

BUSINESS OPPORTUNITY ANALYSIS IN CARGO TRANSSHIPMENT MARKET BETWEEN SINGAPORE AND BATAM, CURRENTLY DOMINATED BY SINGAPOREAN CARTEL

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Abstract- Trade between Batam and Singapore are quite high as Batam is designated for export oriented industrial area. Currently shipping price is considered too high by the service users. It is also demanded to be more frequent. The high shipping price is believed to be caused by cartel among the existing shipping company owned by Singaporean. This situation creates an opportunity for the shipping industry between Batam and Singapore. StarPillar Pte. Ltd. is a Singapore based company which operates in concrete foundation pillar manufacturing. It is planning to form a joint venture with PT. Trans Buana Logistics to create a shipping company and take the existing market opportunity with the name of PT. Star Trans Logistics. Before deciding to make the investment decision they need to analyze whether transshipment business will be feasible in the emerging market opportunity or not. The market opportunity analysis is conducted by analyzing marketing feasibility and financial feasibility of the investment project. Market opportunity shows that there are needs of shipping service. With the estimated capabilities of PT, Star Trans Logistics the transshipment business is considered as marketing feasible. Financial feasibility is represented by NPV, IRR, payback period, and profitability of the index. The project yields NPV of S\$ 3,804,017, IRR of 15.10%, payback period of 4 years 3.3 months, and profitability index of 1.49. These values show that the project is financial feasible.

Keywords: transshipment, feasibility, cost estimation, sensitivity analysis

1. Introduction

Background

Batam Island (Batam) is one of Indonesian islands located in Riau Islands (Kepulauan Riau) Province. It is directly neighboring with Singapore and Malaysia at the north. Batam is designated as export oriented industrial area in Indonesia. It causes industries in Batam grows highly especially after the enactment of Special Economic Zone (SEZ) among Singapore and Batam along with Bintan and Karimun. As there are a lot of Singaporean investment in Batam, goods transportation traffic between Batam and Singapore are high. There are several companies running sea transportation business or usually called shipping company. Shipping companies as well as freight forwarder are available in large number in Batam.

Shipping services is charged at certain rate called cargo rates. Currently the Batam-Singapore cargo rates are considered too high. An indicator of the high cargo rates was Singapore's prime minister's complaint to the president of Republic of Indonesia as published by Batam Pos in April 4th 2012. In early 2012, Lee Hsien Loong, the prime minister of Singapore, conveyed about the high cargo rates between Batam and Singapore complained by Singaporean businessmen. This high cargo rates is believed to be caused by cartel among the existing shipping companies. Other than the high cargo rates, businessmen also complaining about the few cargo shipping frequency. They ask for more frequent of cargo shipping frequency. These conditions create an opportunity for the shipping industry between Batam and Singapore.

B. Company Profile

Star Pillar Pte. Ltd. is a Singapore based company which operates in concrete foundation pillar manufacturing. Star Pillar Pte. Ltd.'s market spread from Singapore to Batam. With this wide scope of market, Star Pillar Pte. Ltd. distributes their products to several places including Batam. Star Pillar Pte. Ltd. also buys their production raw material from various places that consists of local and imported material. Star Pillar Pte. Ltd. is planning to form a joint venture with PT. Trans Buana Logistics. PT. Trans Buana Logistics is a Batam based freight forwarder. It serves freight forwarding activities around Batam. The joint venture between them will use the name of PT. Star Trans Logistics and will be registered as limited company in Indonesia.

PT. Star Trans Logistics will provide cargo transshipment service in form of bulk cargo. Area coverage of shipping will be Batam and Singapore. The appropriate ship to transport bulk cargo in close area is barge therefore PT. Star Trans Logistics' fleets will consist of barges and tugboats as the source of propulsion.

