CHAPTER IV
ANALYSIS AND DISCUSSION

4.1 Preliminary Tests

Data gathered for this research paper is in a considerable amount of quantity. As the data is collected from a secondary source, with a large quantity there are bound to exist some abnormal data. These abnormal data may have a different value on them and may not have any correlation with the remainder of data. The different values will cause the statistical analysis of the data to be biased and will harm the overall result of the research.

4.1.1 Outlier detection

Residual values (outliers) cause the research model not to fit with the data. These outliers can either be removed entirely, or their extreme values can be changed to an acceptable maximum or minimum range value. This research aims to replace the value, with the process of winsorization. With this method, the total data will stay at a consistent number without any decrement due to extreme values being removed.

The analysis method for outlier detection is applied through the use of statistic software IBM SPSS Statistics. This software implements 1.5 to 3 interquartile range (IQR) ruleset, which means values between the IQR are labeled as outliers while values more than 3 IQR are considered extreme. The analysis result indicates multiple outliers detected in each of every variable included in this research. Some of the outliers have been detected to be at the extreme value above the upper limit, or below the lower limit suggested by the specified rule. All outliers have been

winsorized, changing their value to either the upper limit value or the lower limit value according to their deviation.

4.1.2 Heteroscedasticity and serial correlation test

Heteroscedasticity comes in a form of an inconsistent variability of values from variables' influences toward other variables. Using Breusch-Pagan test, these variables' relationship can be examined to see whether they actually are linearly related. If the case is not true than heteroscedasticity does exist. By using IBM SPSS Statistics, a Breusch-Pagan test on heteroscedasticity is conducted. For Indonesia's companies, the analysis shows that the significance level of chi-square is 0.000 which is lower than 0.05. This means that homoscedasticity is rejected and heteroscedasticity does exist in the data. For China's companies, the analysis shows that the significance level of chi-square is 0.029 which is lower than 0.05. This means that homoscedasticity is rejected and heteroscedasticity does exist in the data

The data collected in period is prone to serial correlation. The possibility of both serial correlation and heteroscedasticity can be removed using a robust standard error method in the analysis. Because of this, a decision was made to apply robust standard error in the model used to eliminate the possibility of both serial correlation and heteroscedasticity altogether.

4.1.3 Descriptive statistics

Descriptive statistics analysis is performed on both data model. The data collected from Indonesia is based on a total population of 568 companies listed in Indonesia Stock Exchange. The data collected from China is based on a total population of 1456 companies listed in Shanghai Stock Exchange. Sample of 120 companies are gathered from each sources cumulating in a total of 240 samples.

Descriptive statistics analysis on the data collected are presented in the Table 4.1 and Table 4.2 below:

Table 4.1
Indonesia's listed companies descriptive statistics

	N.	Minimum	Maximum	Mean	Std. Deviation	Variance
Return on Assets	120	-.24	.35	.0618	.10519	.011
Number of Days Inventory	120	1.68	413.14	114.2738	87.52670	7660.923
Average Collection Period	120	4.97	181.66	60.6420	42.15597	1777.126
Average Payment Period	120	3.87	227.04	70.6869	52.18689	2723.472
Cash Conversion Cycle	120	-296.44	481.18	103.4669	123.14826	15165.493
Working Capital	120	-2456	3675	763.71	1644.995	2706009.200
Valid N (listwise)	120					

Source: Processed data (2018)

Table 4.2
China's listed companies descriptive statistics

	N.	Minimum	Maximum	Mean	Std. Deviation	Variance
Return on Assets	120	-.08	.12	.0157	.03871	.001
Number of Days Inventory	120	7.97	348.69	114.0834	78.42154	6149.938
Average Collection Period	120	4.66	271.06	78.5622	81.27678	6605.915
Average Payment Period	120	10.20	340.91	103.0466	76.89491	5912.828
Cash Conversion Cycle	120	-250.93	399.47	95.1031	126.99632	16128.067
Working Capital	120	-5065	5350	-87.64	2277.659	5187729.660
Valid N (listwise)	120					

Source: Processed data (2018)

Return on assets has a minimum value of -0.24 and maximum value of 0.35 in Indonesia's data model, with a mean or average value of 0.0618. The standard deviation is 0.10519 in Indonesia's data model. In China's data model the minimum value is -0.08 and the maximum value is 0.12, with a mean of 0.0157. The standard deviation is 0.3871 in China's data model.

