

## Activity Ratio Analysis to Working Capital with Liquidity as a moderating variable

Huang Binbin, Wiliam

*sekip, medan Country: Indonesia*

**ABSTRACT:** This research was conducted at the company PT. Perkebunan Nusantara III Medan, the purpose of this study is to analyze the ratio of activity to working capital with liquidity as a moderating variable at PT. Nusantara III Plantation Medan 2015-2017 period. The method in this study is a quantitative method using financial statements and the sample of this research is 36 samples, namely from the 2015-2017 period and taken with documentation techniques. The independent variables in this study for the activity ratio are measured by Receivable Turnover and Inventory Turnover, the liquidity variable is measured by the Current Ratio and Working Capital is measured by the Debt to Equity Ratio. This study uses secondary data and research hypotheses using Partial Least Square analysis using SmartPLS software with the result that only Inventory Turnover has a positive effect on Working Capital while Receivable Turnover has no effect on Working Capital. Liquidity also cannot be a moderating variable of the effect of Receivable Turnover and Inventory Turnover on Working Capital.

**Keywords:** *Current Ratio, Receivable Turnover, Inventory Turnover, Debt to Equity Ratio*

### I. INTRODUCTION

PT. Perkebunan Nusantara III (Persero) originated from a plantation company owned by a foreign nation which was nationalized by the government of the republic of Indonesia in 1997 to become a state plantation company (PPN). So in 1968 it was reorganized into several units of state plantation companies (PNP), and in 1974 it was decided to change the form to PT plantations (Persero). In 1996 through government regulation No. 8 of 1996 dated February 14, 1996, the three companies were merged and named PT Plantation Nusantara III (Persero) domiciled in Medan, North Sumatra. In accordance with the deed of establishment of the company, the purpose and objective is to participate in implementing and supporting government policies and programs in the field of economy and national development in general, especially in the plantation sub-sector in the broadest sense with the aim of generating profits.

If the profit earned is always high and has increased, then the company has very good prospects. The profit achieved by the company can be calculated by subtracting the income achieved in a certain period with all costs incurred in that accounting period. The costs that occur in one accounting period include direct costs related to the initial costs of production to the sales process which are called the cost of goods sold. The financial statements of PT. Perkebunan Nusantara III (Persero), Current assets in 2015 decreased by 7% while net income increased by 62%. Receivables in 2016 increased by 13% while net income increased by 58%. Sales in 2017 it decreased by 34% while net profit increased by 75%. Inventories in 2015 decreased by 0.5% while net income increased by 62%.

Accounts receivable turnover is one of the factors that determine the size of the profits to be obtained by the company, some of the advantages that will be obtained when processing receivables properly, among others, are the possibility of the company to be able to operate properly. Sales on credit will be able to increase sales turnover, but have the risk of delaying cash receipts, thus requiring a larger investment. In addition, it can also result in losses due to arrears or even uncollectibles. The longer the receivables are in arrears, the greater the investment required. Cash turnover measures the level of adequacy of the company's working capital needed to pay bills, finance sales, measure the level of cash availability to pay bills (debts) and costs related to sales. Sales also affect the profits earned by each company. The failure or success of the company in processing working capital greatly affects the company's profit. The success of the company in processing working capital can be seen, among others, based on the increase in sales, which shows that the company is increasingly effective in using its working capital.

Inventory turnover is also one of the factors that affect the size of the company's profit. Investment in inventory that is too large compared to the need will increase storage and warehouse maintenance costs, as well as the possibility of losses if the inventory is damaged and the quality decreases which will reduce company profits. If the inventory turnover is small, then the inventory accumulates in the warehouse. Therefore, it is necessary to have a high inventory turnover rate to reduce costs incurred due to excess inventory. In simple terms, the progress of a company can be seen from the development of the level of profit achieved from one period to the next .