C. Business Issue

Before investing in real assets or business the investment project should be analyzed whether it is feasible or not. Therefore before Star Pillar Pte. Ltd. and PT. Trans Buana Logistics deciding to establish PT. Star Trans they should analyze the market opportunity.

2. Business Issue Exploration

Business issue faced by PT. Star Trans Logistics is feasibility of its shipping business in emerging market opportunity. Solution to the feasibility issue is performing market opportunity analysis. Market opportunity analysis of the shipping business investment project will be performed following the conceptual framework on **Error! Reference source not found..**



Figure 1 Conceptual Framework

Marketing feasibility analysis is conducted by doing situational analysis that analyzes the 5Cs. The 5Cs consists of customers, company, context, collaborators, and competitors (Iacobucci, 2010). Company analysis will be focused on the company's strengths and weaknesses. Resource based view analysis will be used to do the analysis. Context analysis is an analysis of macro environment situation. Macro environment or general environment will be represented by the four PEST factors. PEST stands for political, economic, social, and technological. Collaborators and competitors are the companies and people to work with and to compete against. Thus collaborators and competitors are considered as part of the industry and these two factors will be analyzed by industry analysis. Porter's five forces framework will be used in conducting industry analysis (Henry, 2011).

If the marketing feasibility analysis shows that the investment project is feasible then the analysis is continued by doing financial feasibility analysis. Financial feasibility analysis is related with capital investment decision making. The analysis will be done to check the investment project's return on current market condition. There are several indicators of investment project feasibility that are used to decide whether the investment project should be accepted or rejected. Some of the indicators are net present value (NPV), internal rate of return (IRR), payback period (PP), and profitability index (PI) (Ross, Westerfield, Jaffe, & Jordan, 2009).

Besides doing financial feasibility analysis, there is another required process which is cost calculation. The cost calculation will be carried on to analyze possible offering price of shipping services. Cost calculation will be done by doing product costing for each metric ton cargo transported (Blocher, Chen, Cokins, & Lin, 2005).

Decision making process in financial feasibility analysis is done by comparing the indicators value with required target value. Sometimes calculated indicators value deviate largely from those in reality. This deviation can cause calculated indicators that meet target value fail to meet the target value in reality. It means a feasible investment project in calculation can be infeasible in reality.

The wrong decision making can happen due to inaccurate cash flow projection. To overcome the problem risk analysis should be conducted. Risk analysis is done by calculating the indicators with other possible inputs. The analysis will be done by conducting sensitivity and scenario analysis.

These analyses need some data to be conducted. Cost calculation and financial feasibility analysis needs data about cost and expenses. These data are obtained from the estimation from market price. Some of them are obtained by interviewing the sellers and some are obtained by looking at the price tag. These data are primary data. However secondary data are also used. They are used in estimated the cost of equity and doing risk analysis. Secondary data used such as country risk premium and inflation rate are obtained from the relevant websites.

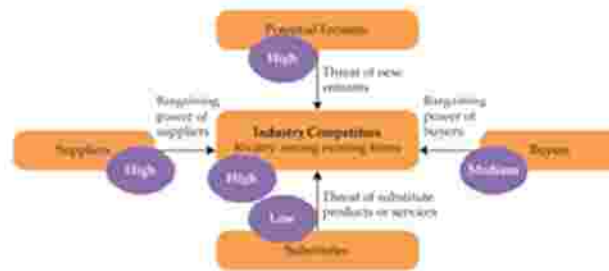
3. Business Solution

D. Market Analysis

Marketing is feasible if the 5Cs shows good condition for PT. Star Trans Logistics' transshipment business. Market condition will be more easily analyzed by summarizing the 5Cs condition into four category of PT. Star Trans Logistics' strengths and weaknesses and the opportunities and threats from external environment. This analysis of the strengths, weaknesses, opportunities, and threats is usually called SWOT analysis (Henry, 2011). In addition to SWOT analysis, competitive level of the industry will also provide consideration about marketing feasibility.