Number of days inventory has a minimum value of 1.68 and maximum value of 413.14 in Indonesia's data model, with a mean or average value of 114.2738. The standard deviation is 87.52670 in Indonesia's data model. In China's data model the minimum value is 7.97 and the maximum value is 348.69, with a mean of 114.0834. The standard deviation is 78.42154 in China's data model.

Average collection period has a minimum value of 4.97 and maximum value of 181.66 in Indonesia's data model, with a mean or average value of 60.6420. The standard deviation is 42.15597 in Indonesia's data model. In China's data model the minimum value is 4.66 and the maximum value is 271.06, with a mean of 78.5622. The standard deviation is 81.27678 in China's data model.

Average payment period has a minimum value of 3.87 and maximum value of 227.04 in Indonesia's data model, with a mean or average value of 70.6869. The standard deviation is 52.18689 in Indonesia's data model. In China's data model the minimum value is 10.20 and the maximum value is 340.91, with a mean of 103.0466. The standard deviation is 123.14826 in China's data model.

Cash conversion cycle has a minimum value of -296.44 and maximum value of 481.18 in Indonesia's data model, with a mean or average value of 103.4669. The standard deviation is 123.14826 in Indonesia's data model. In China's data model the minimum value is -250.93 and the maximum value is 399.47, with a mean of 95.1031. The standard deviation is 126.99632 in China's data model.

Working capital has a minimum value of -2456 and maximum value of 3675 in Indonesia's data model, with a mean or average value of 763.71. The standard deviation is 1644.995 in Indonesia's data model. In China's data model the minimum value is -5065 and the maximum value is 5350, with a mean of -87.64. The standard deviation is 2277.659 in China's data model.

4.1.4 Hausman test

Hausman test is employed to determine whether to apply fixed effects (FE) model or random effects (RE) model in the analysis. The test explains (Afrifa & Padachi, 2016) whether there was a correlation between the dependent variable and

explanatory variables of the model. The test's null hypothesis is that the unobserved heterogeneity was uncorrelated with the regressors in all models. It means that the RE model is more consistent and efficient method to use.

The Hausman test conducted on Indonesia's companies shows a chi-square value of 0.5023, higher than 0.05 significance level. This means that the null hypothesis is accepted and RE model is more appropriate for modeling the analysis for Indonesia's companies. The test on China's companies shows a chi-square value of 0.7936, also higher than the 0.05 significance level. This means that the null hypothesis is accepted and RE model is better to model the analysis for China's companies.

4.2 Panel – Regression Analysis

Panel – regression is an appropriate method when it comes to analyzing data collected over time and cross-sectional. In this case, based on the result from Hausman test, random effect (RE) model is more feasible to use in estimating both Indonesia and China's data. The RE model analysis is based on the output of Stata version 14.2. This model also implements a robust standard error to deal with both heteroscedasticity and serial correlation.

Table 4.3
Indonesia's listed companies RE model

ROA	Coef.	Robust Std. Err.	z	P > | z |	95% Conf.	Interval
INV	- .0000695	.0001546	- 0.45	0.653	- .0003724	.0002335
ACP	- .0006743	.0002933	- 2.30	0.022	- .0012492	- .0000994
APP	- .0000718	.0002265	- 0.32	0.751	- .0005158	.0003721
CCC	.0000404	.000087	0.46	0.642	- .00013	.0002108
WC	.000011	.0000124	0.89	0.376	- .0000133	.0000352
_cons	.1031936	.043	2.40	0.016	.0189151	.187472
Wald chi² (5)	7.49					
Prob > chi²	0.1870					
rho	.68175226	(fraction of variance due to u_i)				

Source: Processed data (2018)

Table 4.4
China's listed companies RE model

ROA	Coef.	Robust Std. Err.	z	P > | z |	95% Conf.	Interval
INV	- .0001532	.0001619	- 0.95	0.344	- .0004705	.0001642
ACP	- .0003096	.0001784	- 1.74	0.083	- .0006592	.00004
APP	.000135	.0001422	0.95	0.343	- .0001438	.0004138
CCC	.0001602	.0001295	1.24	0.216	-.0000936	.0004139
WC	4.70e-06	2.24e-06	2.09	0.036	2.99e-07	9.09e-06
_cons	.0287392	.0118988	2.42	0.016	.0054181	.0520603
Wald chi² (5)	10.77					
Prob > chi²	0.0562					
rho	.43237371	(fraction of variance due to u_i)				