## II. LITERATURE REVIEW

Accounts receivable turnover ratio is a ratio that describes the company's activities to collect receivables and shorten the cycle of credit sales until cash is received (Sumarsan, 2010). Accounts receivable turnover is a ratio used to measure how long it takes to collect receivables for a period or how many times the funds invested in these receivables rotate in one period (Kasmir, 2014). Accounts receivable turnover is a ratio used to measure how many times the funds embedded in trade receivables will rotate in one period or how long the average receivable collection takes (Hery, 2016). used to measure how long it takes to collect receivables during a period or how many times the funds invested in these receivables rotate in one period.

Inventory turnover is the ratio used to measure the number of times the funds invested in this inventory rotate in a period (Kasmir, 2016). The inventory turnover ratio measures the efficiency of inventory management of merchandise (Sawir, 2015). This ratio is a fairly popular indication for assessing operational efficiency, which shows how well management controls the existing capital in inventory. Inventory turnover is a ratio between the total cost of goods sold and the average value of inventories owned by the company (Munawir, 2014). Inventory used to rotate the inventory contained in the company's warehouse.

Liquidity shows the ability of a company to meet its financial obligations that must be fulfilled immediately or when billed (Raharjaputra, 2015). Liquidity is the company's ability to fulfill obligations that must be fulfilled immediately (Sutrisno, 2014). Liquidity is showing the ability of a company to meet its financial obligations that must be met immediately or the company's ability to meet financial obligations when billed (Munawir, 2014). smoothly he has.

Working capital is a combination or balance between debt and own capital (preferred stock and common stock) that the company uses to plan to get capital (Ambarwati, 2010). Working Capital is an illustration of the form of the company's financial proportions, namely between capital originating from long-term liabilities and shareholder's equity which is a source of financing for a company (Fahmi, 2012), Working Capital is the proportion in determining fulfillment the company's spending needs, where the funds obtained use a combination or source guide that comes from long-term funds consisting of two main sources, namely those from inside and outside the company (Rodoni and Ali, 2014). Based on the previous theory, it can be concluded that Working capital is a combination of debt with own capital (preferred shares and ordinary shares) originating from long-term funds consisting of two sources, namely from within and outside the company.

## III. METHOD

The research approach used in this study is a quantitative approach. Quantitative research is a research method based on the philosophy of positivism, used to examine certain populations or samples, sampling techniques are generally carried out randomly, data collection uses research instruments, data analysis is quantitative or statistical with the aim of testing predetermined hypotheses ( Sugiyono, 2012). The type of research used is descriptive quantitative research. Quantitative descriptive research is a research design that is structured in order to provide a systematic description of scientific information originating from the subject or object of research (Sanusi, 2014). This research uses Partial Least Square (PLS) data analysis method and is processed using SmartPLS 3.0 software. Partial Least Square (PLS) is a variant-based structural equation analysis (SEM) that can simultaneously test the measurement model as well as test the structural model (Jogiyanto and Abdillah, 2015). Partial Least Square (PLS) analysis is a multivariate statistical technique that performs comparisons between the dependent variable and the independent variable.

## IV. RESULTS AND DISCUSSION

### Descriptive statistics

Descriptive statistics will provide an overview of the minimum value, maximum value, average value (mean), median value and standard deviation or standard deviation of the variables used in this study. The general statistical data display of the variables used in this study can be seen in Table 1.

**Table 1. Decriptive Statistic**

Delimiter:	<a href="#">Semicolon</a>	Encoding:	UTF-8	<input type="button" value="Re-Analyze"/>	<input type="button" value="Open"/>
Value Quote Character:	<a href="#">None</a>	Sample size:	36		
Number Format:	<a href="#">US (e.g. 1,000.23)</a>	Indicators:	4		
Missing Value Marker:	<a href="#">None</a>	Missing Values:	0		

Indicators:	Indicator Correlations	Raw File							<input type="button" value="Copy to"/>
	No.	Missing	Mean	Median	Min	Max	Standard Devia...	Excess Kurtosis	Skewness
Z	1	0	1,133,311,777....	1,381,191,675....	72,517,911.000	1,923,599,859....	539,753,364.183	-0.689	-0.515
X1	2	0	2,443,137,800....	1,368,613,879....	90,790,249.000	8,374,313,191....	2,399,602,579....	0.519	1.319
X2	3	0	2,763,005,651....	1,951,969,434....	15,162,976.000	9,777,587,591....	2,034,893,602....	4.001	1.870
Y	4	0	563,356,735.528	631,499,609.000	36,903,189.000	957,167,012.000	246,458,035.352	-0.676	-0.412

