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Cash Conversion Cycle and Firm Performance: Evidence from Indonesia

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Abstact

The increasing attention of the management to short-term investment rasionalization brings to the importance of the management of company working capital. In view of the matter, this research investigates company cash conversion cycle and its connection with profitability of companies listed in Indonesian Stock Exchange in the year 2014. The result of one-way Anova test shows significant difference in the length of average company cash conversion cycle between different industries. Next, test results of multiple regression show, in general, that the impact of cash conversion cycle on firm profitability is not significant. Especially in pharmaceutical industry only, the impact of cash conversion cycle on profitability is negative and significant.

Key words : Cash Conversion Cycle, Profitability

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1. Introduction

Besides answering the questions on capital budgeting and long-term funding decision, company finance management pays attention on how the company manages its daily activities in relation to short-term finance decision. Such a discussion is known as working capital management, which refers to manager's attention on current assets such as account receivables and inventory, and on current liabilities such as account payables to suppliers.

In their book, Ross, Westerfield, and Jordan (2013) emphasize that managing company working capital is a daily activity that is important in assuring that the company has sufficient resources to run its business and to get rid of interruption costs. For the reason, the company needs to manage its working capital well in order to maintain company's high performance. Since many companies have high variations related to their ability to manage their working capital, it needs an effectivity measurement that is valid throughout companies.

One popular measurement of company working capital management is cash conversion cycle, namely the length of the time used by the company between paying cash for raw materials and dunning cash from selling final products. One topic that gets attention researchers is the connection between cash conversion cycle and company profitability (Yazdanfar and Ohman, 2014; Anser and Malik, 2013; Abbasi and Bosra, 2012; Nobanee, Abdullatif, and AlHajjar, 2011). In this case, the length of time from cash conversion cyle is associated with company's finance achievement. Reserachers suggest the importance of working capital management for profitability of different companies from different countries in the world. This research provides review results from companies in Indonesia as one of developing countries in Asia.

This research aims at answering the following two research questions:

1. Is there significant difference of cash conversion cyle inter industries in Indonesian limited companies?
2. Is shorter cash conversion cycle associated with higher profitability?

Results of this researh provie description and statistic test about cash conversion cycle in Indonesian companies. Topic of this research is in the same field with the research area done by Syarief and Wilujeng (2009) di Indonesia. This research becomes interesting and is needed because the results of the research by Syarief and Wilujeng found no significant correlation between cash conversion and company profitability in manufacture industry. Besides, this research delivers the use of current data and research technology that is different from the research by Syarief and Wilujeng. Results of this research is useful for academists and practitioners who pay attention to the management of working capital of Indonesian companies.

2. Literature Review and Hyphotesis

Cash conversion cylce has become a useful measurement of an effective working capital management for companies (Panigrahi, 2013). In their book entitled Fundamentals of Corporate Finance, Brealey, Myers, and Marcus (2012) describe how cash conversion cycle is understood and can be calculated clearly in a company. Picture 1 shows four key dates in production cycle that influence corporate investment in the working capital. The company start the business cycle from buying raw materials that is not paid in full. This delay creates accounts payable period. Then the company processes the raw materials to become final products that are sold to consumers. Time difference between inventory replenishment date and sale date is called inventory period. Consumers may not pay in full but some date in the future. Delay of this full payment is called accounts receivable period. In short, the lenght of time resulted from the cycle is cash conversion cyle.

This explanation shows that cash conversion cycle depends on the length of inventory period, account receivable, and account payable. To be more specific, cash conversion cycle will increase when inventory period and account receivable is longer. On the contrary, cash conversion cycle will decrease when

the company delays the payment of account payable so that it lenghtens the account payable period. Most companies has positive cash cycle, hence companies need funding for their inventory and accont payable (Ross, Westerfield, and Jordan, 2013). The longer the cash conversion cycle, the more funding needed by the company. The change in cash conversion cycle can also be a good marker to monitor company health. The longer cash conversion cycle may be suspected to the existing problem in terms of company inventory management or the problem of account receivable handling.

On topik grabbing the attention of researchers is connection between cash conversion cycle and company profitability. By using data from Sweden, Yazdanfar and Ohman (2014) show that cash conversion cylce significantly influences profitability. Research by Abbasi and Bosra (2012) also finds negative impact of cash conversion cycle on profitbility in Teheran Stock Exchange. Similar finding shows that the length of time of cash conversion cycle is associated with company finance achievement (Anser and Malik, 2013;Saghir, Hashmi, and Hussain, 2011; Nobanee, Abdullatif, and AlHajjar, 2011). Thus, the researchers suggest the importance of cash conversion cycle management for profitability of companies from different countries in the world.

