RESEARCH ARTICLE

European Journal of Business and Management Research
www.ejbmr.org

Working Capital Needs Assessment due to Business Seasonality in the Logistics Company

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ABSTRACT

The growth of the company's business is generally followed by an increase in the company's revenue. However, to achieve revenue, the company require capital to finance the cost of goods sold, salary expenses, and other expenses before the sales happened. The cost of capital is generally the cost that the company first incurs compared to revenue or cash collection. The impact of costs must be paid in advance or early, while on the other hand cash collection from a customer is received later. If this situation continues over a long period and a bigger amount over time, this condition will make the company hampered to maximize the revenue due to the lack of cash. In this analysis using an international forwarding company in the export and import logistics industry, this company is still small and medium and has limited capital. In the last 5 years, the company has continued to experience an increase in sales from year to year, but due to limited capital, the company cannot fulfil all requests from customers due to maximizing the revenue because of the high cost of goods sold that should be paid first or early. In addition, in this industry, the profits that are generated by companies are tight, so companies tend to avoid bank loans in funding their operational activities. In the operational activities of this company, there is also a difference in the timing of receiving money from customers, which tends to be longer than the difference in payment times. The impact is that even though the company appears to have high liquidity, the company still cannot accept all customer requests because the company's assets are receivables. This is also exacerbated because the logistics business has seasonal sales that depend on global economic activity. In a high sales season, the company tends to have no cash, while in a low sales season, the company has a lot of cash but is not productive. Furthermore, if the company decided to invest the money for expansion, currently the company did not have any calculation of cash required to take all potential revenue in the future.

Keywords: Cash Flow Projection, Limited Capital, Seasonality, Working Capital Needs.

Submitted: January 04, 2023

Published: January 29, 2023

ISSN: 2507-1076

DOI: 10.24018/ejbmr.2023.8.1.1816

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I. Introduction

PT "KCE" is a small-medium logistic company focusing on freight forwarding services. PT "KCE" is in Indonesia and its main customers are mostly the Garment and Textile Industries. PT "KCE" is a part of "K Group" companies in Indonesia and therefore the scales of importing and exporting scope is around the world. From 2016 to 2019, the development of logistics in Indonesia generally tends to rise steadily. Nevertheless, from 2020 to 2021, there is a significant spike in the development of the global shipping industry. This is due to the COVID-19 pandemic causing a huge spike in prices. This is due to the limitations of containers around the world and the scarcity of shipping space in the shipping industry. This scarcity is generally caused by the increase in the impact of demand itself causing a shortage of shipping from other countries such as Indonesia.

The impact of price increases has a significant impact on freight forwarder companies. The price increase on the graph can be seen as the price changes occurred up to 300% and 400% starting from January 2020 to October 2021. The impact of price increases hit the freight forwarder directly because the freight forwarder's supplier is the shipping company that owns the ship. Therefore, freight forwarders need more cash to purchase shipping space at shipping companies, especially in high season.

However, during the low season, the company is in a cash-rich condition due to the slowdown of sales since March 2022. This condition happened due to the slowdown of demand for international freight forwarding services in 2022 compared to the 2021 condition.

II. Business Issue

The issue in this project is the seasonality of cost and revenue for the company. This seasonality makes the company incapable to maximize its revenue in high season due to the shortage of cash. While in the low season, the company cash was excessive due to low or minimum projects. So that the company needs to manage the current asset, especially in cash management. The cost of revenue of the

company is mostly required to be paid in advance, and in 2021 the cost revenue of each month can achieve up to 2 billion for 1 project. While the project of each month can be varied up to 70 projects. On the other hand, revenue is all credit sales and most receipts were for 2 months.

Therefore, due to this seasonality, the company usually are having opposite cash conditions between high-season and low-season conditions. The problem occurred from September to December, when most of the costs are mostly paid within a short-term period (7 days to 28 days), but cash receipt of receivables tends to occur in the longer term (for 14 days to 60 days). So, usually, if the company gets a lot of sales projects and in the big amount consecutively during high season, the company cash cannot cover the cost of the project. Therefore, management tends to not accept the project. However, if the management proceeds with the project, they required a loan that will lower the margin.

Even though the current ratio already maintains at above 100%, the company cannot maintain all requests for a new project because of the short payment period of the cost of revenue that mostly should be paid in full. This condition also makes the payable low, while most of the current asset during high season is receivables. On the other hand, the low amount of payables is also the reason for the high current ratio. This condition is also worsened during high season if there is a gap between the average collection period account receivables and the average collection period account payable. Accordingly, the main problem is working capital management due to the seasonality of the company's work volume. During high season the company usually are having low on cash, this condition happened due to the day gap of receipt and payment between receivables and payments. Receivables are usually received in 2 weeks the fastest to 2 months depending on the sales term agreement, while payable is usually very low due to supplier policies to directly pay if the booking of shipping has been made. Now the company usually has two options to solve the problem. The solution is a loan from management or shareholder during the high season and maintaining *Cash Conversion Cycle* (CCC) during the low season and high season.

During the low season, the management has planned to invest some of the assets to expand the business. Nevertheless, the company did not know the minimal reserve of cash required for the high and low seasons to keep the maximum profitability.

III. Literature Review

These 2 frameworks that will be used to create a projection in this paper are the Financial Modelling Process of More Complex Models and cash flow Models.

A. Financial Modelling Process of more Complex Models

Samonas (2015) explains financial modelling is about decision-making. There is always a problem that needs to be solved, resulting in the creation of a financial model. Financial modelling, unlike other areas of accounting and finance, is unregulated and lacks generally accepted practice guidelines, which means that model risk is a very real concept. However, Samonas explain some steps that can be followed to make a model as in Fig. 1.

