

## THE INFLUENCE OF RUPIAH, INCREASE OF WAGES AND ELECTRICITY ON WORKING CAPITAL AND PROFITABILITY

Maman Sumantri<sup>\*)</sup>, Bambang Juanda<sup>\*\*)</sup>, and Dwi Rachmina<sup>\*\*\*)</sup>

<sup>\*)</sup> PT Coats Rejo Indonesia

Jl. Raya Tajur No.24, Bogor, Jawa Barat 16720

<sup>\*\*)</sup> Department of Economic, Faculty of Economics and Management, Bogor Agricultural University  
Jl. Kamper, Wing 4 Level 5, Campus of IPB Darmaga Bogor 16680

<sup>\*\*\*)</sup> Department of Agribusiness, Faculty of Economics and Management, Bogor Agricultural University  
Jl. Kamper, Wing 4 Level 5, Campus of IPB Darmaga Bogor 16680

### ABSTRACT

*The purpose of the research was to find out the effects of rupiah exchange per US dollar, and increase of wages and electricity on the ratio of net working capital and profitability. Descriptive methodology using case-study approach was used in PT XYZ as a producer of sewing thread. Secondary data were collected from January 2009 to June 2014. Monthly data of financial ratios consisting of liquidity ratio, activity ratio, and profitability ratio was analyzed with multiple regressions using Minitab 16. The results showed that rupiah impairment per US dollar could lower the ratio of net working capital and profitability. The increase of wages and electricity would increase the ratio of net working capital, but fortunately it would also increase profitability due to the increase of employees' productivity and efficient use of electricity. All the free variables insignificantly affect net working capital and profitability. The study also showed that the impairment of rupiah exchange and working capital variables that are measured by receivables age, inventory age, and loan age could influence return on asset. The impairment of rupiah exchange rate, receivables age, and inventory age had a negative impact on the return on asset, while loan age had a positive impact on the return on asset. The impairment of rupiah exchange rate, receivables age, and inventory age had a significant influence on the return on asset so that the company's management must focus more on anticipating rupiah exchange fluctuation, and management of accounts receivables and inventory.*

*Keywords: net working capital, liquidity ratio, profitability ratio, multiple regression analyses*

### ABSTRAK

*Tujuan dari penelitian adalah untuk melihat dampak dari kurs Rupiah per USD, kenaikan biaya upah dan listrik terhadap rasio modal kerja bersih dan profitabilitas. Metode deskriptif dengan pendekatan studi kasus dilakukan pada perusahaan PT XYZ sebagai produsen benang jahit. Data sekunder dikumpulkan dari bulan Januari 2009 sampai dengan Juni 2014 dan data bulanan rasio keuangan yang terdiri dari rasio likuiditas, rasio aktivitas, dan rasio profitabilitas dianalisis dengan regresi berganda menggunakan Minitab 16. Hasil penelitian menunjukkan bahwa pelemahan Rupiah terhadap USD akan menurunkan rasio modal kerja bersih dan profitabilitas. Kenaikan biaya gaji dan listrik akan meningkatkan rasio modal kerja bersih, namun secara menguntungkan meningkatkan profitabilitas akibat dari peningkatan produktivitas karyawan dan efisiensi pemakaian listrik. Semua variabel bebas tersebut secara tidak signifikan mempengaruhi modal kerja bersih dan profitabilitas. Studi juga menunjukkan bahwa pelemahan kurs Rupiah dan variabel modal kerja yang diukur dengan umur piutang, umur persediaan, dan umur hutang dapat mempengaruhi return on asset. Pelemahan nilai tukar Rupiah, umur piutang dan persediaan mempunyai pengaruh negatif terhadap return on asset, dan umur hutang mempunyai pengaruh positif terhadap return on asset. Pelemahan nilai tukar Rupiah, umur piutang usaha dan persediaan mempunyai pengaruh yang signifikan terhadap return on asset sehingga manajemen perusahaan harus lebih fokus dalam mengantisipasi fluktuasi kurs Rupiah, dan manajemen piutang dan persediaan.*

*Kata kunci: modal kerja bersih, rasio keuangan, rasio likuiditas, rasio profitabilitas, analisis regresi berganda*

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<sup>1</sup> Corresponding author:  
Email: [maman.sumantri@coats.com](mailto:maman.sumantri@coats.com)

## INTRODUCTION

Management of working capital is the most important activity in managing a company. A good working capital management can determine the sustainability of the company's operation (Raheman, 2012). A good working capital management can increase the company's profitability (Baveld, 2012).

A sufficient amount of working capital can ensure the company's ability to meet day-to-day expenses, starting with buying the raw materials until the realization of cash income. The time period needed to convert the raw materials into ready materials, and to sell them until cash is obtained is known as operational cycle or cash cycle. An excessive working capital is not good for the company because it shows that there are some unproductive funds embedded in the current assets. On the other hand, working capital deficit will show the company's liquidity problem. Whether the company's financial condition is healthy or not depends on the working capital effectiveness (Pham 2013; Rehn 2012).

The final objective of the company is to increase the shareholders' assets by increasing the company's profit. However, increase of profit without paying attention to the company's liquidity will endanger the company itself. Achievement of the highest sales, when it is not accompanied by a good receivable management, will make the company overtrading. The company will face conditions where in a certain period of time it cannot make billing because of a breakdown in the payments from the customers so that it cannot pay off their short-term liabilities, and thus it will disrupt the company's activities. Therefore, it is important for the company to accelerate conversion cash cycle in order to improve cash holding (Zhang, 2011). The terms 'Cash is the king' is a central element in every company's operational cycle. (Finau, 2011).

