
Financial Feasibility Analysis of Small and Medium Business Development CV. XYZ in Madiun East Java

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Abstract

The agricultural sector is the leading sector of the Indonesian economy. Oyster mushrooms are one of the sub-sectors of agriculture. High opportunities for business sustainability and consumer demand make it necessary to analyze the financial viability of this venture. Financial feasibility analysis is required to assist CV. XYZ to see the feasibility of the development effort to be run. This research uses investment and production cost analysis method, cost of goods sold, Break Even Point (BEP), Net Present Value (NPV), Payback Period (PP), and Incremental Rate of Return and Ratio B/C. The result of the financial feasibility of CV. XYZ is BEP by selling product 50 baglog or Rp. 150,000 per production. NPV valued at Rp 253,181,432, Payback Period in year 1, IRR worth 40% and Ratio B/C 1.42 in the first year up to the fifth year.

Keywords: Financial feasibility, business development, oyster mushrooms

1. Introduction

The agricultural sector is a leading sector in increasing economic growth in Indonesia. This is evident from its contribution to GDP of 1,311,037 trillion rupiahs from Indonesia's total gross domestic product according to central bureau of statistics in 2013. One of the growing sub-sector of farming is horticulture crops sub-sector. One type of horticultural crop that has a high economic value and is managed by the community is an oyster mushroom (*Pleurotus ostreatus*) [1]

Mushrooms can grow well at an altitude of 700-900 m from above sea level at temperatures of 250-330 Celsius with humidity ranging from 50-70%. The mushroom only grows naturally well in the rainy season, thus initiating the cultivation of oyster mushrooms. This is done to meet the growing demand of oyster mushroom every year [1], especially in Madiun city the number of oyster mushroom demand in 2014 reaches 150 tons/year and increased by 0.36% in 2015 while the number of farmers is only capable of producing 55 ton/year [2]. High demand by consumers due to the benefits and efficacy of oyster mushrooms for humans, the nutritional content of oyster mushrooms are proteins, carbohydrates, and fats. Oyster mushrooms also have medicinal properties for various diseases, such as liver, diabetes, and anemia [3]

High demand is a great opportunity to make a company experience development in its business. The company's development plan is often hampered by issues such as the company's low commitment to meet customer orders and availability in the market. This is due to problems in production aspect as well as capital aspect, which includes limited technology, equipment, facilities and infrastructure owned by the company in order to fulfill customer order and availability in the market [4]. CV. XYZ is one of the companies that are currently developing. Development CV. XYZ has the limited capital equipment to be used to increase production capacity. Limitations of equipment technolo-

gy cause the production capacity is limited, so the profit received by producers has not been maximized. The existence of technological limitations of the equipment used can cause the inability of the company provide a real added value for the sustainability of its business. CV. XYZ will increase production capacity through the additional capital for equipment technology, production facilities, and infrastructure. Therefore CV. XYZ requires financial feasibility analysis to determine whether by adding capital for equipment technology and production infrastructure, this business is still feasible to be deployed and to know whether the company is able to repay the loan capital.

The purpose of this study is to review the financial aspects, where the assessment includes how much cost is needed to realize the business, determining the amount of capital needed and allocation of its use efficiently in the hope of optimal profit.

2. Material and Methods

2.1 Place and time of research

This research was conducted at CV. XYZ which is addressed on Jl. Banjarwaru District of Taman Kota Madiun. The timing of the research in July 2017.

2.2 Assumption

This research uses several assumptions. Determination of assumptions made to assist data processing, the base price of production (BPP) and cash flow makes. The assumed assumptions include the number of working days of the employee, the selling price of the product, the expected increase in production capacity, the increase of the raw material price, the business life [5]. The assumptions used in this research can be seen in Table 1.

Table 1
Assumptions

Assumption	Estimation
Production day per year	300 day
Production capacity per day	500 baglog
Selling price	3,000 per baglog

The method used in this research is a case study. Gather information on investment costs, production costs, variable costs, fixed costs, labor costs and other data related to this study. Information is obtained through interviews with the owner of the company and the person in charge of production as well as through the review of the financial records book in the company.