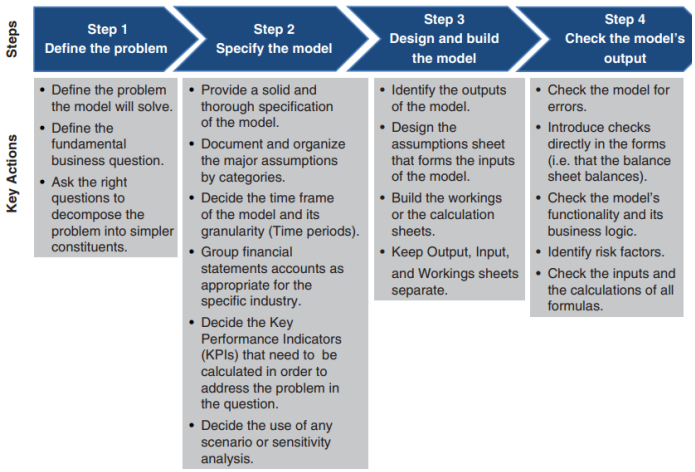


Fig. 1. Financial Model Process.
Source: Samonas, 2015

B. Cash Flow Model

As Jury (2012) defines that in generating cash the company must perform at least 1 working asset cycle. The number of turnovers in the working asset cycle will later generate more cash than the company will need. The movement of turnover affects the company's business. If the company experiences a slowdown in completing this cycle, it will eliminate additional cash that should be received by the company simply due to the cost of financing working asset investment. Jury (2021) illustrates the cash flow turnover in the form of a diagram, this diagram can be seen in Fig. 2.

IV. Methodology

This research is quantitative. Data collection will be used from internal and external sources. External sources are all secondary data, data are taken from Indonesia Central Bank, government publications, and other sources. Internal sources are collected from the annual report, sales and cost report, interviews with sales, cash report, and others. To identify the problems, the tools that are used are using root cause analysis, financial ratio analysis and external analysis will be analyzed using PESTEL analysis and Porter 5 forces.

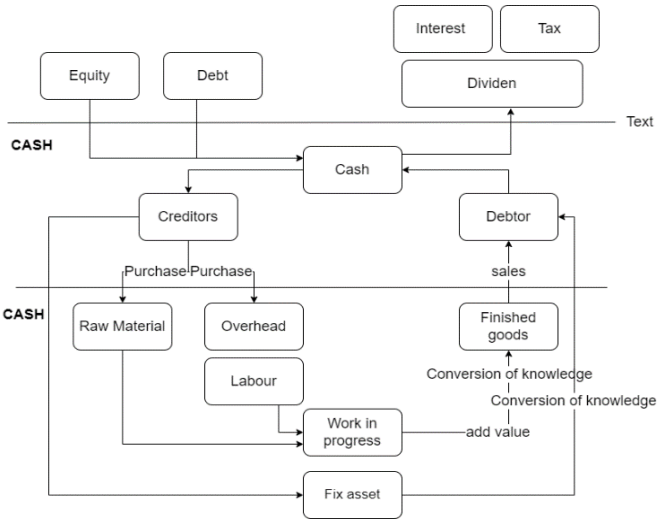


Fig. 2. Cash Flow Concept.
Source: Jury, 2012

After analyzing the financial performance, the next step will be using cash flow projection planning by understanding the previous year's working capital performance including sales and cost to understand the 3 projections if the company decided to use the usual financing operation, maintain, and increase working capital management by maintaining the account receivable management and lastly external funding during high season. After using the projection, the next step is considering the best alternative within 3 projections. Furthermore, by using financial projections the company is expected to have more sales during the high season without lowering the margin.

V. Result And Discussion

A. Analysis of Business Situation

1) External Environment

a) General environment analysis

- *Political:* There are several changes from the Indonesian government such as lowering corporate tax from 25% to 22% in 2020 and the increase of Value Added Tax (VAT) will be raised to 11% in 2022. There are also international regulation changes due to pandemic policy from the People's Republic of China that affect the import and export activities from and to the People's Republic of China. This condition makes the import and export activities to be longer than usual condition.
- *Economic*: Currently Indonesia's economic growth from 2020 to 2022 tends to grow, this condition can be seen from *Gross Domestic Product (GDP*). There is a decline in growth in 2020 due to the pandemic, however by 2021 to 2022 it is seen that there was a recovery.
- *Social*: Forwarding companies are usually only service companies. So most of the social activities are limited to employing locals for some projects. On the other hand, due to the company being still small, there are no social activities in the company.
- *Technology*: Technology usage in the forwarding industry is still limited such as tracking systems from the shipping line and operational activities such as revenue and cost control. Currently, the development of technology in the company is still limited to the system that is developed internally by the group to maintain purchase and sales activities
- *Environment*: The forwarding industry tends to have no direct impact on the environment due to operational activities because most of the activities are services. However, there are some activities such as container cleaning due to some contamination with the delivered goods from the customers. Hence, environmental impact mostly happens because of the goods delivered by the customer or shipped from the supplier.
- *Legal*: This industry pays attention to the legality of import-export activities. This is due to the export and import activities of each country tend to have different regulations. This difference can be seen from the existence of import and export restrictions, prohibitions on some imported goods, differences in treatment in the delivery method, to differences in customs duties that can affect the company's operational activities.