Miswanto (2012) states that in managing working capital there are two key elements in determining the optimal current asset level, namely liquidity matter and trade-off between profitability and risk. To determine the amount of optimal current assets is to look for the balance between the adequate liquidity the company wants and the profit the company expects.

In preparing the budget for working capital and the target for profit, the company's management also considers macro economic factors, such as inflation rate and rupiah exchange rate towards US dollar. The inflation rate is used to plan production cost, sales cost and administration fees. Rupiah exchange towards US dollar will be used to convert the revenue, the cost and the scale.

The increase of minimum wages and electricity rates carried out by the government is a factor that can contribute to inflation. Due to the increase of production cost, the company will adjust the prices by increasing the sales price. From demand point of view, the increase of sales price will lower demand, which later on will affect the company's production level.

Rupiah exchange fluctuation towards US dollar also affects business very much because the company makes a transaction using rupiah and dollar currencies, whereas the financial report uses US dollar currency. Fluctuation of rupiah exchange towards US dollar can hardly be avoided, and it can cause fluctuation of net working capital. However, by anticipation and a good financial management, the risk can be minimized. Mehtab (2013) says that the influence of exchange fluctuation very much affects the company's profitability level.

The objectives of the research are as follows:

1. To analyze the influence of rupiah exchange per US dollar, increase of wages and electricity on the company's net working capital and profitability.
2. To analyze the influence of rupiah exchange per US dollar and the working capital component such as receivables age, inventory age and loan age on the return on asset.
3. From the analyses of the factors, there comes an input about how to optimize working capital so that the company's profitability can increase.

PT XYZ is a company that produces sewing thread as raw materials for garment and shoe companies. The scope of the research includes the influence of rupiah exchange, increase of wages and electricity on the ratio of net working capital and business profit margin. The influence of fluctuation of rupiah exchange and working capital components, namely receivables age, inventory age and loan age will be tested against the return on asset.

## METHODS

The research was carried out using a descriptive method and a case-study approach. The analysis of financial ratios includes liquidity ratios, namely net working capital to sales, activity ratio and profitability ratio using secondary data from January 2009 to June 2014. Monthly data was analyzed with multiple regression equation using Minitab 16.

The research would give us a picture of how rupiah exchange per US dollar, increase of wages and electricity could influence cost, income and net working capital of the company, and could give input to the company in dealing with optimal working capital management so that it could improve profitability. Figure 1 is the frame of the research conceptual thought.

### Regression Model

Multiple regression model was made with the assumption that the dependent variable (response) Y is a linear function of several independent variables  $X_1, X_2, \dots, X_k$ , and the rest component e (error) (Juanda, 2009). Model 1 and model 2 were used in this research to test the influence of the independent variables i.e. rupiah exchange fluctuation, electricity cost, raw materials cost, maklon service cost, local sales price, export sales price, local sales volume, export sales volume, previous net working capital and previous

business profit margin on the net working capital and business profit margin. Model 3 was used in this research to test the influence of rupiah exchange fluctuation per US dollar, receivables age, inventory age and loan age, and the previous ROA on the current ROA.

Model 1

$$Y_t = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}Y_{t-1} + e$$

in which:

- Y = Ratio of net working capital to sales (%)
- a = Constanta
- $X_1$  = Rupiah exchange per US dollar (Rp)
- $X_2$  = Wage per capita per month (thousand Rp)
- $X_3$  = Electricity cost per Kwh (Rp)
- $X_4$  = Average of raw materials per Kg (\$US)
- $X_5$  = Average of maklon service cost per Kg (\$US)
- $X_6$  = Average of local sales price per Kg (\$US)
- $X_7$  = Average of export sales price per Kg (\$US)
- $X_8$  = Local sales volume growth from the previous preiod (%)
- $X_9$  = Export sales volume growth from the previous period (%)
- $Y_{t-1}$  = Net working capital ratio to previous sale (%)