Brealey, Myers, and Marcus (2012) write that the cash conversion cycle is much shorter in some businesses than in others. They calculate the average length of cash conversion cycle in some sample industries in the United States of America. The longer the process of company production, the more cash to be invested in the inventory. Similarly, the longer a company takes customers to pay their bills, the higher the value of accounts receivable. On the other hand, if a company can delay paying for its own materials, it may reduce the amount of cash it needs. In other words, accounts payable reduce net working capital of the company. Hypothesis of the first research is determined as follows:

H1 : There is cash conversion cycle difference between different industries in Indonesian limited companies.

In their book, Ross, Westerfield, dan Jordan (2013) write that connection between company conversion cycle and profitability can be seen from the existence of one of profitability determining factors namely total asset turnover, which is calculated as sales/total assets. If sales ratio to this total assets is getting higher, so the bigger the firm's return on assets (ROA) and return on equity (ROE). For the reason, all other things being the same, the shorter the cash conversion cycle, the lower the company investment in inventories dan account receivables. As a result, the firm's total assets will become smaller so that total asset turnover becomes higher. In other words, shorter cash conversion cycle can lead to higher company profitability because this increases the efficiency of the use of company working capital (Nobanee, Abdulatif, and AlHajjar, 2011). Thus, hypothesis of the second research is determined as follows:

H2 : The higher the cash conversion cycle, the lower the company profitability.

3. Research Methods

Data used in this research come from finance reports of companies listed in Indonesian Stock Exchange in the year 2014. Company sample is taken from non-financial industries with relatively many companies. This research includes 8 industries of which division is based on reports of Indonesian Stock Exchange, namely: 1) plantation, 2) coal mining, 3) metal and allied products, 4) textile and garment, 5) food and beverages, 6) pharmaceuticals, 7) transportation, and 8) retail trade. All companies included in the sample research are required to have sufficient information for research variable calculation. Final sample companies include 138 companies.

The main research variable discussed in this research is Cash Conversion Cycle (CCC). In line with literature in finance management in general (for example: Brealey, Myers, and Marcus, 2012), company conversion cycle is

measured by using data of the day length of account receivable, inventory, and account payable. Formula to calculate cash convension cycle is as follows:

- Cash conversion cycle = (Receivables period + Inventory period) – Accounts payable period

Cash conversion cycle from the data originating from the profit and loss report and company balance. Before finding cash conversion cycle, the following three measurements have to be calculated beforehand. First, account receivable period is account receivable divided by (sales / 365). Second, inventory period is inventory devided by (Cost of Goods Sold / 365). And the third, account payable period is account payable divided by (Cost of Goods Sold / 365).

Following the previous study (Yazdanfar and Ohman, 2014), this research calculates profitability as net profit after tax divided by total assets. In various text books (for instance Ross, Westerfield, and Jordan, 2013), this profitability measurement is called return on assets (ROA). In this case, ROA measures profit per Rupiah of the company assets. The highter the ROA of a company shows the higher profitability degree of the company. Formula to calculate ROA is as follows:

- ROA = Book value of net profit after tax : total assets

Next, the following model is implemented to test the impact of cash conversion cycle on company profitability:

$$ROA = \alpha + ROA_{-1} + CCC + \text{Industry dummy} + \varepsilon$$

Following Nobanee, Abdullatif, and AlHajjar (2011), first difference of profitability measurement as independent variable is meant to catch other impacts that have not come in yet and that vary with time. In the analysis, research hypothesis test is done by following general procedure about testing statistically. Statistic test is assisted with SPSS (Bryman dan Cramer, 2005).

4. Results and Discussion

Is there any difference of the length of company cash conversion cycle among industries? Different industries have different business characteristic so that it results in different length of cash conversion cycle as well. Figure 2 shows visually the variation of the length of cash conversion among 8 industries. It can be seen extraordinary length of cash conversion cycle in three industries, namely: metal and allied product, textile and garment, and pharmaceuticals. Cash conversion cycle for metal and allied products industris is 146 days, textile and garment is 138 days, and pharmaceutical is 126 days. In the meantime, the shortest cash conversion cycle is plantaton industry, namely around 29 days.

Is the difference of the length of company cash conversion cycle significant among industries? To test it, statistical analysis is done with one-way Anova test. The result of parametric test namely one-way Anova is shown in Table 1 on the upper part. The value of the F statistic is 7.057, that is significant at the level of 1 percent. So, these results are conlcuded as the existence of significant difference in terms of length of company cash conversion cycle among industries. This is consistent with the hypothesis statement of research H1.

Next, Table 2 shows results of each regression test from 9 models, namely 1 model of company total (Total) in line 1 and then each the 8 industries in line 2 up to 9. Most of the 9 models have high coefficient determination and significant value of F. Two independent variables are: lag ROA (ROA_{-1}) and cash coversion cycle (CCC), while dependant variable is profitability (ROA). It is known that VIF (variance inflation factor) values of each of the 9 models are above 1 and below 10. As rule of thumb, VIF > 10 or 1/VIF < 0.10 indicates problem in multicolinearity. So, VIF results of the 9 models are concluded to be non-extraordinary multicolinear in preditor variables.