b) Porter's five forces analysis

- *The Threat of New Entrants*: can be classified as medium, this condition happened due to the capital required of starting the company being medium, however, there is a requirement to understand export and import regulation. Therefore, to start the business, there is a need for a deep understanding of the shipping industry and partnerships outside the country to get potential customers and suppliers, hence it can be assumed as a medium threat.
- *Bargaining Power of Suppliers*: Forwarding companies are dependable with shipping companies, there are a lot of local and foreign shipping companies in Indonesia. These local companies and foreign shipping companies tend to have similarities in pricing agreements. However, there is also some destination that only is covered by some companies. In that case, the shipping pricing tends to be higher than usual. Hence, the power of the supplier can be assumed as medium threat.
- *Bargaining Power of Buyers*: Currently there 2 types of customers in the "KCE", there are individuals and companies. Individuals tend to be more loyal customers compared to companies. Nevertheless, some companies also have some unwritten agreements with "KCE". On the other hand, "KCE" also can give lower prices in exchange for a bigger quantity of export activities by the company. Hence, the power of buyers can be assumed as a medium to high threat.
- *The Threat of Substitute Products*: Currently, product substitution for forwarding services is only applicable to an individual. This condition happens because individuals tend to export and import goods in small quantities below 1 m^3. The alternative solution for this is to export and import the goods directly using post mail which tends to be more expensive. Hence, the substitution tends to be a low threat.
- *Intensify of Rivalry among Competitors*: Forwarding Companies in Indonesia are a lot, however, big forwarding companies in Indonesia are still limited. However, because "KCE" is a part of the group, "KCE" tend to have to use the connection of the K group. Therefore, if the company is only calculated as 1 company, the company is still small. However, if the company is calculated as 1 group, the group can compete with a medium big forwarding company. Moreover, because of this connection as K group, the company can lower the price, Hence the competition can be assumed to be medium-high.

2) Financial Ratio Analysis

The financial ratio will analyse the financial performance of the company. The calculation of liquidity, debt, and profitability, the result is as Table I, and financial historical information can be seen in Table XVI and Table XVII.

- *Liquidity Ratio*: liquidity ratio by comparing the current ratio between companies, "KCE" has currently always had a ratio above 100% to 300% at the end of the year. However, the company is still not able to obtain all projects condition this condition happened because company liquidity is mostly in receivables. While to achieve a new project, the payment should be in cash.

- *Liabilities to Equity Ratio:* the calculation average collection is calculated from total account receivables in a year divided by net sales, while payment calculation of payment is total payable in the year divided by the cost of sales. This calculation results that the activity ratio analysis at PT "KCE", the payment period is generally faster because almost all shipping companies are currently asking for full payment in advance. But the receipt of company money tends to take longer.

TABLE I: FINANCIAL RATIO RESULT

Year	2017	2018	2019	2020	2021
Current Ratio	182.70%	246.30%	234.20%	357.90%	325.90%
Liabilities to Equity	77.79%	54.69%	61.43%	43.13%	46.71%
Operating Profit Margin	2.81%	3.05%	2.16%	3.70%	6.65%
ROA	5.52%	5.70%	1.38%	7.11%	18.22%
ROE	9.82%	8.82%	2.23%	10.18%	26.74%

TABLE II: 5 WHY ANALYSIS RESULT

5 Whys	Reason
What is the abnormal condition	The company's current ratio is high, but the company cannot generate optimum revenue
Why this occurs (1)	The company are dependent on seasonality whether it is the high season and the low season
Why this occurs (2)	There is a higher number of projects during the high season, but the cash is not enough while in the low season, the company have a lot of cash with few projects
Why this occurs (3)	During high season the company most assets are in receivables while the cost needs to be paid directly and during low season the company deposit the cash in the bank
Why this occurs (4)	The demand for projects is increasing but the payment of all sales is credited with long payment n the high season while during the low season, the company didn't prepare cash for the high season
Why this occurs (5)	The company did not have a projection for its working capital management to project its revenue and cost and maintain cash flow

- *Profitability Ratio:* operating profit margin, return on assets (ROA), and return on equity (ROE). The operating profit of logistics companies currently tends to increase. This is due to the rising cost of transportation from outside and to the country due to high global demand. "KCE" has a high ROA value due to the absence of expansion in assets from 2014 so capital expenditure (CAPEX) tends to be stagnant even decreasing due to no renewal of assets, however, due to an increase in company profits, the ROA value increases. "KCE" does not have large liabilities but cannot have large margins. The impact of a smaller margin causes the ROE of the company to be smaller.

3) Working Capital Assessment and Management Analysis

After analysing the external analysis and financial ratio analysis, it is determined company strategy is maintaining a profit. However, to achieve high profitability, the sales team need to give some facilities such as a longer payment period and commission for the big project resulting in a longer term of receivables. Furthermore, the company is currently being pushed by the shipping company to pay in advance or shorter due to the high demand for shipping costs. Therefore, as a forwarding company that depended on the supplier, the company must follow the shipping company payment terms, especially in high season due to limited space for shipping. This condition resulting the account payable tending to be low but results from the cash shortage during high season.

4) Root cause analysis

By using the 5 why analysis, the problem exploration will be defined as Table II. Based on the analysis of the 5 why analysis, PT "KCE" did not have the working capital management to maximize its revenue. This condition makes the company not have enough cash to finance the project during the high season. While on low season, the company tend not to prepare for working capital management and most of its asset in cash are stored in a bank deposit.

On the other hand, the management is expected not to take a loan to finance the projects because most of the projects are low tight margins. Therefore, if the company takes a loan to finance its project, the projects tend to be lost due to the interest expense.