Data Processing Method

The data is processed in tabulation form, then analyzed mathematically by referring to the calculation aspects of financial feasibility analysis, ie base price of production (BPP), break-even point (BEP), net present value (NPV), payback period, incremental rate of return (IRR), and B/C Ratio. Data on variable cost and fixed cost is used to know the total cost of production or total cost, with calculation [4].

$$TC = VC + FC$$

Where : TC = Total Cost; VC =Variabel Cost; FC = Fixed Cost

Calculation of investment costs, variable costs, and fixed costs. Investment costs are the amount of capital or cost used to start a business or develop a business. Variable cost is the cost that is rou-

tinely issued every production business where the amount depends on the number of products to be produced. Fixed costs are other types of costs that are routinely issued by the company during the company's production activities [4]. However, the magnitude of the fixed costs is not dependent on production capacity, in general consisting of labor costs, administrative costs, electricity costs and maintenance costs. Calculation of installing or the actual capacity base price of production (BPP), is done through the settlement of the selling price and the calculation of revenue or revenue through equation [5].

$$\text{Base Price of Production} = \frac{\text{Total Cost}}{\text{Kapasitas Aktual}} \quad (2)$$

$$\text{Revenue} = \text{Harga Jual} \times \text{Total Produk} \quad (3)$$

Cashflow calculation, to see the development of financial flows that can be obtained by SMEs. Cashflow calculation is performed for cashflow before tax and cashflow after tax [6], [7] financial feasibility analysis uses calculations.

Break Event Point

BEP is a point of production or sales amount to be done so that the cost incurred can be covered again or the value where the profit received by the company is zero [7]

$$\text{BEP Unit} = \frac{FC}{P-VC} \quad (4)$$

$$\text{BEP Rupiah} = \frac{FC}{1-\frac{VC}{P}} \quad (5)$$

Where : FC = Fixed cost, P = Selling price per unit, VC = Variable Cost per unit

Net Present Value

The NPV method is used to determine the value of a company based on its cash flows. Thus the NPV is calculated as the difference between the cash flows issued by the firm and the cash flows received by the company. The NPV value is calculated to the present value by using a certain interest rate [8] NPV represents the difference between present value benefit and present value cost over the life of the project with a certain interest rate. The number of planned company NPVs can be calculated using the following formula [9].

$$\text{NPV} : \sum_{t=1}^n \frac{Bt-Ct}{(1+i)^t} \quad (6)$$

Where: Bt = Benefits of the project in the year t, Ct = Project costs in year t, n = Economic life of the project, i = Interest rate, t = year

From the calculation, if obtained:

NPV > 0, then the company deserves to be forwarded

NPV < 0, then the company does not deserve to be continued

NPV = 0, then the company will refund exactly the current interest rate.

Internal Rate Return

IRR is the interest rate that can make the project NPV equal to zero, or that can make BCR equal to 1 [8] formulated as follows [10]:

$$IRR = i'' + \frac{NPV'}{NPV' - NPV''} (i'' - i') \tag{7}$$

Where:

IRR = Rate of internal profit

NPV' = Value Rp at the lowest interest rate with positive NPV

NPV'' = Value Rp at the highest interest rate with negative NPV

i' = The lowest interest rate that gives a positive NPV score

i'' = The highest interest rate that gives negative NPV value

From IRR calculation if obtained: $IRR > 1$, then $NPV > 0$, then the project deserves to be forwarded. $IRR < 1$, then $NPV < 0$, then the project is not feasible to continue. $IRR = 1$, then $NPV = 0$, then the project will simply cover all costs with the current interest rate.