Source: Processed data (2018)

Both of the tables provided above, explain the results of RE model estimation on Indonesia and China's data. Table 4.3 explains Indonesia's listed companies' data and Table 4.4 explains China's listed companies' data. The RE models for both countries show different results. In Indonesia's listed companies, the independent variables can explain 68.17% of the dependent variable. This is shown by the value of rho in the table. The rho value of China's listed companies is 0.4323, which means the independent variables there can only explain 43.23% of the dependent variable. The coefficient value described in the tables refer to the value for the regression modeling. Based on the value, the estimated model can be formed as:

Regression model of Indonesia's listed companies

$$ROA = 0.1031936 - 0.0000695\,INV - 0.0006743\,ACP - 0.0000718\,APP + 0.0000404\,CCC + 0.000011\,WC + \varepsilon + \mu$$

Regression model of China's listed companies

$$ROA = 0.0287392 - 0.0001532\,INV - 0.0003096\,ACP + 0.000135\,APP + 0.0001602\,CCC - 0.0000047\,WC + \varepsilon + \mu$$

Regarding hypothesis testing, each independent variable's relationships toward dependent variable are tested, both simultaneously and partially (individually). The result of this test can be seen by the probability values shown in both tables, Table 4.3 and Table 4.4. The chi^2 value in Table 4.3 is 0.1870, higher than the 0.05 significance level. This means that for Indonesia's listed companies, the independent variables simultaneously do not significantly influence the dependent variable. The chi^2 value for China's listed companies is 0.0562, which is higher than the 0.05 significance level, which indicates that the independent variables simultaneously do not significantly influence the dependent variable.

The result of each independent variables' partial relationship with the dependent variable, can be analyzed by:

a. Hypothesis testing for number of days inventory's relationship to return on assets

Result of the model testing for Indonesia's listed companies' number of days inventory's relationship to return on assets shows z probability value of 0.653. This

value is higher than the 0.05 significance level, indicating that number of days inventory has no significant influence towards return on assets. The testing for China's listed companies shows a z probability value of 0.344, higher than the significance level. With a negative coefficient value, it indicates that number of days inventory has a non-significant negative influence towards return on assets.

b. Hypothesis testing for average collection period's relationship to return on assets

Result of the model testing for Indonesia's listed companies' average collection period's relationship to return on assets shows z probability value of 0.022. This value is lower than the 0.05 significance level, indicating that average collection period has a negative significant influence towards return on assets due to the negative coefficient value. The testing for China's listed companies shows a z probability value of 0.085, higher than the significance level. With a negative coefficient value, it indicates that average collection period has a non-significant negative influence towards return on assets.

c. Hypothesis testing for average payment period's relationship to return on assets

Result of the model testing for Indonesia's listed companies' average payment period's relationship to return on assets shows z probability value of 0.751. This value is higher than the 0.05 significance level, indicating that average payment period has no significant influence towards return on assets. The testing for China's listed companies shows a z probability value of 0.343, higher than the significance

level. It indicates that average payment period has no significant influence towards return on assets.

d. Hypothesis testing for cash conversion cycle's relationship to return on assets

Result of the model testing for Indonesia's listed companies' cash conversion cycle's relationship to return on assets shows z probability value of 0.642. This value is higher than the 0.05 significance level, indicating that cash conversion cycle has no significant influence towards return on assets. The testing for China's listed companies shows a z probability value of 0.216, higher than the significance level. With a positive coefficient value, it indicates that cash conversion cycle has a non-significant positive influence towards return on assets.

e. Hypothesis testing for working capital's relationship to return on assets

Result of the model testing for Indonesia's listed companies' working capital's relationship to return on assets shows z probability value of 0.376. This value is higher than the 0.05 significance level, indicating that working capital has no significant influence towards return on assets. The testing for China's listed companies shows a z probability value of 0.036, lower than the significance level. It indicates that working capital has positive significant influence towards return on assets.