B. Business Solution

1) Revenue Variables Assumption

The projection, that will be carried out, will be seen from using assumptions that management think has the most impact on revenue, namely demand, freight, and exchange rate. The next step is projecting the maximum potential revenue and ending with an analysis of several scenarios that have been carried out to find the best solution.

a) Demand for export and import volume forecast

Demand for export and import forecast will be using the import and export volume of non-oil gases. This assumption is used because the company usually have the same growth as the export-import volume. According to the Indonesia Central Bureau of Statistics shown in Table XIII, the export and import demand from 2002 to 2021 increased each year. However, in 2022, the data from the Indonesia Central Bureau of Statistics already published that by June 2022, therefore the export-import volume by June 2022 will be annualized for 1 year. Therefore, after getting the average growth of imports and export from the Indonesia Central Bureau of Statistics, the growth from 2002 to 2022 are averaging 7.12% yearly. However, the assumption will be using a moving average of 3 years, the reason for using this assumption is export and import are fluctuating. If using the growth of 7.12% the number will keep increasing no matter what condition happened. In addition, the result uses a moving average of 3 as shown in Table III.

b) Ocean Freight Price Forecast

Ocean freight price is the price from the shipping company to deliver the goods by sea. The assumption for ocean freight price will use a freight index based on the China freight price index with some adjustments based on historical company data. The freight index formula takes the sum of all freight data and calculates the average cost of transportation.

TABLE III: IMPORT AND EXPORT VOLUME PROJECTION

Year	2020	2021	2022	2023	2024	2025	2026
Export and Import Volume (000 Ton)	666,406	730,411	699,566	698,794	709,590	702,650	703,678

TABLE IV: FORECAST OF FREIGHT PRICE

Year	2020	2021	2022	2023	2024	2025	2026
Freight Price (in US$)	2,783	5,047	4,444	4,091	4,527	4,354	4,324

TABLE V: REVENUE GENERAL ASSUMPTION

Revenue Assumption	Assumption Use	2020	2021	2022	2023	2024	2025	2026
Export And Import Volume	Using Ma 3	666,406	730,411	699,566	698,794	709,590	702,650	703,678
Export And Import Volume Realization	For Simulation	100%	100%	100%	100%	100%	100%	100%
Service Price Per Unit	Using Ma 3	2,783	5,047	4,444	4,091	4,527	4,354	4,324
Service Price Per Unit Realization	For Simulation	100%	100%	100%	100%	100%	100%	100%
USD Rate Growth	Using Average Growth	14,105	14,269	14,848	15,162	15,483	15,811	16,145
USD Rate Realization	For Simulation	100%	100%	100%	100%	100%	100%	100%
Potential Market Revenue	Calculated	26,159,543,515,059	52,596,838,551,926	46,156,363,620,262	43,345,954,454,786	49,737,309,615,339	48,369,194,484,389	49,125,332,997,692
Growth Per Year	Calculated	145.50%	101.10%	-12.20%	-6.10%	14.70%	-2.80%	1.60%
Revenue	Using Ma 3	28,545,570,624	60,626,522,216	53,202,813,734	49,963,354,131	57,330,443,985	55,753,465,888	56,625,040,104
Revenue Realization	For Simulation	100%	100%	100,00%	100,00%	100,00%	100,00%	100,00%
Total Revenue	Calculated	28,545,570,624	60,626,522,216	53,202,813,734	49,963,354,131	57,330,443,985	55,753,465,888	56,625,040,104

The reason for this assumption because the company are having both imports and export to China, while for other countries usually the company only has export activities. However, sometimes freight can be different between companies. So, freight price usually indicates the average price of each shipping but there might be some differences between the index and actual freight due to the different types of goods, shipping terms, and others. Therefore, using the calculation based on Table XIV. The assumption for the future will be using a moving average of 3. While in 2022, the freight price will be using 4,443.6 as in the actual prices. In addition, the result uses a moving average of 3 in Table IV.

c) Exchange rate forecast

Freight forward companies are very dependable with exchange rates due to most of the revenue and cost being in USD prices. However, based on company internal data there are some differences between Indonesia Central Bank (BI) middle rate and shipping rates. Shipping rates tend to have higher that the middle rate by 0.5% to 2%.

Moreover, for this assumption, the rate will be using the BI middle rate to determine the projection of the exchange. Therefore, as in Table XV, the rate of the US Dollar to Indonesia tends to increase over the year by 2.12%. So, to estimate the dollar that keeps increasing over the year the assumption that will be used is going be the growth over the year as in Table IV.

2) Sales Revenue Projection

To determine the revenue projection for sales per year will be using previous assumptions. Hence, the formulation for calculating the revenue will be in (1).

$$Export\ Import\ Volume \times Ocean\ freight\ Price\ per\ Unit \times USD\ Growth\ rate = Potential\ Market\ Revenue\ of\ the\ Year \quad (1)$$

Later, the growth of market revenue will be calculated each year to determine the growth revenue for the next period.

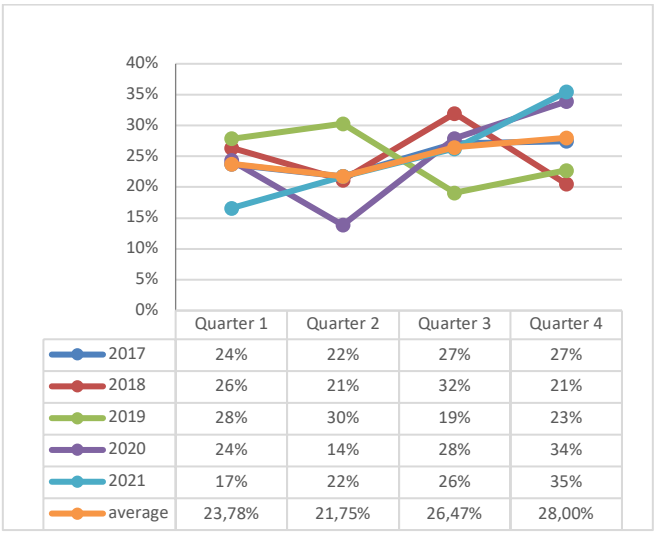
Furthermore, the projection of the growth revenue for the next period is summarized are as in Table V. The reason the company revenue calculation was based on potential market revenue because these three factors are the most common use for estimated selling price. Moreover, in the forwarding company revenue is very dependable with these three factors are the main factor to determine the actual selling price that is used in the company.