Based on the results of the descriptive statistical calculations in Table 1. above, it can be explained as follows:

1. The receivable turnover variable has 36 samples, with a minimum value of 90,790,249 and a maximum value of 8,374,313,191, while the average value (mean) is 2,443,137,800 and the median value is 1,368,613,879 and the standard deviation value (standard deviation) is 2,399,602,579..
2. The inventory turnover variable has 36 samples, with a minimum value of 0 and a maximum value of 42, while the average value (mean) is 12,036 and the median value is 11 and the standard deviation value (standard deviation) is 8,484.
3. The variable Current ratio has a sample size of 110, with a minimum value of 4 and a maximum value of 36, while the average value (mean) is 38.736 and the median value is 39 and the standard deviation value (standard deviation) is 17.653.
4. The working capital variable has 36 samples, with a minimum value of 8 and a maximum value of 246, while the average value (mean) is 84,245 and the median value is 64 and the standard deviation value (standard deviation) is 64,086.

**Model Evaluation**

The evaluation of the model using partial least squares analysis consists of two evaluations, namely the evaluation of the measurement model (outer model) and evaluation of the structural model (inner model). Analysis of the observed variables using the SmartPLS program does not need to evaluate the measurement model (outer model) to test the validity and reliability of the data, so that in this study no evaluation of the measurement model (outer model) will be carried out and will be directly evaluated for the structural model (inner model).

**Evaluation of the Structural Model (Inner Model)**

Structural model evaluation was conducted to predict the relationship between variables in the study. This evaluation will explain how much the ability of the independent variable in explaining the dependent variable or commonly known as R square. The results of the evaluation of the structural model (inner model) can be seen in Table 2.

**Table 2. Inner Model**

<b>R Square</b>		
<input type="button" value="Matrix"/>	<input checked="" type="button" value="R Square"/>	<input type="button" value="R Square Adjusted"/>
	R Square	R Square Adjus...
Debt to equity ...	0.666	0.610

Based on Table 2. above, it shows that the value of R square is 0.666 or 66.6%. This value shows that the ability of the independent variables, namely receivable turnover and inventory turnover, the interaction of receivable

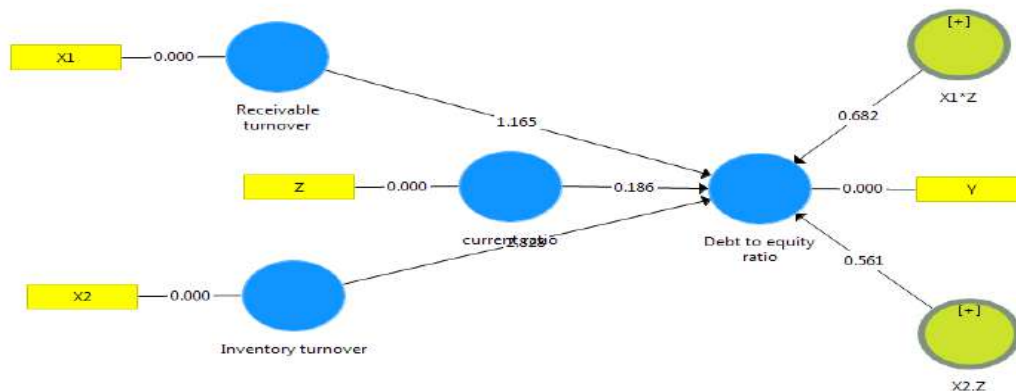
turnover with the current ratio and the interaction of inventory turnover with the current ratio in explaining the dependent variable, namely Working Capital, is 66.6%. While the remaining 33.4% is explained by other variables not examined in this study.