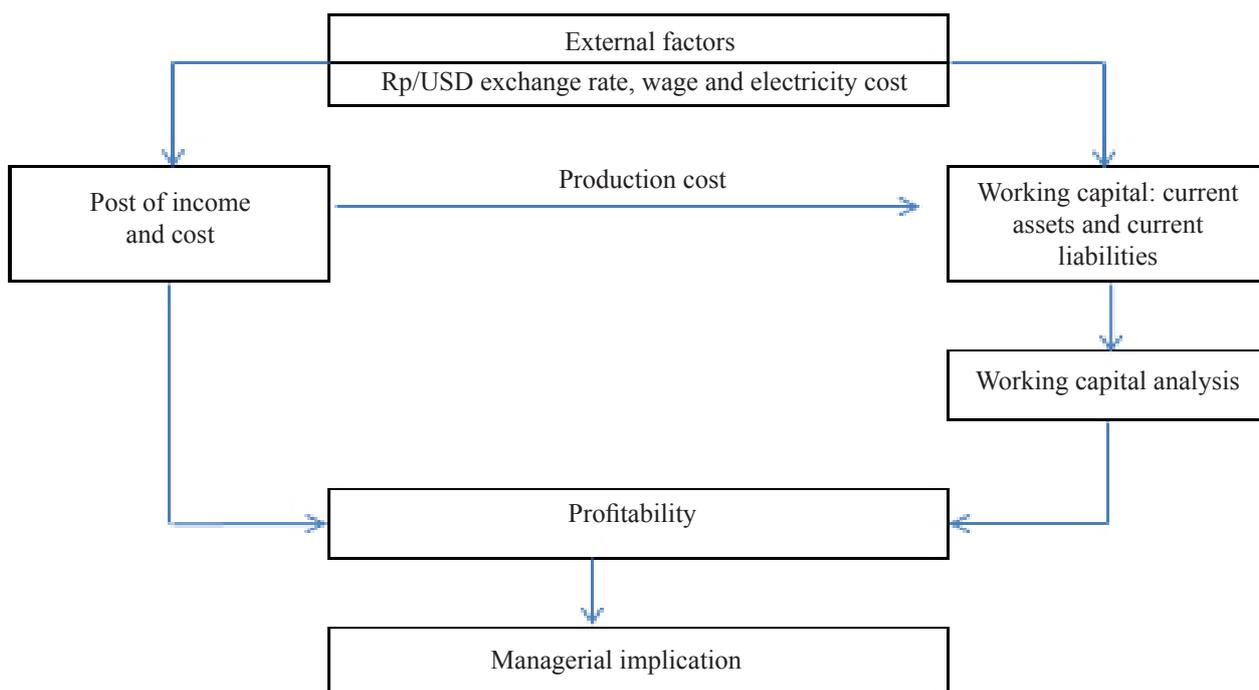


Figure 1. Research framework

### Model 2

$$Y_t = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}Y_{t-1} + e$$

in which:

- Y = Current business profit margin (%)  
a = Constanta  
X<sub>1</sub> = Rupiah exchange per US dollar (Rp)  
X<sub>2</sub> = Wage per capita per month (thousand Rp)  
X<sub>3</sub> = Electricity cost per Kwh (Rp)  
X<sub>4</sub> = Average of raw material price per Kg (\$US)  
X<sub>5</sub> = Average of maklon service cost per Kg (\$US)  
X<sub>6</sub> = Average fluctuation of local sales price per Kg from previous period (%)  
X<sub>7</sub> = Average fluctuation of export sales price per Kg from previous period (%)  
X<sub>8</sub> = Local sales volume growth from previous period (%)  
X<sub>9</sub> = Export sales volume growth from previous period (%)  
X<sub>10</sub> = Ratio of net working capital to previous period (%)  
Y<sub>t-1</sub> = Business profit margin of previous period (%)

### Model 3

$$Y_t = a + b_1X_1 + b_2X_{11} + b_3X_{12} + b_4X_{13} + b_5Y_{t-1} + e$$

in which:

- Y = ROA is business profit ratio to total asset (%)  
a = Constanta  
X<sub>1</sub> = Fluctuation of rupiah exchange rate per \$US (%)  
X<sub>11</sub> = Receivables age (day)  
X<sub>12</sub> = Inventory age (day)  
X<sub>13</sub> = Loan age (day)  
Y<sub>t-1</sub> = Previous ROA period (%)

The statistical analysis was used to analyze the influence of independent variables such as rupiah exchange rate, wage cost and electricity cost on the dependent variable i.e. net working capital ratio to sale. The statistical analyses was also used to analyze the influence of independent variables i.e. rupiah exchange,

wage cost, and electricity cost on the business profit margin. Furthermore, the statistical analyses was used to analyze the influence of rupiah exchange fluctuation and working capital management variable such as receivables age, inventory age and loan age on the return on asset. The statistical hypothesis for testing is as follows:

- H<sub>0</sub> : b = 0 (no variable influence – variable tested on net working capital, business profit margin and return on asset).  
H<sub>1</sub> : b ≠ 0 (influence of rupiah exchange per US dollar, wage cost, and electricity cost on net working capital ratio).  
H<sub>1</sub> : b ≠ 0 (influence of rupiah exchange per US dollar, wage cost, electricity cost on business profit margin).  
H<sub>1</sub> : b ≠ 0 (influence of rupiah exchange per US dollar, receivables age, inventory age and loan age on the return on assets).

### Multicollinearity Test

This test was used to see whether in the regression model there was a correlation among independent variables. A good regression model should have no correlation among independent variables (no multicollinearity). If VIF of classical assumption test results were between 1 and 10 there would be no multicollinearity (Sujarweni, 2014). If VIF was higher than 5 or 10, there would be multicollinearity in the model (Iriawan and Astuti, 2006).

### Autocorrelation Test

To detect the existence of autocorrelation, graphical methods or Durbin-Watson test could be used (Juanda, 2009). Durbin-Watson value was then compared to d<sub>Tabel</sub> value. The results showed the following criteria:

1. If 4-dl < DW < 4; resist H<sub>0</sub>; negative autocorrelation.
2. If 4-du < DW < 4-dl; uncertain, try another test.
3. If du < DW < 4; accept H<sub>0</sub>.
4. If dl < DW < du; uncertain, try another test.
5. If 0 < DW < dl; resist H<sub>0</sub>; positive auto-correlation.

Gujarati and Porter (2010), Dubi Watson test could not be used if there is a lagged dependant variable so the Durbin H needs to be done using the formula  $h \approx \rho [n / (1 - n \text{Var } b_j)]^{1/2}$ . The h critical value on 5 % significancy is -1,96 dan 1,96.

## RESULTS

From Figure 2 it can be seen that rupiah exchange per US dollar fluctuated from January 2009 and weakened until mid 2011. It then recovered until 2013. In January 2014 it weakened again until June 2014. The average wage cost kept improving due to the government policy on minimum wages. However, the average of electricity cost looked stable in spite of a policy on the increase of basic electricity cost.

The ratio of net working capital kept improving, but business profit margin and return on asset showed a stable trend. The increase of net working capital was due to the improvement of liquidity in the form of deposits in the main company. In line with the liquidity improvement, the cash conversion cycle also accelerated due to the improvement of business loan age compared to receivables age and inventory age.

