefficient of Variance 19.97%. For qualitative method to scale risk analysis by summary the sources of risk internal and external company, the results shown in table Matrix Risk Analysis.

Table 6. Matrix Risk Analysis

Scenario	Prob	Return	Expected Return	CF - E (R)	(CF-EV) ²	p(R-E(R)) ²
Normal	0,688	14.398.370.284	9.898.879.571	-Rp 814.804.231	Rp 663.905.934.738.983.000	Rp 456.435.330.133.051.000,00
Optimistic	0,188	21.076.300.248	3.951.806.297	Rp 5.863.125.733	Rp 34.376.243.362.072.500.000	Rp 6.445.545.630.388.580.000,00
Pessimistic	0,125	10.899.909.186	1.362.488.648	-Rp 4.313.265.330	Rp 18.604.257.802.965.900.000	Rp 2.325.532.225.370.740.000,00
		Expected Return	Rp 15.213.174.515		Variance	Rp 9.227.513.185.892.380.000,00
		Std Deviasi	Rp 3.037.682.206			
		Coefficient of Var	0,199674447			
			19,97%			

Table 7. Matrix Risk Analysis

No	Risk
1	Production line stopped due to out of power PLN
2	Production line stopped due to broken machineries
3	Production line stopped Employees on strike
4	Price consumable parts increased
5	Total production volume fluctuated due to domestic market
6	Fire

Probability	Effect				
	1 (insignificant)	2 (minor)	3 (moderate)	4 (major)	5 (catastrophe)
E (very often)					
D (often)					
C (moderate)				5	
B (rarely)			2 & 4		
A (very rarely)		1	3		6

Diagonal colour from bottom left to up right : Low risk → Medium → High Risk → Extreme

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