**Hypothesis testing**

In this study, the decision-making criteria for hypothesis testing follow the following rules:

- If Tstatistic > 1.96 and significance level <= 5%, then the hypothesis is accepted.
- If Tstatistic < 1.96 and significance level >= 5% then the hypothesis is rejected.

The results of the research hypothesis test can be seen in Figure 1 and Table 3. below.



**Figure 1. Path Analysis**

**Table 3. Path Coefficients**

Path Coefficients						
	Original Sampl...	Sample Mean (...	Standard Devia...	T Statistics ( O...	P Values	
Inventory turnover -> Debt to equity ratio	0.733	0.737	0.259	2.828	0.005	
Receivable turnover -> Debt to equity ratio	-0.162	-0.140	0.139	1.165	0.245	
X1*Z -> Debt to equity ratio	-0.092	-0.068	0.135	0.682	0.496	
X2.Z -> Debt to equity ratio	-0.109	-0.037	0.195	0.561	0.575	
current ratio -> Debt to equity ratio	-0.021	-0.014	0.113	0.186	0.853	

Based on Table 3. above, the analysis equation in this study is as follows:

$$\text{Working Capital} = -0.162 \text{ ReceivableTurnover} + 0.733 \text{ InventoryTurnover} - 0.021\text{CurrentRatio} - 0.092 \text{ ReceivableTurnover} * \text{DebttoequityRatio} - 0.109 \text{ InventoryTurnover} * \text{DebttoequityRatio}$$

Based on the results of testing the hypotheses and equations above, it can be explained as follows:

**1. Effect of Receivable Turnover on Working Capital**

From the results of hypothesis testing, the T statistic value of 1.165 is smaller than 1.96 (1.165 < 1.96) and the P-value of 0.245 is greater than 0.05 (0.245 > 0.05). The value of the original sample is negative, which is 0.162 which indicates that the direction of the relationship between Receivable Turnover and Working Capital is negative. The original sample value of 0.162 means that if the Receivable Turnover increases by 1 unit, then the Working Capital will decrease by 0.162. Based on the results of testing the hypothesis, H1 is rejected, which means that Receivable Turnover has no effect on Working Capital at PT Perkebunan Nusantara III (Persero) for the 2015-2017 period.

**2. Influence of Inventory Turnover on Working Capital**

From the results of hypothesis testing, the T statistic value of 2.828 is greater than 1.96 (2.828 > 1.96) and the P-value of 0.005 is smaller than 0.05 (0.005 > 0.05). The original sample value is positive, which is 0.733 which indicates that the direction of the relationship between Inventory Turnover and Working Capital is positive. The original sample value of 0.733 means that if Inventory Turnover increases by 1 unit, then Working

Capital will increase by 0.733. Based on the results of testing the hypothesis, H2 is accepted, which means that Inventory Turnover has an effect on Working Capital at PT. Perkebunan Nusantara III (Persero) for the 2015-2017 period.

### **3. Effect of Receivable Turnover on Working Capital with Liquidity as Moderating Variable**

From the results of hypothesis testing, the T statistic value of 0.682 is smaller than 1.96 ( $0.682 < 1.96$ ) and the P-value of 0.496 is greater than 0.05 ( $0.496 > 0.05$ ). The original sample value is negative, which is 0.092 which indicates that liquidity weakens the effect of Receivable Turnover on Working Capital. The original sample value of 0.092 means that if Liquidity has increased by 1 unit, it is able to weaken the effect of Receivable Turnover on Working Capital by 0.092. Based on the results of testing the hypothesis, H3 is rejected, which means that the effect of Receivable Turnover on Working Capital is not moderated by liquidity at PT Perkebunan Nusantara III (Persero) for the 2015-2017 period.

The effect of Liquidity on Working Capital has a T statistic of 0.186 smaller than 1.96 ( $0.186 > 1.96$ ) and a P value of 0.853 greater than 0.05 ( $0.853 > 0.05$ ), thus indicating that Liquidity has no effect to Working Capital. These results indicate that the type of moderation that occurs is homologizer moderation because the interaction effect of Liquidity as a moderating variable with receivable Turnover on Working Capital and the effect of Liquidity on Working Capital are both insignificant.