The next step is calculating the seasonality will be using based on historical data. The seasonality happened occurred by dividing the percentage of sales by quarter by total revenue per year. In addition, the result can be seen in Fig 3.

3) Cost of Sales and Expenses Assumption

a) Cost of sales

The assumption of the company's current cost of sales is obtained from the calculation of the comparison of the cost of sales to the company's total revenue. This is due to fluctuations in the price of the company's freight, which causes the value of the cost of sales to fluctuate according to the shipping price. In addition, because the company is also a service company, the value of the cost of sales of several services also does not have a clear value.



	Quarter 1	Quarter 2	Quarter 3	Quarter 4
2017	24%	22%	27%	27%
2018	26%	21%	32%	21%
2019	28%	30%	19%	23%
2020	24%	14%	28%	34%
2021	17%	22%	26%	35%
average	23,78%	21,75%	26,47%	28,00%

Fig. 3. Seasonality per Quarter.

Thus, in the end, it was found that the percentage of the cost of sales for the last 5 years was around 91% of sales, so future assumptions will also use an average of 91% in making revenue projections.

b) Labour cost

For labour costs, the assumption will be using an increase in a strategic plan with an increase based on the average salary increase for the last 3 years from 2018 to 2021, which is 5.35%. The reason for using this increase in inflation is that the company's labour costs generally increase every year but do not have a definite nominal value because it depends on the company's performance and economic condition. In addition, the difference in the total increases each year is also due to the value of bonuses and overtime that is included in the salary component. The value of this bonus depends on whether the employee's target is achieved while overtime is seen from the employee's working hours.

c) General and administrative expenses

For General and Administrative (GA) expenses, this will use the assumption of an average increase every year from GA using the latest inflation in 2021, which is 2.46%. However, there is an exception in the nominal year for this assumption for 2022-2026, which is not used as a reference for 2021 as an additional nominal. This is because there was an extraordinary event in 2021 where the company experienced profits due to currency differences which caused the GA expense to decrease significantly.

4) Cost of Sales and Expense Projection

To determine the cost of sales and expense projection per year will be using the variable as in the previous explanation. After getting the assumption, the formulation for cost projection will be in Table VI. As is seen in the table, the cost of each year is as follows, this cost and revenue will be implemented to project the income statement projection of each year. The reason for the cost of sales is using percentage happened there are a lot of costs that may have no revenue and contrary, so the indicator is not clear. Moreover, other expenses will come from historical data and each growth of the company.

5) Scenario Analysis

Scenario analysis is a process of estimating the various possibilities in future related to company strategy. In this scenario, it will analyze 3 possibilities that the company can use namely based projection (current company situation), loan projection, and managing cash conversion cycle projection. Then analyse the scenario based on several assumptions such as revenue, cost, and others.

TABLE VI: COST OF SALES AND OTHER EXPENSE ASSUMPTION

Cost of Sales	Assumption Use	2020	2021	2022	2023	2024	2025	2026
Percentage of cost of Sales	-	91%	91%	91%	91%	91%	91%	91%
Total Cost of Sales	Percentage of Sales	25,843,083,282	55,821,810,927	47,952,124,405	45,487,245,839	52,194,334,127	50,758,634,070	51,552,125,847
Cost Realization	For Simulation	100%	100%	100%	100%	100%	100%	100%
Total Cost of sales	Calculated	25,843,083,282	55,821,810,927	47,952,124,405	45,487,245,839	52,194,334,127	50,758,634,070	51,552,125,847
Other Expenses								
Labor Cost	Strategic Plan, Increase w/ Inflation	1,074,436,000	1,091,487,500	1,149,855,193	1,211,344,119	1,276,121,188	1,344,362,234	1,416,252,495
Cost Realization	For Simulation	100%	100%	100%	100%	100%	100%	100%
Total Labor Cost	Calculated	1,074,436,000	1,091,487,500	1,149,855,193	1,211,344,119	1,276,121,188	1,344,362,234	1,416,252,495
GA Expense (Operating Expense)	Strategic Plan, Increase w/ Inflation	514,012,274	-316,122,709	539,566,656	552,816,390	566,391,487	580,299,938	594,549,929
Cost Realization	For Simulation	100%	100%	100%	100%	100%	100%	100%
Total GA Expense	Calculated	514,012,274	-316,122,709	539,566,656	552,816,390	566,391,487	580,299,938	594,549,929
Tax Rate	Corporate Tax Rate	-	-	22.00%	22.00%	22.00%	22.00%	22.00%

TABLE VII: LOAN STRATEGY

Loan Strategy	Assumption use	2022	2023	2024	2025	2026
Financing						
Total Short-Term Debt Financing	Strategic Plan	5,389,345,820	-	-	-	-
Excess Cash	Calculated	0	5,734,566,776	9,025,108,552	19,774,637,722	28,227,573,199
Interest Expense	Calculated	80,840,187	-	-	-	-
Short-Term Debt Interest Rate per quarter	Internal Data	1.50%	1.50%	1.50%	1.50%	1.50%