Competitive level is analyzed using Porter's five forces framework. In shipping industry there are three high competitive forces, one medium competitive force, and one low competitive force. The threat of new entrants, bargaining power of suppliers, and intensity of rivalry among firms are high, the bargaining power of buyer is medium, and threat of substitute products or services are low.

These five forces framework is displayed on Figure 2. Overall the shipping industry competition level can be concluded to be high.



SWOT analysis is started by summarizing the 5Cs condition into categories of strengths, weaknesses, opportunities, and threats as follow.

- 1) Strengths:
 - a) Capabilities to do inbound and outbound activities efficiently due to the partnership with PT. Trans Buana Logistics.
 - b) More efficient of advertising and promotion activities that arise from PT. Star Trans Logistics' partnerships.
- 2) Weaknesses:
 - a) Unavailability of own crane.
 - b) Less known among customers.
- 3) Opportunities:
 - a) The needs of shipping service between Batam and Singapore.
 - b) The needs of low cost shipping service between Batam and Singapore.
 - c) Less competitive competition with foreign companies as the application of cabotage principle.
 - d) The increase of local companies' competitive advantage in form of lower shipping cost due to the application of Finance Minister Regulation No. 80/2012 (Elisabeth, 2012).
 - e) Possible high demand as the economic growth in Riau Islands Province is quite high (Bank Indonesia, 2012a).
 - f) Low inflation rate in Batam.
 - g) Low interest rate for loan in IDR due to the low BI rate (Bank Indonesia, 2012b).
 - h) Low exchange rate risk as the exchange rate between IDR and SGD is relative stable and SGD tends to appreciate toward IDR.
 - i) High availability of work force in Batam.
 - j) Relatively low barrier to enter the transshipment business.
- 4) Threats:
 - a) Possible decrease of demand due to the change of presidential administration in 2014 election.
 - b) Possible sharp increase in cost as the labor wage increase request.
 - c) Potential new entrants that will tighten the competition.

The market opportunity shows that there are needs of shipping service. Current capacity of available shipping service is not enough. The market will even grow following the economic growth of the industries. With low existing barrier to entry, the market of transshipment business will be available for PT. Star Trans Logistics.

Market availability doesn't guarantee the feasibility of marketing. Marketing won't be feasible if the firm isn't able to compete within the market. The Porter's five forces show that competition in shipping industry is quite high. However there is an opportunity that competition will be lessening with foreign companies. PT. Star Trans Logistics will be able to compete in the market by offering relatively lower price. It is supported by its strength which is the capability to do operation and marketing activities more efficiently.

E. Cost Analysis

Shipping cost incurred from all expenses related to shipping service providing. These expenses are involved to determine the cost per metric ton cargo shipped. Product costing for shipping service is done using volume based cost driver. The used cost driver is number of metric ton cargo shipped. Shipping service cost per metric ton is obtained by summing all cost components per metric ton. The total of all cost components per metric ton is S\$ 7.361. This value will become the reference to set the shipping price per metric ton. Assuming the real condition is the same with the one used in product costing, shipping price per metric ton should be more than S\$ 7.361 to yield profit.

F. Financial Analysis

Capital investment decision making is carried on in four steps. The four steps are determining the cost of the project, estimating the expected cash inflows from the project and the riskiness of those cash flows, determining the appropriate cost of capital, and determining the indicators of the feasibility.

The net projected cash flow is determined by cash flows from investments, revenues, and expenses. Each of these is projected in five years which is the estimated project lifetime. With total investment at this level, the project usually analyzed in five years while ten years analysis is usually done for larger investment. Net cash flow projection is shown on Table 1.

The cost of capital is determined by the capital structure used. PT. Star Trans Logistics plans to use equity and debt as their source of funding. The target ratio between debt and equity is 3:1. However the target ratio isn't able to be met due to bank loan limit. Bank Mandiri provides loan in SGD with limit of investment loan at 35% of the total project cost and limit of working capital loan at 70% from the working capital needs.