The estimated period of industrial investment return can be shown by the calculation of payback period. That is the minimum time to return the initial investment in the form of cash flow based on total revenue minus all expenses [11]

$$PBP = \frac{\text{Initial Investment}}{\text{Admission Periode}} \times 1 \text{ year} \tag{8}$$

Net Benefit-Cost Ratio

The net benefit-cost ratio is the comparison between benefit and cost, initially cost greater than benefit so that $B_t - C_t$ is negative, then in subsequent years the benefit of cost so that $B_t - C_t$ is positive. So Net B/C is the comparison between the number of positive $B_t - C_t$ present values and the negative $B_t - C_t$ value present with the following equation (Mariyah 2010):

$$\frac{\text{NetB}}{C} = \frac{\sum_{t=1}^n \frac{B_t - C_t}{(1 - i)^t} (B_t - C_t > 0)}{\sum_{t=1}^n \frac{B_t - C_t}{(1 - i)^t} (B_t - C_t < 0)} \tag{9}$$

From the calculation, if obtained:

Net B/C Ratio > 1 , then the project deserves to be forwarded.

Net B/C Ratio < 1 , then the project is not feasible to be forwarded.

Net B/C Ratio = 1, then the project will adequately cover the costs and the investment during the life of the project.

3. Results and Discussion

3.1 Cost Analysis

Cost analysis consists of investment cost, fixed cost (variable cost), fixed cost (fixed cost). The costs are categorized into the investment cost category in the development of CV. XYZ is a capital expense for 3 years. Fixed investment in CV. XYZ includes mushroom, the cost of purchasing machinery and equipment to be used during the investment period. The purchase of machinery and equipment is done every 5 years, the investment is Rp.149,960,000, -. The details of investment costs incurred can be seen in Table 2.

Variable costs incurred in each year of Rp. 223,170,000/year. The variable cost is the cost used in the production process, the cost of each day will vary depending on how much baglog is produced. The details of variable costs CV. XYZ is seen in Table 3. Fixed costs incurred for the production of oyster mushrooms baglog Rp. 94.8 million/year, the fixed costs incurred are used for employee salaries, maintenance and depreciation expenses. The details of the calculations issued can be seen in Table 3. After obtained the variable cost and cost is then obtained the total production cost of Rp. 345,366,000/year. The total cost is the cost incurred to produce oyster mushrooms. The total cost is to generate 150,000 baglog.

Table 2
Recapitulation of production data/year

Variable	Unit	Amount (Rp)
Investment costs	Rupiah	149,960,000
Fixed cost	Rupiah	94,800,000
Variable cost	Rupiah	223,170,000
Total production	Bag-log	150,000
Selling price	Rupiah	3,000
Selling price Cost	Rupiah	2,118
Margin	%	29

Table 3
Fixed and non-fixed cost analysis

Item	Biaya (Rp)
Fixed cost	
Permanent Labor	1,400,000
Amount	1,400,000
Variable cost	
Sawdust	500,000
Bran	250,000
Corn Mill	183,000
Chalk	21,000
Gypsum	12,000
Seed	320,000
Ring Log	100,000
Plastic	20,000
Spiritus	20,000
Sterilization	150,000
Electricity	50,000
Labor producers	250,000
Amount	1,876,000

Determination of cost of production & product selling price in determining the price of production required details of fixed and variable costs as well as the amount of baglog produced. Determination of the selling price sometimes also tend to be subjective [12]. Baglog price in Madiun city Rp. 3,000, which is the selling price of the majority of baglog manufacturers of oyster mushrooms. After getting the cost of production will be able to know the profit or margin selling. The base price of production (BPP) from baglog oyster mushroom Rp. 2,300, resulting in a margin of 23%. Financial feasibility analysis determination of break-even point (BEP), net present value (NPV), payback period (PP), incremental return rate (IRR) and B/C Ratio is an analysis used to determine the feasibility of an agro-industry seen from the aspect of financial feasibility [11] to facilitate the determination of BEP, NPV, PP, IRR and B/C Ratio then the first calculation and making cash flow. Cashflow calculations consist of cash flow before tax, cash flow after tax, and cumulative profit. Cash flow before tax is a financial flow before taxing 30%. Cash flow after tax is the financial flow after taxes. Cumulative is

the financial flow from cash flow after tax and investment cost. The results of the calculation of cash flow and cumulative benefits can be seen in Table 4.