TABLE VIII: CHANGE OF CONVERSION CYCLE STRATEGY

Balance Sheet Assumptions	Assumption Use	2021	2022	2023	2024	2025	2026
Sales on Credit (percentage of Sales)	Strategic Plan	100%	100%	100%	100%	100%	100%
Purchasing (percentage of COGS)	Strategic Plan	97%	97%	97%	97%	97%	97%
Average Collection Period (Days)	Average Historical Data	30	30	30	30	30	30
Average Payment Period (Days)	Average Historical Data	7	7	7	7	7	7

Moreover, after getting the income statement per year is calculating the income statement percentage of sales is based on seasonality. As mentioned before the seasonality is divided into 4 Quarters, namely 23.78% for Quarter 1, 21.75% for Quarter 2, 26.47% for quarter 3, and 28% for quarter 4. Later, the next step is calculating the balance sheet assumption by doing the cash required for operation based on the income statement and balance sheet assumption.

a) Based assumption projection

- *Income Statement*: Currently, by 2022 the company only can receive 80,50% of the total maximum revenue. This condition happened because the company conversion cycle gap is too high and limited capital. Hence, the projected income cannot be maximal.
- *Balance Sheet*: The company mostly is having sales on credit terms by almost 100%, while the purchase of cost is 95% on credit. Whereas for the average collection period and average payment, the period is 62.73 days and 28.46 days respectively
- *Cash Flow*: The operating profit is always positive indicating that the company's performance is still growing over the year. This also indicates that the operating condition is still in good condition

b) Loan assumption projection

- *Income Statement:* The assumption will focus if the company decided to take all possible revenue by 100%. Furthermore, by doing this, it is expected in the next period, the company will also take 100% of its revenue by any means necessary such as a loan.
- *Balance Sheet:* The company is assuming that most sales are on credit terms by almost 100%, while the purchase of cost is 95% on credit. Whereas for the average collection period and average payment, the period is 62.73 days and 28.46 days respectively
- *Loan Strategy:* The loan strategy that will be needed is calculating the cash required by the company from 2022 in each yearly quarter and then calculating the loan that should be taken for funding the maximum project that will be taken as in shown in Table VII. Currently, by the internal shareholder loan, interest is 6% per year so it will be counted as 1.5% per quarter.
- *Cash Flow:* The operating profit is always positive indicating that the company's performance is still growing over the year. This also indicates that the operating condition is still in good condition.

c) Managing cash conversion cycle assumption

Managing the conversion cycle process in an action managing cash conversion cycle by lowering the collection period and if possible, expanding the time payment vendor. First, there will need a change in the cash conversion cycle assumption.

- *Income Statement:* The assumption for maintaining the cash conversion cycle is to manage the duration between payment and cash receipt. However, based on sales staff, if the company need faster payment, the customer may ask for a deduction of payment. Moreover, this condition can be tackled if the payment terms deal during the sales agreement.
- *Balance Sheet:* The company is assuming that most sales are on credit terms by almost 100%, while the purchase of cost is 97% on credit. However, there is a change of payment and collection terms that will be implemented as in Table VIII. The assumption of the average collection period that will be used, will assume that currently, the most possible collection period that can be maintained is 30 days. The reason for 30 days is that historically sales team have they are negotiated to reduce the collection period by 30 days, thus, because currently, the sales team tend to increase the number of sales, they give compensation to the customer to pay longer. On contrary for most of the new cost of sales by the company payment duration that can be delayed is 7 days. This condition happened because currently, the booking schedule from the shipping company is reduced to below 14 days while previously 30 days.
- *Cash Flow:* The operating profit is increasing and is still positive amount indicating that the company's performance is still growing over the year. This also indicates that the operating condition is still in good condition.

6) Scenario Result

a) Based projection result

According to the based projection result in Table IX, if the company decided not to take the loan or change the usual cash conversion cycle process. The company profitability ratio is the lowest among the other projection. This condition happened because even though gross profit is the same as others, the company cannot absorb all projects due to the lack of cash to finance the cost of sales that should be paid in advance. On top of that, the ROE and ROA for 2022 are calculated to be the lowest among other projections.

b) Loan Projection Result

For loan calculation based on Table X, the ROE are more profitable compared to the based calculation. This condition happened because the company can absorb all projects. Furthermore, even though the gross profit margin is the same the operating margin is increasing because currently, the interest that should be paid by the company for the loan to a shareholder is small only 1.5% per quarter or 6% yearly. If the company can manage to pay the interest per quarter for the project that required a loan. The profit will be higher compared to the based calculation. However, this loan is coming from a shareholder who maybe will not be available soon. Compared to this situation, if the company are using the bank for 2% per quarter or 8% yearly the ROE will be lowered are as in Table XI. Even though, the ROE decrease is not significant, because mostly the biggest effect of this variable is the percentage of seasonality within the operation.