### **4. Influence of Inventory Turnover on Working Capital with Liquidity as Moderating Variable**

From the results of hypothesis testing, the T statistic value of 0.561 is smaller than 1.96 ( $0.561 < 1.96$ ) and the P-value of 0.575 is greater than 0.05 ( $0.575 > 0.05$ ). The original sample value is negative at 0.109 which indicates that liquidity weakens the effect of Inventory Turnover on Working Capital. The original sample value of -0.109 means that if Liquidity has increased by 1 unit, it is able to weaken the influence of Inventory Turnover on Working Capital by 0.109. Based on the results of testing the hypothesis, H4 is rejected, which means that the effect of Inventory Turnover on Working Capital is not moderated by Liquidity in the company. P value of 0.853 is greater than 0.05 ( $0.853 > 0.05$ ), thus indicating that liquidity has no effect on working capital. These results indicate that the type of moderation that occurs is homologizer moderation because the effect of the interaction of Liquidity as a moderating variable with receivable Turnover on Working Capital and the effect of Liquidity on Working Capital are both insignificant.

The effect of Liquidity on Working Capital has a T statistic of 0.186 smaller than 1.96 ( $0.186 > 1.96$ ) and a P value of 0.853 greater than 0.05 ( $0.853 > 0.05$ ), thus indicating that Liquidity has no effect to Working Capital. These results indicate that the type of moderation that occurs is homologizer moderation because the effect of the interaction of Liquidity as a moderating variable with Inventory Turnover on Working Capital and the effect of Liquidity on Working Capital are both insignificant.

## **V. DISCUSSION OF RESEARCH RESULTS**

### **Effect of Receivable Turnover on Working Capital**

The results of this study indicate that Receivable Turnover has no partial and significant effect on Working Capital at PT. Perkebunan Nusantara III (Persero) for the 2015-2017 period. Receivable Turnover partially affects Working Capital (Setiawan, 2015) this shows that receivables are not an asset that can affect working capital in the company with several considerations on the company's receivables can be repaid by debtors before the repayment period so that receivables can be categorized as current.

### **Effect of Inventory Turnover on Working Capital**

The results of this study indicate that Inventory Turnover has a partial and significant effect on Working Capital at PT. Perkebunan Nusantara III (Persero) for the 2015-2017 period. Inventory turnover has a positive and significant effect on working capital at PT. Nusabarta III Medan Plantation for the 2015-2017 period (Qurotul Ainayah, 2016). Inventories in this company are categorized into inventories that must be sold immediately, this can be seen from the value of inventory turnover in the company which is quite high considering that the products produced by companies engaged in agriculture are very much needed by the community, such as palm oil, sugar cane and tobacco.

### **Effect of Receivable Turnover on Working Capital with Liquidity as a moderating variable**

The results of this study indicate that the effect of Receivable Turnover on Working Capital is not moderated by Liquidity at PT. Perkebunan Nusantara III (Persero) Period 2015-2017. Liquidity to increase receivable turnover will also affect the high working capital needed, but it is not impossible that it can lead to an increase in working capital which is even higher when there is an attitude of carelessness in assessing the needs of an efficient and effective company (Fahmi, 2014). The high rate of receivable turnover which is part of liquidity itself cannot increase the effect of receivable turnover on working capital. This shows that receivables and current assets do not contribute to the company's capital, because receivables must first become money before they can be used in company operations.

### Effect of Inventory Turnover on Working Capital with Liquidity as a moderating variable

A good company condition is where the ownership of inventory turnover is always in a balanced condition, meaning that if the inventory turnover is small, there will be a buildup of goods in the warehouse (Fahmi, 2015). On the other hand, if the inventory turnover is high, it will cause the inventory in the warehouse to be small so that if at any time there is a loss of materials/goods in events that are beyond calculation, then this can cause disruption of the company's production activities and further affect the sales and profit side.