Table 4
Cash flow and cumulative

Year	Cash flow Before Tax (Rp)	Cash flow After Tax (Rp)	Cumulative Benefits (Rp)
1	104,634,000	73,243,800	-76,716,200
2	104,634,000	73,243,800	- 3,472,400
3	104,634,000	73,243,800	69,771,400
4	104,634,000	73,243,800	143,015,200
5	104,634,000	73,243,800	216,259,000

Break Event Point (BEP)

In the calculation of BEP using fixed costs, not fixed and the selling price. Where fixed costs consist of labor costs of cultivation (fixed-power) and fixed costs (production costs). Break Event Point (BEP) units are 50, so it means that oyster mushroom production will reach the equilibrium point when it reaches the 50th production. Break Event Point (BEP) rupiah obtained Rp 150,000 so it can be said that Rp 150,000 is the point of equilibrium rupiah in production.

Payback Period (PP)

An effort is said to be feasible if the payback period value is smaller or equal than the age of business investment. Through the equation is obtained payback period results obtained in the first year of the loan repayment period for five years that can be seen in Table 5.

Table 5
Analisa payback period

Year	Cashflow (Rp)	Information
0	-57,329,700	Negative Value
1	35,300,600	Positive Value
2	127,930,900	Positive Value
3	220,561,200	Positive Value

Incremental Return Rate (IRR)

The larger IRR value compared to the prevailing interest rate (MARR) indicates a feasible effort to develop. From the calculation results obtained the value of IRR baglog mushroom production business in this study is 40% and MARR used is 12%. So from the value of oyster mushroom bag-log, IRR is much greater than the value of MARR is defined then the development of bag-log business oyster mushroom is feasible developed.

B/C Ratio

The B/C Ratio analysis uses total or accumulated receipts and expenses (TC) from Cashflow After Tax for each year over the life of the project ie five years. In Table 6 by using the equation B/C ratio it can be seen that the B/C ratio in the first year to five is 1.42. From the analysis of B/C ratio can be said baglog business oyster mushroom feasible to run.

Net Present Value (NPV)

The value of NPV is Rp. 253,181,432 obtained from the calculation for 5 years of effort. The details of the calculations can be seen in Table 7.

Table 6
Perhitungan B/C Ratio

Year (t)	0	1	2	3	4	5
Total sales (Bt)	450,000,000	450,000,000	450,000,000	450,000,000	450,000,000	450,000,000
Total Biaya (Ct)	317,671,000	317,671,000	317,671,000	317,671,000	317,671,000	317,671,000
Disc. Factor (i=15%)	1.0000	0.8696	0.7561	0.6575	0.5718	0.4972
$Bt/(1+i)^t$	450,000,000	391,304,348	340,264,650	295,882,305	257,288,961	223,729,531
$Ct/(1+i)^t$	317,671,000	276,235,652	240,204,915	208,873,839	181,629,425	157,938,631
B/C Ratio	1.42	1.42	1.42	1.42	1.42	1.42

Table 7
Calculation of NPV value

Year (t)	0	1	2	3	4	5
Laba bersih sesudah pajak	92,630,300	92,630,300	92,630,300	92,630,300	92,630,300	92,630,300
Disc. Factor, dengan i=15%	1	1	1	1	1	0
Disc. Cash in	92,630,300	80,548,087	70,041,815	60,905,926	52,961,675	46,053,630

4. Conclusion

The B/C ratio is equal to 1.42 and the payback period for one year with IRR is 40% and NPV is Rp. 253,181,432 then the development of baglog business oyster mushroom in CV. XYZ has good economic potential and feasible to be developed, shown from the calculation of financial feasibility analysis.

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