TABLE IX PROFITABILITY RESULT OF BASED ASSUMPTION

Profitability Ratios	2022	2023	2024	2025	2026	Average
Gross Profit Margin	8.96%	8.96%	8.96%	8.96%	8.96%	8.96%
Operating Profit Margin	4.90%	5.31%	5.65%	5.49%	5.41%	5.35%
Net Profit Margin	3.82%	4.15%	4.40%	4.28%	4.22%	4.17%
Return on Assets	9.82%	10.70%	11.23%	9.65%	8.78%	10.03%
Return on Equity	14.04%	15.04%	15.50%	12.78%	11.34%	13.74%

TABLE X: PROFITABILITY RESULT OF LOAN ASSUMPTION

Profitability Ratios	2022	2023	2024	2025	2026	Average
Gross Profit Margin	8.96%	8.96%	8.96%	8.96%	8.96%	8.96%
Operating Profit Margin	5.68%	5.31%	5.65%	5.49%	5.41%	5.51%
Net Profit Margin	4.31%	4.15%	4.40%	4.28%	4.22%	4.27%
Return on Assets	11.54%	10.35%	10.91%	9.40%	8.58%	10.16%
Return on Equity	18.57%	14.36%	14.90%	12.35%	11.00%	14.24%

TABLE XI: PROFITABILITY RESULT IF INTEREST LOAN INCREASE

Profitability ratios	2022	2023	2024	2025	2026	Average
Gross profit margin	8.96%	8.96%	8.96%	8.96%	8.96%	8.96%
Operating profit margin	5.68%	5.31%	5.65%	5.49%	5.41%	5.51%
Net profit margin	4.27%	4.15%	4.40%	4.28%	4.22%	4.26%
Return on assets	11.43%	10.36%	10.92%	9.41%	8.58%	10.14%
Return on equity	18.43%	14.39%	14.92%	12.36%	11.01%	14.22%

TABLE XII: PROFITABILITY RESULT OF MAINTAINING CASH CONVERSION CYCLE

Profitability ratios	2022	2023	2024	2025	2026	Average
Gross profit margin	8.96%	8.96%	8.96%	8.96%	8.96%	8.96%
Operating profit margin	5.68%	5.31%	5.65%	5.49%	5.41%	5.51%
Net profit margin	4.43%	4.15%	4.40%	4.28%	4.22%	4.30%
Return on assets	15.48%	12.04%	12.68%	10.72%	9.68%	12.12%
Return on equity	18.98%	14.30%	14.85%	12.31%	10.97%	14.28%

Moreover, the difference between using the loan and maintaining working capital is slightly different as shown in Table XI.

c) Maintaining cash conversion cycle projection result

Last, the best implementation projection is maintaining the current capital shown in Table XII. This condition is the best solution because there is no interest expense for the company which will reduce the margin by 1.5%.

However, the deduction of operating margin will happen because the customer will demand to pay lower prices for the revenue.

Hence, if the based assumption of revenue, cost, and balance sheet assumption is not changing, the best solution is to maintain current working capital. This happened because it has the biggest return on equity that very crucial for shareholders and on the other hand, it will lower the risk of debt compared to loan projection.

d) Justification

The result of the analysis is mostly focusing on maintaining working capital management by improving the collection period and payment period to maintain the cash management that has the most impactful factors on the company's financial performance.

Moreover, the projection and the variable of assumption is focusing on revenue and cost because the company already had their calculation to predict its selling price based on freight condition, and again some of the calculation in this analysis is simplified and only focusing on freight price, export-import volume and exchange as the main factors because in actual condition, selling price and cost tend to be different due to several factors.

In addition, the assumption of each variable projection currently is only using the moving average for import-export volume and freight price, average growth per year for the exchange rate, and percentage of sales for cost because the writer's assumption intends to follow external analysis and financial ratio that resulting the current working capital management and its assessment.

VI. CONCLUSION

Currently, the company working capital management is only based on the needs of current payment or collection without any strategy to maintain the cash whether the condition is on high season or low season. The impact of seasonality on the company makes the company sometimes cannot achieve the maximum potential revenue. Therefore, by using working capital analysis based on external analysis and financial ratio, the improvement of working capital management will be appropriate for the current company`s financial condition and company strategy.

Moreover, by making simulations using the working capital analysis by improving working capital management, the management can prepare the working capital management needed to achieve the company strategy for the period.

Currently, based on this analysis, the best solution to improve working capital management is by maintaining the cash conversion cycle by decreasing the collection period.

Hence, based on the projection, the working capital management that should be improved is the cash-to-asset ratio must be rounding from 18% to 25% with the condition of a collection period of receivables by 30 days and a payment period of payables by 7 days to achieve optimum to achieve maximum revenue for the year. However, if the company suddenly are having some unpredicted event, the company should better take the loan to keep the maximum revenue to achieve all the projected from the customers.

VII. Recommendation

The recommendation for this company, if the company decided to use the tools used in this research, it is better to have analysis and more specific numbers for general assumption because now the company did not have the details of the cost and sales detail for each project. While in this analysis, most of the assumptions are the average of previous financial statements without considering the detail of each project. Furthermore, the company should make a more precise and projected calculation of the funding needs each month because in this tool the calculation is only based on account receivables, account payables, and profit and loss (net income) without concerning the unexpected events such as penalty and doubtful account of receivables that directly impact the company financial performance. On the other hand, the project tends to have various amounts of revenue with different calculations. So that further analysis for various projects within the firms is required.

Suggestions for further research are improvement of the data use that is required to be more accurate and can be traced directly to the revenue and cost assumption. Therefore, the potential error and mistake due to the inaccuracy of revenue and cost can be lowered. For financial forecasting, future research required is to create the forecasting fluctuation of each seasonality for the company that is not captured, because the cause of the fluctuation for each seasonality may change over the year due to the recent global condition. Hence, both companies and further research are required to analyze the sensitivity analysis that may change the scenario between loan and managing cash conversion cycle. This condition happened because each variable between the loan and conversion cycle, in this case, is the same while in the actual condition it is most likely to be different.