## VI. CONCLUSION

Based on the results of the study, some conclusions can be drawn as follows:

1. Receivable Turnover has no effect on Working Capital at PT. Perkebunan Nusantara III (Persero) for the 2015-2017 period.
2. Inventory Turnover has an effect on Working Capital at PT. Perkebunan Nusantara III (Persero) for the 2015-2017 period.
3. The effect of Receivable Turnover on Working Capital is not moderated by Liquidity at PT. Perkebunan Nusantara III (Persero) for the 2015-2017 period.
4. The effect of Inventory Turnover on Working Capital is not moderated by Liquidity at PT. Perkebunan Nusantara III (Persero) for the 2015-2017 period.

## REFERENCES

- [1] Brigham, Eugene and Houston, Joel F. 2010. Fundamentals of Financial Management. Edition 11, Jakarta: Salemba Empat Publishers.
- [2] Bramasto, Ari. Analysis of Fixed Asset Turnover and Receivable Turnover Relation to Return On Assets at PT. Pos Indonesia (Persero) Bandung. Langlangbuana University. Volume : 9.
- [3] Fahmi, Imam. 2013. Application of Multivariate Analysis with IBM SPSS Program. Fifth Printing, Bandung: Alfabeta Publishers.
- [4] Ghazali, Irham. 2016. Introduction to Financial Management. Eighth Printing, Semarang: Dipenogoro University Publishing Agency.
- [5] Hanafi, Mamduh and Halim, Abdul., 2012. Analysis of Financial Statements. Fourth Edition, Yogyakarta: UPP STIM YKPN
- [6] Harahap, Sofyan Sayfri. 2011 Accounting Theory. Revised Edition. Jakarta: PT Raja Grafindo Persada.
- [7] Hery. 2015. Financial Statement Analysis. First Printing, Yogyakarta : CAPS.
- [8] Hery. 2014. Financial Statement Analysis. Second Printing, Jakarta : PT Bumi Aksara.
- [9] Horne, James C. Van and Wachowicz, John M. 2014. Principles of Financial Management. Edition 13. Jakarta: Salemba Empat.
- [10] Jumingan. 2014. Analysis of Financial Statements. Fifth Printing, Jakarta: Earth Literacy.
- [11] Joni, Eka. 2014. The Influence of Cash Turnover, Accounts Receivable Turnover, and Inventory Turnover on Profitability of Manufacturing Companies. State University of Surabaya. Vol : 2.
- [12] Kasmir. 2012 Financial Statement Analysis. Fifth Print, Jakarta: PT Rajagrafindo Persada.
- [13] Kasmir. 2010 Introduction to Financial Management. Second Print, Jakarta: Kencana Prenada media group.
- [14] Linda, Lauw. 2017. The Influence of Cash Turnover, Receivable Turnover, and Inventory Turnover on Return On Assets of Food and Beverage Sector Companies Listed on the Indonesia Stock Exchange for the Period 2013-2015. Maranatha Christian University. Volume : 9.
- [15] Munawir. 2014. Analysis of Financial Statements. Ed.4, Yogyakarta: Liberty Yogyakarta,
- [16] Marbun, Mahardika. 2016. Effect of Current Ratio and Debt To Equity Ratio on Return On Assets. Ed 10, Universitas Pembangunan Jaya (Widyakala Volume).
- [17] Prastowo, Dwi. .2015. Financial Statement Analysis. Third Printing, Yogyakarta: YKPN,
- [18] Riyanto, Bambang. 2009. Corporate Learning Fundamentals .Yogyakarta: BPFE,
- [19] Syamsuddin, Lukman. 2009. Corporate Financial Management. Ed 10, Jakarta: PT Rajagrafindo Persada,
- [20] Sugiyono, Arief, & Edi Untung. 2016. Basic Practical Guide to Financial Statement Analysis. Jakarta: Grasindo,
- [21] Sugiyono. 2016. Business Research Methods. Bandung: Alfabeta,
- [22] Subramayam & John J. Wild. 2011. Analysis of Financial Statements. Jakarta: Salemba Empat,