The total debt of PT. Star Trans Logistics will be the total of investment loan and working capital loan with the amount of each are S\$ 11,809,200 and S\$ 187,650 respectively. Total loan will be 26 2 22 26 26 26 2 26 2 22 26 26 2 22 26 26 and debt to asset ratio is 22 26 26 2 22 26 26 26 2 22 26 26 22 26P 2 26 26 .

The cost of debt is obtained from the average of SGD prime lending rate for the past five years which is 5.37% p.a. With effect of tax, the after tax cost of debt is 26? ?? - 26? ??? . The cost of equity is calculated using capital asset pricing model (CAPM). PT. Star Trans Logistics' cost of equity is 26?

The cost of capital is obtained as the weighted average between cost of equity and cost of debt. With debt weight of 35.55% and equity weight of 26tw - 26ith ? 2O?? the cost of capital is 26 26 ? 26@ ? 26 26 ? 26@ ? 26@ 26?

Table 1. Cash Flows Projection

	Year					
	2012	2013	2014	2015	2016	2017
Sales Revenue	\$664,800	\$4,663,086	\$5,434,617	\$6,316,342	\$7,322,852	\$7,764,700
Total Expenses	(\$408,933)	(\$3,023,854)	(\$3,527,659)	(\$3,673,955)	(\$3,826,437)	(\$3,653,160)
Total Depreciation & Amortization Expense	(\$135,111)	(\$1,038,167)	(\$1,200,667)	(\$1,196,989)	(\$1,178,600)	(\$1,079,667)
Other Income						\$1,937,800
Income Before Income Tax	\$122,76	\$603,07	\$708,30	\$1,447,4	\$2,319,8	\$4,971,6

	8	8	5	13	31	91
Income Taxes	(\$15,346)	(\$139,99 2)	(\$166,21 5)	(\$342,75 7)	(\$579,95 8)	(\$1,242, 923)
Cash flow from operations	\$242,53 3	\$1,501,2 53	\$1,742,7 57	\$2,301,6 45	\$2,918,4 73	\$4,808,4 35
Investment						
Non-Current Assets	(\$7,909, 200)	(\$3,900, 000)				
Net Working Capital	(\$131,04 0)	(\$10,190)	(\$11,218)	(\$12,365)	(\$13,645)	(\$9,192)
Net Salvage Value						\$5,980,0 00
NWC Recovery						\$187,65 0
Cash flow from investment	(\$8,040, 240)	(\$3,910, 190)	(\$11,218)	(\$12,365)	(\$13,645)	\$6,158,4 59
Total projected cash flow	(\$7,797, 707)	(\$2,408, 937)	\$1,731,5 39	\$2,289,2 80	\$2,904,8 28	\$10,966, 893

The decision regarding the investment project is made by analyzing its NPV, IRR, payback period, and profitability index. NPV, discounted payback period, and profitability index are calculated by using the discounted project cash flows. The calculation yields NPV of S\$ 3,804,017 and profitability index of 1.488. The positive NPV shows that the capital investment project is feasible in emerging market opportunity. The profitability index also shows that the project is feasible with value more than one. It shows the scale of the project compared with the initial investment.

Projected cash flows yield an IRR of 15.10% and modified IRR (MIRR) of 13.19%. Both of these IRR are more than the cost of capital which is 6,159%. It means that the project is capable to yield return that offset its risk. The project is feasible with this condition.

Another indicator about financial feasibility of the project is payback period of the investment. The payback period is 4 years 3.3 months while the discounted payback period is 4 years 4.3 months. It takes about 4 years until the initial investment is recovered. There isn't any exact value of payback period to decide project's feasibility. However with payback period and discounted payback period around four years the project is considered to be feasible since 4 years isn't too long for business at this scale.