### The influence of Rupiah Exchange, Wage Cost and Electricity Cost on the Net Working Capital Ratio

The test to see the influence of rupiah exchange per US dollar, wage cost and electricity cost on net working capital ratio was carried out by analyzing the data for 66 months from January 2009 to June 2014. The statistical

analyses with multiple linear regressions were used with statistic software of Minitab 16.

Based on the data processed for 66 months, a regression equation can be obtained as follows:

$$Y_t = 681 - 0,0041 X_1 + 0,0053 X_2 + 0,068 X_3 + 47,2 X_4 + 61,7 X_5 - 25,2 X_6 + 3,1 X_7 - 3,25 X_8 - 1,47 X_9 + 0,775 Y_{t-1}$$

The regression equation showed that the weakening rupiah exchange per US dollar for 1 rupiah would lower the ratio of net working capital to sale as much as 0,0041%. The increase of wage cost per month for Rp. 1,000 would increase the ratio of net working capital as much as 0,0053%. The increase of electricity cost for 1 rupiah per Kwh would increase the ratio of net working capital as much as 0,068%.

The average increase of raw materials price for every 1 US dollar increase per Kg will influence the increase of the net working capital ratio to sales as much as 47,2%. The increase of maklon service cost for 1 US dollar per Kg would increase the ratio of net working capital to sales as much as 61,7%. All the increase of production cost would increase the basic price of production that would increase the supply value.

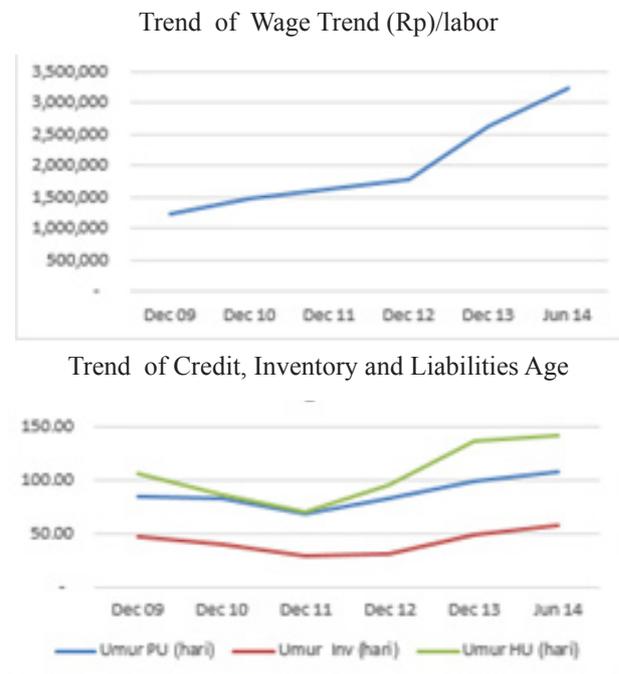
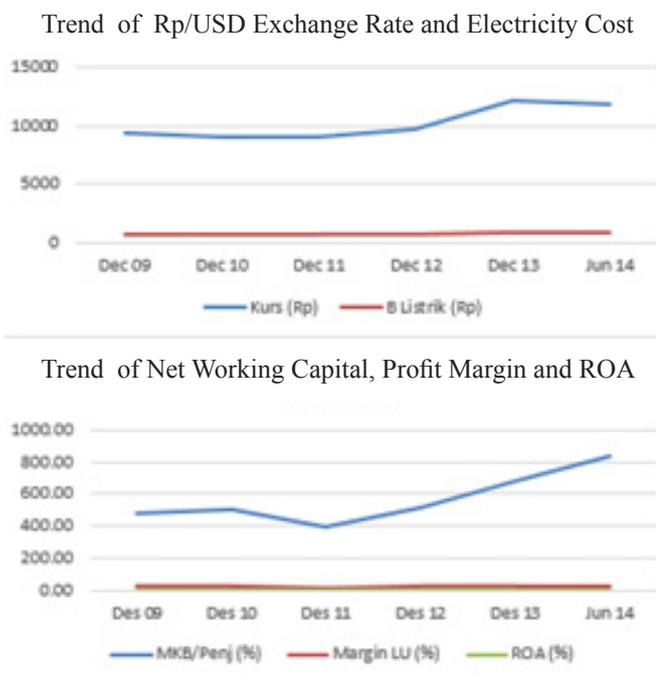


Figure 2. Tren of dependent and independent variables

From the viewpoint of sales, the regression equation showed an average increase of local sales price for 1 US dollar per Kg would reduce the ratio of net working capital to sales as much as 25,2%. However, every average increase of export sales price for 1 US dollar per Kg would increase the ratio of net working capital as much as 3,1%. The growth of local sales volume from the previous period for 1% would reduce the ratio of net working capital as much as 3,25%. The growth of export sales volume from the previous period for 1% would lower the ratio of net working capital as much as 1,47. The ratio of net working capital of the previous period would also influence the ratio of net working capital of the current period where every 1% increase of the previous net working capital would increase the ratio of the current net working capital as much as 0,775%. Regression analysis of net working capital show in Table 1.

From Table 1 shows that the regression results for the dependent variable of net working capital can be interpreted as follows:

- 75,1% of the net working capital ratio variable can be explained by ten independent variables.
- Durbin-Watson test value as much as 1,96334 and

Durbin H test value as much as 0,310 is between -1,96 dan 1,96 can be concluded to have no auto-correlation.