Appendix

TABLE XIII: Import and Export Volume

Year	Import Non-oil and gases	Export non-oil and gases	Total	Growth
2004	46,400	175,455	221,855	12.48%
2005	46,927	206,804	253,731	14.37%
2006	50,460	278,881	329,341	29.80%
2007	55,196	297,063	352,259	6.96%
2008	63,188	310,253	373,441	6.01%
2009	55,348	332,926	388,274	3.97%
2010	70,202	422,922	493,123	27.00%
2011	84,494	523,166	607,660	23.23%
2012	92,029	551,691	643,719	5.93%
2013	92,056	655,963	748,019	16.20%
2014	98,865	507,722	606,587	-18.91%
2015	98,784	463,863	562,647	-7.24%
2016	103,700	468,399	572,099	1.68%
2017	110,379	503,342	613,721	7.28%
2018	122,503	571,852	694,355	13.14%
2019	121,702	627,946	749,649	7.96%
2020	114,226	552,180	666,406	-11.10%
2021	135,633	594,778	730,411	9.60%
2022 (Data as of June)	133,722	565,844	699,566	-4.22%
Average	-	-	-	7.12%

Source from Central Bureau of Statistics Indonesia

TABLE XIV: China Freight Price Index

Year	Freight index
2004	1,174
2005	1,174
2006	1,072
2007	1,034
2008	1,155
2009	1,005
2010	1,123
2011	948
2012	1,146
2013	1,176
2014	1,077
2015	837
2016	952
2017	824
2018	910
2019	1,022
2020	1,658
2021	3,344
June 30, 2022	4443.6

Source from macromicro, Statista, Company Internal Data.

TABLE XV: USD IDR Exchange Rate

Date	Selling rate	Buying Rate	Middle rate	Growth
31/12/2003	8,507	8,423	8,465	-5.31%
31/12/2004	9,336	9,244	9,290	9.75%
30/12/2005	9,879	9,781	9,830	5.81%
29/12/2006	9,065	8,975	9,020	-8.24%
28/12/2007	9,466	9,372	9,419	4.42%
31/12/2008	11,005	10,895	10,950	16.25%
31/12/2009	9,447	9,353	9,400	-14.16%
31/12/2010	9,036	8,946	8,991	-4.35%
30/12/2011	9,113	9,023	9,068	0.86%
28/12/2012	9,718	9,622	9,670	6.64%
31/12/2013	12,250	12,128	12,189	26.05%
31/12/2014	12,502	12,378	12,440	2.06%
31/12/2015	13,864	13,726	13,795	10.89%
31/12/2016	13,503	13,369	13,436	-2.60%
30/12/2017	13,616	13,480	13,548	0.83%
31/12/2018	14,553	14,409	14,481	6.89%
31/12/2019	13,971	13,832	13,901	-4.01%
31/12/2020	14,176	14,034	14,105	1.47%
31/12/2021	14,340	14,198	14,269	1.16%
30/06/2022	14,922	14,774	14,848	4.06%
Average	-	-	-	2.12%

Source from Indonesia Central Bank (Bank Indonesia)

TABLE XVI: INCOME STATEMENT (IN 000 RUPIAH)

Year	31/12/2017	31/12/2018	31/12/2019	31/12/2020	31/12/2021
Net Sales	27.471.837	28.972.437	27.722.148	28.545.571	60.626.522
Cost of Sales	25.121.154	26.477.127	25.092.986	25.843.083	55.821.811
Gross profit	2.350.683	2.495.310	2.629.162	2.702.488	4.804.711
Labor Expense	997.208	934.550	1.011.315	1.074.436	1.091.488
GA Expense	401.556	515.479	777.073	422.766	-372.329
Depreciation	180.011	161.054	241.264	147.800	56.205
Operating profit	771.908	884.227	599.510	1.057.486	4.029.347
Tax Cost	192.808	313.933	451.681	307.672	1.341.142
Net income	579.100	570.294	147.829	749.814	2.688.205

Sources from company internal data

TABLE XVII: BALANCE SHEET (IN 000 RUPIAH)

Year	31/12/2017	31/12/2018	31/12/2019	31/12/2020	31/12/2021
Asset					
Cash	1.542.030	1.602.581	2.097.285	456.735	1.145.552
Receivables	4.109.468	3.988.151	4.949.226	6.445.365	10.173.134
Other current assets	516.057	356.742	90.900	249.086	145.834
Prepaid Tax	358.945	259.881	-	-	-
Current Asset	6.526.500	6.207.355	7.137.411	7.151.186	11.464.520
Net fix asset	934.530	773.476	532.212	236.041	179.489
Investment	3.025.496	3.025.496	3.011.433	3.156.099	3.107.099
Non-current asset	3.960.026	3.798.972	3.543.645	3.392.140	3.286.588
Total Asset	10.486.526	10.006.327	10.681.056	10.543.326	14.751.108
Liabilities and Equity					
Account payable	3.201.569	2.004.579	2.523.950	1.721.958	2.235.174
Other current liabilities	370.372	482.786	523.688	231.718	412.445
Tax payable	-	33.373	-	44.173	869.807
Current liabilities	3.571.941	2.520.738	3.047.638	1.997.849	3.517.426
Long term liabilities	1.016.290	1.017.000	1.017.000	1.179.245	1.179.245
Capital	609.240	609.240	609.240	609.240	609.240
RE	4.709.955	5.289.055	5.859.349	6.007.178	6.756.992
Net income	579.100	570.294	147.829	749.814	2.688.205
Equity	5.898.295	6.468.589	6.616.418	7.366.232	10.054.437
Total Equity liab	10.486.526	10.006.327	10.681.056	10.543.326	14.751.108

Sources from company internal data

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