G. Risk Analysis

The calculation of decision making indicators is started by projecting cash flows. These cash flows are estimated following some assumptions. Change in these assumptions will change the indicators' value thus can also change the decision. Three different estimations are made to those assumptions to reflect three condition of pessimistic, most likely, and optimistic. Sensitivity analysis is done with the aid of SensIt add-on in Microsoft Excel software. The result on NPV is shown in form of spider chart on **Error! Reference source not found..** On the spider chart variables that could have greatest impact are shown by large vertical scope lines. Other than that variables that NPV most sensitive to are shown by steeper lines.

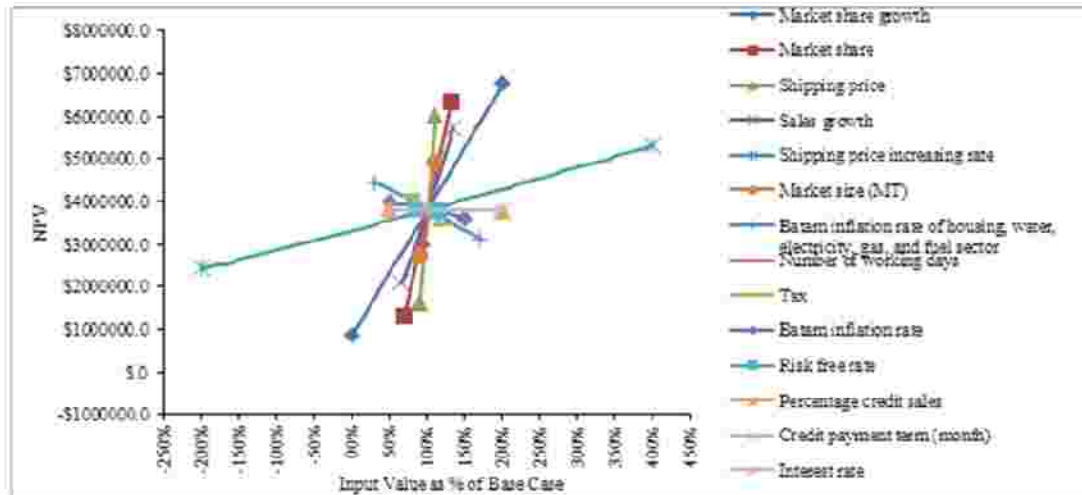


Figure 3 Spider Chart

The top five variables that could have largest impact on project NPV are market share growth, market share, shipping price, sales growth, and shipping price increasing rate. These five variables are the determinant of sales revenue. This fact shows that market condition is the variable that possible to reduce project NPV the most. PT. Star Trans Logistics should put the most attention to marketing aspect to ensure it gets enough sales. Marketing division must put effort to gain more market share and set the appropriate price as market share and shipping price are the two variables having largest impact on NPV.

The top five variables project NPV most sensitive to are shipping price, market share, sales growth, tax, and market share growth. The top three and fifth variables are representing marketing aspect. Marketing aspect could reduce NPV largely and it is sensitive. Tax is also a variable NPV sensitive to. Change to these variables will cause large change of NPV.

The fact that shipping price is the most sensitive variable makes price reducing to serve low cost shipping service has large impact on project NPV. NPV should be considered when setting low price. Sensitivity analysis shows that risk of the project can be considered to be low as none of the assumption change will lead to negative NPV.

However a specific condition can change some variable simultaneously. These changes are analyzed using scenario analysis. There are four scenario that will be analyzed which are worst scenario, best scenario, tight competition scenario, and economic recession scenario.

Best and worst scenarios are scenarios where all the input variables are assumed to be at best and worst possible state. Tight competition scenario is a scenario where the competitors react to PT. Star Trans Logistics either by reducing their price or doing other actions. Economic recession scenario is a scenario where the economic condition is assumed to be at recession.