- Table ANOVA identifies that the F test = 16,63 with P-value 0,000 is smaller than  $\alpha=0,05$ , so that the independent variables simultaneously give a significant influence on the dependent variable, so it can be concluded that the regression is feasible.
- With the F test, hypothesis test  $H_0: b_1=b_2=b_3=b_4=b_5=b_6=b_7=b_8=b_9=b_{10}=0$  on  $H_1$ : at least one of  $b \neq 0$ , shows that the regression coefficient is not the same as nil and the P-value = 0,0000 is smaller than  $\alpha=0,05$ , which means that  $H_0$  is resisted and  $H_1$  is accepted.
- The Variance Inflation Factor (VIF) value from the regression model for rupiah exchange variable, wage cost, electricity cost, raw material price, maklon service cost, local sales price, local sales volume growth, export sales volume growth, and previous net working capital ratio is below 10 each so that it shows that there is no multicollinearity among the independent variables. However, the export sales price shows there is a multicollinearity with the VIF value as much as 10,296 and the T value is very small (0,07) so the effect is very significant.

Table 1. Regression analysis of net working capital

Predictor	Coef	SE Coef	T	P	VIF
Constant	680,6	318,4	2,14	0,037	
X1	-0,00413	0,01891	-0,22	0,828	4,684
X2	0,0053	0,03626	0,15	0,884	5,727
X3	0,0685	0,292	0,23	0,815	5,865
X4	47,22	50	0,94	0,349	4,988
X5	61,71	64,79	0,95	0,345	3,457
X6	-25,21	21,13	-1,19	0,238	3,809
X7	3,12	47,76	0,07	0,948	10,296
X8	-3,2531	0,5893	-5,52	0,000	1,267
X9	-1,4657	0,1964	-7,46	0,000	1,498
Yt-1	0,775	0,108	7,18	0,000	2,58
S = 74,0052		R-Sq = 75,1%		R-Sq(adj) = 70,6%	
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	10	910,925	91,093	16,63	0.0000
Residual Error	55	301,222	5,477		
Total	65	1,212,147			
Durbin-Watson statistic = 1,96334					

From the statistical analyses it can be concluded that rupiah exchange, wage cost, electricity cost can influence the net working capital ratio. The influence of rupiah exchange per US dollar with the T value as much as 0,22 and the P value 0,828 is not really significant. The negative effect of weakening rupiah exchange on the net working capital ratio is not significant due to the small value of rupiah in the net working capital, at the average of 15% of the total working capital value (Table 2).

The effect of wage cost with the T value as much as 0,15 and the P value 0,884 is not significant. Similarly the increase of electricity cost with the T value as much as 0,23 and the P value 0,815 is not significantly affective. In Table 3 it can be seen that the wage cost portion is only 4% of the total production cost and the electricity cost is 1%, and thus the influence is not significant.

### The Influence of Rupiah Exchange, Wage Cost, and Electricity Cost on Business Profit Margin

From the data processed for 66 months the following regression equation can be obtained:

$$Y_t = -16,0 - 0,000558 X_1 + 0,00211 X_2 + 0,00876 X_3 - 1,15 X_4 - 1,25 X_5 + 0,146 X_6 + 0,115 X_7 + 0,0663 X_8 - 0,0142 X_9 - 0,00489 X_{10} + 0,477 Y_{t-1}$$

From the regression equation it can be assumed that eleven independent variables can influence business profit margin. The profitability ratio regression shows

that weakening rupiah exchange per US dollar as much as 1 rupiah will reduce the business profit margin as much as 0,000558 %. The effect of wage cost shows that the increase of wage cost for Rp. 1000 will increase the business profit margin as much as 0,00211%. The influence of electricity cost per one rupiah per Kwh will increase the business profit margin as much as 0,00876%. The influence of average increase of raw material price as much as 1 US dollar per Kg will reduce the business profit margin as much as 1,15 %. The increase of maklon service cost as much as 1 US dollar per Kg will reduce the business profit margin as much as 1.25 %.

From the sales point of view, the regression equation shows that the average increase of previous local sales price for 1% will increase business profit margin as much as 0,146% (Table 4). whereas every increase of 1% of average export sales price will increase business profit margin as much as 0,115%. One percent growth of local sales volume from the previous period will increase business profit margin as much as 0,0663%, but one percent growth of export sales volume from the previous period will reduce business profit margin as much as 0,0142%. The ratio of previous net working capital also influences current business profit margin, where one percent of each increased ratio of previous net working capital will reduce current business profit margin as much as 0,00489%. Previous business profit margin as much as 1% will increase current business profit margin as much as 0,477%.

Table 2. Net working capital ( .000 USD)

Net working capital	Jun 2014	%	Des 2013	%	Des 2012	%	Des 2011	%	Des 2010	%	Des 2019	%
Rp	4.917	8	6.187	12	6.934	13	7.500	18	8.721	24	4.228	16
USD	53.458	92	47.259	88	46.119	87	34.202	82	28.364	76	21.410	84
	58.375	100	55.445	100	53.053	100	41.701	100	37.085	100	25.638	100

Table 3. wage cost and electricity ( .000 USD)

Cost of	Jan-Jun 2014	%	2013	%	2012	%	2011	%	2010	%	2019	%
Production	3.7263.567	100	78.933.654	100	81.214.720	100	67.733.114	100	58.423.195	100	42.147.116	100
Wage	1461803	4	2796747	4	2.106.753	3	2.038.197	3	1.725.389	3	1.223.061	3
Electricity	540071	1	1063625	1	1.032.925	1	1.062.382	2	983.255	2	692.446	2

Table 4 shows that regression results for independent variables of business profit margin can be interpreted as follows:

- 56,9% of the business profit margin can be explained by eleven independent variables.
- Durbin-Watson test value as much as 2,09152 and Durbin H test value as much as -1,206 between -1,96 dan 1,96 shows that there is no auto-correlation.
- Table ANOVA identifies that the F test = 6,47 with the P-value 0,000 is smaller than  $\alpha=0,05$ , meaning the independent variables give significant impacts simultaneously on the dependent variable, and it can be concluded that the regression is feasible.
- The VIF value of the regression model for all independent variables below 10 each show there is no multicollinearity among independent variables.
- Using the F test, the hypotheses  $H_0: b_1=b_2=b_3=b_4=b_5=b_6=b_7=b_8=b_9=b_{10}=b_{11}=0$  towards  $H_1$ : at least one of  $b \neq 0$ , shows that the regression coefficient is not the same as nil and the P-value=0.0000 is smaller than  $\alpha=0.05$ , meaning that  $H_0$  is resisted and  $H_1$  is accepted.

From the statistical analyses it can be concluded that rupiah exchange, wage cost, and electricity cost can influence business profit margin. The influence of rupiah exchange per US dollar with the T value 0,98

and the P value 0,329 is not significant. Net working capital portion in rupiah is at the average 10% of the total working capital (Table 2), so 1% weakening rupiah per US dollar will give influence as much as 0,15%.

The influence of wage per capita increase with the T value as much as 1,73 and the P value 0,09 is not significant. The influence of electricity cost increase with the T value as much as 0,95 and the P value 0,344 is not significant. The positive impacts of the increase of wage cost and electricity cost on business profit margin will happen because of the increase of employees' productivity and the efficiency of electricity utilization as can be seen in Table 5.

### Influence of Rupiah Exchange and Working Capital on Return on Asset

From the results of regression analysis, independent variables of rupiah exchange fluctuation per US dollar, receivables age, inventory age and loan age, and the previous ROA period towards ROA dependent variable, the following equation can be obtained:

$$Y = 7,35 - 0,0438 X_1 - 0,0142 X_{11} - 0,00608 X_{12} + 0,00095 X_{13} + 0.319 Y_{t-1}$$

Table 4. Regression analysis of business profit margin

Predictor	Coef	SE Coef	T	P	VIF
Constant	-16,03	14,54	-1,1	0,275	
X1	-0,00056	0,000567	-0,98	0,329	3,615
X2	0,002106	0,001221	1,73	0,09	5,576
X3	0,008765	0,00918	0,95	0,344	4,979
X4	-1,15	1,239	-0,93	0,357	2,632
X5	-1,251	1,871	-0,67	0,507	2,477
X6	0,14604	0,09318	1,57	0,123	1,179
X7	0,1155	0,05331	2,17	0,035	1,522
X8	0,06627	0,0205	3,23	0,002	1,317
X9	-0,01424	0,0063	-2,26	0,028	1,324
X10	-0,00489	0,003283	-1,49	0,142	2,048
Yt-1	0,4774	0,1171	4,08	0,000	1,69
S = 2,52527		R-Sq = 56,9%		R-Sq(adj) = 48,1%	
Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	11	453,809	41,255	6,47	0,000
Residual Error	54	344,359	6,377		
Total	65	798,167			
Durbin-Watson statistic = 2,09152					

Each one percent weakening rupiah will reduce ROA as much as 0,0438%. The T value as much as 2,45 and the P value 0,017 so that the weakening rupiah exchange can give a significant impact on the ROA. Table 6 gives an illustration that weakening rupiah exchange per US dollar as much as 1% will reduce the total assets as much as 0,18% and reduce business profit margin as much as 10% so that overall it will reduce ROA significantly.

Receivables age gave a negative impact on the ROA. The increase of receivables age for one day would reduce ROA 0,0142%. The T value as much as 4,02 and the P value 0,000 gave a very significant influence. The increase of receivables age caused a risk that the accounts receivables would be greater, and thus would reduce the company's profit.

Every one day increased time would reduce ROA as much as 0,00608%. The T value as much as 2,29 and the P value 0,026 would give a significant impact. The higher the inventory value indicated the unproductive use of the stored fund due to unsold inventory, and thus had a potential decline in the inventory quality. The provision cost for inventory quality decline would reduce the company's profit.

The increase of business loan age for one day would increase ROA as much as 0,00095%. The T value as much as 0.4 and the P value 0,688 would have no significant effect. If the accounts payable could be put off any longer, there would be a chance to get payment from the customers, and thus the company would not need to propose a loan.

The increase of previous ROA for 1% would increase the current ROA as much as 0,319 %, the T value as much as 3,36 and the P value 0,001, so the the impact would be very significant.

Table 7 shows that the regression results for the dependent variable 'return on asset' can be interpreted as follows:

- 64,8% of return on asset variable can be explained by variables of rupiah exchange, receivables age, inventory age and loan age, and previous ROA.
- Durbin-Watson test value as much as 1,78106 and Durbin H test value as much as -1,206 between -1,96 dan 1,96 can be concluded that there is no auto-correlation.
- Table ANOVA identifies that the regression equation with the F test = 22,09 where the P-value was 0,000 smaller than  $\alpha=0,05$ , so the independent variables simultaneously give significant impacts on the dependent variable, and thus it can be concluded that the regression is feasible.

Table 5. Employees' productivity and efficiency of electricity cost

Description	Jan - Jun 2014	2013	2012	2011	2010	2009
Volume produksi (kg)	3.250.625	6.421.514	5.774.950	5.344.699	5.348.680	3.930.950
Number of workers	4.335	8.591	8.528	8.383	7.712	7.009
Productivity (Kg/orang)	749,86	747,47	677,18	637,56	693,55	560,84
Kwh	7.135.732	13.557.368	12.983.822	12.575.198	13.276.180	9.925.210
Productivity (Kg/kwh)	0,46	0,47	0,44	0,43	0,4	0,4

Table 6. The influence of rupiah exchange fluctuation per US Dollar on the total assets and business profit

Description	Units (thousands)	2014	2013	2012	2011	2010	2009
		Jun	Dec	Dec	Dec	Dec	Dec
Monetary assets (Rp portion)	US dollar	17,668	18,696	17,398	11,717	11,521	8,127
Total assets	US dollar	97,118	96,688	94,671	11,717	62,155	50,029
Ratio of monetary asset on total assets		18%	19%	18%	14%	19%	16%
Rp depreciation on US dollar		1%	1%	1%	1%	1%	1%
Decrease of monetary asset value (Rp portion)	US dollar	176,68	186,96	173,98	117,17	115,21	81,27
Effect of Rp depreciation on total asset		0,18%	0,19%	0,18%	0,14%	0,19%	0,16%
Business profit	US dollar	1,766	1,905	2,573	1,816	1,853	1,334
Effect of Rp depreciation on business profit		10%	10%	7%	6%	6%	6%

- Using the F test, the hypothesis  $H_0: b_1=b_2=b_3=b_4=b_5=0$  towards  $H_1$ : at least one of the  $b \neq 0$ , shows that the regression coefficient is not the same as nil and the P-value = 0,0000 is smaller than  $\alpha=0,05$ . This means that  $H_0$  is resisted and  $H_1$  is accepted. This also means that all variables simultaneously affect the dependent variable significantly.
- The Variance Inflation Factor (VIF) value for variables of receivables age, inventory age, loan age, and previous business profit margin is below 10 each so that it shows that there is no multicollinearity among the independent variables.

### Managerial Implications

From the research it is found out that weakening rupiah exchange rate will reduce the net working capital ratio. The biggest contribution for the exchange gap happens because of the high rate of the value-added tax of accounts receivables. To reduce impacts from weakening rupiah exchange, the company must accelerate the value-added tax of accounts receivables to the government by proposing the low risk facility so that it can accelerate restitution from 15 months to 3 months.

The increase of minimum wages can minimize the impacts by optimizing the workers' number and improving the productivity by increasing the labour working hours. Efficiency on the increase of other labour costs due to the increase of minimum wages must be carried out especially in the health cost aspect.

The scheme for reimbursing the health cost on the bases of modified main wage must be changed according to BPJS program so that it can reduce health cost significantly. To anticipate the impacts of electricity-base-cost, the company must be efficient in electricity usage.

To accelerate receivables age, the company must carry out administrative steps by accelerating goods delivery and invoice, avoiding invoicing error, increasing communication with customers, coordinating well with sales division and credit control, and delivering the list of credit due date to customers.

To accelerate inventory age, the company must be able to manage inventory appropriately according to the needs and safe inventory level. Accuracy in making sales projection can eliminate excess supply. To increase sales accuracy projection, the company must carry out intensive communication with customers so that it can monitor the present market condition. Production control using lean manufacturing will increase efficiency in using materials.

To extend the debt terms, the company must get longer payment terms. Cooperation with suppliers and banks can be carried out by making an agreement of Non Recourse Discounting (NRD) on the balance of debt so that the suppliers can get payment according to the due date, but the company will have a longer time to pay off their liabilities to the bank.

Table 7: Regression analysis of return on asset

Predictor	Coef	SE Coef	T	P	VIF
Constant	7,352	1,848	3,98	0,000	
$X_1$	-0,04385	0,01787	-2,45	0,017	1,131
$X_{11}$	-0,014218	0,003535	-4,02	0,000	2,145
$X_{12}$	-0,006082	0,002661	-2,29	0,026	3,474
$X_{13}$	0,000951	0,002354	0,40	0,688	3,994
$Y_{t-1}$	0,31852	0,09476	3,36	0,001	1,594
S = 0,303610		R-Sq = 64,8%		R-Sq (adj) = 61,9%	
Analysis of variance					
Source	DF	SS	MS	F	P
Regression	5	10,1805	2,0361	22,09	0,0000
Residual Error	60	5,5307	0,0922		
Total	65	15,7113			
Durbin-Watson statistic = 1,78106					

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

Weakening rupiah exchange will give a negative impact on the net working capital, business profit margin, and return on asset. The company's financial report using functional currency of US dollar will be influenced by the fluctuation of rupiah per US dollar. The result of this research is in line with the result of the research conducted by Huang and Vlady (2012), i.e. the translation to functional currency will give positive impacts in terms of accounting and economy. The impact of translating the financial report to functional currency will give a profit as well as loss difference from the exchange rate gap. In line with the research result of Mehtad (2013), exchange rates will influence the company's profitability.

The effect of wage cost and electricity cost on the ratio of the net working capital is positive. Wage cost and electricity cost are production cost that can add the value of inventories. The effect of the increase of production cost and electricity cost on the company's profit margin is positive, because of the employees' increased productivity and efficiency of electricity usage. The effect of both variables on the ratio of net working capital and business profit margin is not significant.

Business receivables age and inventory age do not give a significant impact on the ROA. However, business loan age has an insignificantly positive impact on the ROA. By accelerating invoicing, minimizing inventory value and slowing down payment to suppliers, the company can improve its performance.

Negative relationship between net working capital and profitability shows that managing working capital more efficiently will improve the company's profitability. The result of this research is in line with that carried out by Alipour (2011), Rahman (2011), Sutanto and Pribadi (2012), Manzoor (2013), Mekonnen (2011), Mengesha (2014), and Juliansyah (2009).