Best and worst scenario shows maximal and minimal value of NPV and MIRR which are \$22,393,418 and -\$7,317,454 for NPV and 39.38% and -10.27% for MIRR. Tight competition scenario and economic recession scenario shows that financial performance will be below the forecasted condition. In tight competition scenario the investment project will be infeasible by having negative NPV and IRR below the cost of capital. Other than that, in economic recession scenario the investment project will still be feasible even though the indicators show that financial performance is worse. NPV of tight competition and economic recession scenarios are -\$3,227,776 and \$521,369 while MIRR of these scenarios are -1.04% and 7.21%.

Infeasibility of project in tight competition scenario becomes a warning for PT. Star Trans Logistics in running the transshipment business. Threat from incumbent competitors is the main risk.

Break-even analysis determines the sales needed for break even. Break-even point will help figuring out how far down sales can fall before the project is losing money. Break-even point is calculated in present value thus considering the time value of money.

All of the expenses incurred are categorized as fixed costs except fuel cost. Fuel cost is categorized as step cost that increase every certain amount of product produced. In calculating break-even point, fuel cost is considered as fixed costs because shipping is assumed to be done every day.

Break-even points are shown on number of metric ton cargo shipped. Break-even point for year 2012 to 2017 in metric ton cargo are 67,664 MT, 503,035 MT, 580,648 MT, 591,445 MT, 600,851 MT, and 561,858 MT. All of the break-even points value for every year shows number of sales required before profit is generated. These numbers can be compared with real sales number to measure the risk of loss occurrence.

4. Conclusion and Implementation Plan

H. Conclusion and Recommendation

PT. Star Trans Logistics should be established because transshipment business is marketing and financial feasible in the available market opportunity. Development and running of PT. Star Trans Logistics can be done by referring to the pre-development plan and long-term financial plan. In running the business, PT. Star Trans Logistics should watch the risks that arise when expected condition isn't met. Difference between assumptions and reality could change the feasibility of the project.

Marketing department of PT. Star Trans Logistics should try to push market share growth, market share, shipping price, sales growth, and shipping price increasing rate to meet the expectations. It also needs to watch market size condition as those mentioned variables are variables that project NPV is most sensitive to. There are also two conditions that must be cautioned which are tight competition and economic recession. These two conditions that will lead to infeasibility of the project therefore PT. Star Trans Logistics should prepare an anticipation plan to keep the project feasible. It is also recommended that the tugboats and barges are acquired by leasing in short term to reduce the risk of owning more illiquid assets.

I. Implementation Plan

PT. Star Trans Logistics financial condition is planned by making pro forma financial statements for the five years operation. The financial statements consist of income statements, statements of financial position, and statements of cash flow. These financial statements are planned following the cash flows projection. Insight obtained from the pro forma financial statements can be understood better with financial ratios. Several financial ratios calculated from the pro forma financial ratios are provided on Table 2.

On most likely condition the average of income from operations / total assets ratio in 2012 to 2017 is 10.90%. Compared with interest rate at 5.37% the ratio shows that debt financing will provide more profit to equity owner. However the expected condition isn't certain to happen. There are possibilities of condition in tight competition and economic recession scenarios to occur. Average of income from operations / total assets ratio in tight competition and economic recession scenarios are -7.52% and 3.10% respectively. These values are less than interest rate therefore when these scenarios happen capital structure should be dominated by equity.

Table 2 Financial Ratios

Financial Ratio	Year					
	2012	2013	2014	2015	2016	2017
Current Ratio	2.67	5.38	8.77	14.43	22.33	31.46
Total Debt Ratio	0.37	0.32	0.26	0.19	0.11	0.04
Profit Margin (%)	4.94	6.81	7.86	16.21	23.13	29.14
Return on Assets (%)	0.40	2.69	3.74	8.80	13.54	16.21
Return on Equity (%)	0.64	3.97	5.06	10.82	15.18	16.85
Income from operations / total assets (%)	1.48	5.09	6.18	12.43	18.52	21.72

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