The negative relationship between receivables age and profitability shows that accelerating the accounts receivables will improve cash holding and thus improve the company's performance. This is in line with the research conducted by Ray (2012), Vural, Sokmen, and Cetenak (2012). The negative impact of receivables

age on profitability is not in line with the research result found by Agyei and Yeboan (2011).

The negative impact of inventory age on profitability shows that eliminating supply will push more sales so that inventory investment will become more efficient. The negative impact of inventory on profitability is in line with the research result found by Ching et al. (2011), Raheman et al. (2010), and Quayyum (2011).

### Recommendations

From the results of this research it can be seen the significant impact of local and export sales volume on the ratio of net working capital and the significant impact of export sales price and local sales volume on profitability). However, the increased volume of export sales will reduce overall business profit margin. The company's management must be able to increase volume of local sales and propose a request to increase export sales price to the company group.

The company's management can minimize the risk of weakening rupiah exchange per US dollar by pulling down (bringing down) monetary asset balance so that the effect of translation to the reporting currency can be minimized.

## REFERENCES

- Agyei SK, Yeboah B. 2011. Working capital management and profitability of banks in Ghana. *British Journal of Economics, Finance and Management Sciences* 2(2): 48–125.
- Alipour, M. 2011. Working capital management and corporate profitability: evidence from Iran. *World Applied Sciences Journal* 12 (7): 1093–1099.
- Baveld MB. 2012. Impact of working capital management on the profitability of public listed firms in the Netherlands during the financial crisis [tesis]. Enschede: University of Twente.
- Ching HY, Novazzi A, Gerab F. 2011. Relationship between working capital management and profitability in Brazilian listed companies. *Journal of Global Business and Economics* 3(1): 23–44.
- Finau FKM. 2011. The impact of working capital management dynamics on performance of Tongan enterprises in New Zealand [tesis]. New Zealand: Unitec Institute of Technology.

- Gujarati DN, Porter DC. 2010. *Essentials of Econometrics. Fourth Edition*. New York: McGraw Hill International.
- Huang A, Vlady S. 2012. The Accounting and economic effects of currency translation standards: AASB 1012 vs. AASB 121. *Journal of Modern Accounting and Auditing* 8(11): 1601–1610.
- Iriawan N, Astuti SP. 2006. *Mengolah Data Statistik Dengan Mudah Menggunakan Minitab 14*. Yogyakarta: Andi.
- Juanda B. 2009. *Ekonometrika Permodelan dan Pendugaan*. Bogor: IPB Press.
- Juliansyah S. 2009. Analisis persediaan dan piutang usaha dalam manajemen modal kerja dan dampaknya terhadap profitabilitas (studi kasus: PT XYZ Indonesia) [tesis]. Bogor: Institut Pertanian Bogor.
- Manzoor H. 2013. Working capital management and profitability: evidence from cement sector of Pakistan, listed on Karachi stock exchange. *Journal of Business Administration and Management Sciences Research* 2(10): 215–223.
- Mehtab F. 2013. Foreign exchange risk management at infosys limited. *VSRD International Journal of Business and Management Research* 3(4): 121–126.
- Mekonnen M. 2011. The impacts of working capital management of firm's profitability [tesis]. Addis Ababa: Addis Ababa University.
- Mengesha W. 2014. Impact of working capital management on firms' performance: the case of selected metal manufacturing companies in Addis Ababa, Ethiopia [tesis]. Jimma: Jimma University.
- Miswanto. 2012. Kebijakan dalam penentuan dan pendanaan modal kerja perusahaan. *Jurnal Economia* 8(2): 12–22.
- Pham NL. 2013. Effective working capital management in small and medium enterprises in Vietnam [tesis]. Vietnam: Dublin Business School.
- Quayyum ST. 2011. Effects of working capital management and liquidity: evidence from the cement Industry of Bangladesh. *Journal of Business and Technology (Dhaka)* 6(1):37–47.
- Rahman MM. 2011. Working capital management and profitability: a study on textiles industry. *ASA journal* 5(1): 115–132.
- Raheman A. 2012. Analyzing the working capital management and productivity growth of manufacturing sector in Pakistan [disertasi]. Islamabad: Comsats Institutes of Information Technology
- Raheman A, Afza T, Qayyum A, Bodla MA. 2010. Working capital management and corporate performance of manufacturing sector in Pakistan. *International Research Journal of Finance and Economics* 47: 151–163.
- Ray S. 2012. Evaluating the impact of working capital management components on corporate profitability: evidence from Indian manufacturing firms. *International Journal of Economic Practices and Theories* 2(3): 2247 – 7225.
- Rehn E. 2012. Effect of working capital management on company profitability an industry-wise study of Finnish and Swedish public companies [tesis]. Helsinki: Hanken School of Economics.
- Sujarweni VW. 2014. *SPSS Untuk Penelitian*. Yogyakarta: Pustaka Baru Press.
- Sutanto JE, Pribadi Y. 2012. Efficiency of working capital on company profitability in generating ROA (case studies in CV. tools box in Surabaya). *Journal of Economics, Business, and Accountancy Ventura* 15(2): 289 – 304. <http://dx.doi.org/10.14414/jebav.v15i2.81>.
- Vural G, Sokmen AG, Cetenak EH. 2012. Affects of working capital management on firm's performance: evidence from Turkey. *International Journal of Economics and Financial Issues* 2(4): 488–495.
- Zhang J. 2011. The relationship between working capital management and the corporate cash holding [tesis]. Finland: University of Eastern Finland.