It can be seen in Total model of all companies in Table 2 in line 1, regression coefficient of CCC is negative in line with research hypothesis but is not significant (namely: b = -0.000031 and t = -0.419). Regression coefficient of

ROA_{-1} is positive and significant at level 1 percent (namely b = 0.687 and t = 12.551), which in this case in line with the test expectation.

It is seen on Plantation industry model in Table 3 in line 2, regression coefficient of CCC is negative in line with research hypothesis but is not significant (namely: b = -0.000009 and t = -0.038). Regression coefficient of ROA_{-1} is positive and significant at level 1 percent (namely b = 0.507 and t = 5.394), which in this case is in line with test expectation.

It is seen in Coal Mining industry model in Table 2 in line 3, regression coefficient of CCC is negative in line with research hypothesis but is not significant (namely: b = -0.000112 and t = -0.628). Regression coefficient of ROA_{-1} is positive and significant at level 1 percent (namely b = 0.735 and t = 4.396), which in this case is in line with test expectation.

It is seen in Mteal and Allied Products industry models in Table 2 in line 4, regression coefficient of CCC is negative in line with research hypothesis but is not significant (namely: b =-0.000004 and t = -0.043). Regression coefficient of ROA_{-1} is positive and significant at level 1 percent (namely b = 0.389 and t = 2.545), which in this case is in line with test expectation.

It is seen in Textile, Garment industri model in Table 2 in line 5, regression coefficient of CCC is positive that is not in line with research hypothesis but is not significant (yaitu: b =0.000276 and t = 1.263). Regression coefficient of ROA_{-1} is negative and is not significant at level 1 percent (namely b =-0.071 and t =-0.162), which in this case is not in line with test expectation.

It is seen in Food and Beverages industry model in Table 2 in line 6, regression coefficient of CCC is negative in line with research hypothesis but is not significant (namely: b =-0.000473 and t =-1.335). Regression coefficient of ROA_{-1} is positive and significant at level 1 percent (namely b = 0.566 and t =7.385), which in this case is in line with test expectation.

It is seen in Pharmaceuticals industry model in Table 2 in 7, regression coefficient of CCC is negative and signifiant so that it is in line with test

hypothesis (namely: b = -0.000267 and t =-3.751). Regression coefficient of ROA_{-1} is positive and significant at level 1 percent (namely b = 0.995 and t =22.843), which in this case in in line with test expectation.

It is seen in Transportation industry model in Table 2 in line 8, regression coefficient of CCC is positive that is not in line with research hypothesis but is not significant (namely: b =0.000270 and t = 0.734). Regression coefficient of ROA_{-1} is positive and significant at level 1 percent (namely b = 0.545 and t = 3.538), which in this case is in line with test expectation.

It is seen in Retail Trade industry model in Table 2 in line 9, regression coefficient of CCC is positive that is not in line with research hypothesis but is not significant (namely: b =1.756E-005 and t =0.094). Regression coefficient of ROA_{-1} is positive and significant at level 1 percent (namely b =1.084 and t =11.158), which in this case is in line with test expectation.

Results of test in general tend to show that the impact of cash conversion cycle on profitability is negative that is in line with research H2 hypothesis but is not significant. It is especially in one industry namely pharmaceutical industry that results in conclusion that is consistent with hypothesis of research H2. Thus, more over in pharmaceutical industry, the impact of cash conversion cycle on profitability is negative and significant. Hence, efforts of finance manager to manage company working capital through controlling cash conversion cycle can be expected to lead to good result in terms of increasing profitability of Pharmaceutical company.

5. Conclusion

One of the attentions from company finance management is on how the company manages its daily activities that are related to short-term financial decision, which is known as working capital management. The increase of short-term investment understanding prioritizes the importance of working capital

management for company profitability. This research provides data originating from companies listed in Indonesian Stock Exchange.

The first research question is if there is difference in the length of compny cash conversion cycle among industries. The result of one-way Anova test leads to the conclusion of the existence of significant difference in the length of company cash conversion cycle among industries. The second question from this research is about the connection between cash conversion cycle and company financial achievement. Results of multiple regression test do not show the impact of cash conversion cycle on company profitability. Especially in pharmaceutical industry only, the impact of cash conversion cycle on profitability is negative and significant.

Finally this research gives two suggestions for further research. First, further research may trace deeperly by increasing the types of industry and by adding research observation period. Second, it can also observe again the impact of cash conversion cycle on company profitability. The possibilty of nonlinear connection may become interesting topic of further research. Thus, results of this research can be seen as results of an explorative research to be continued by further, deeper research in the future.

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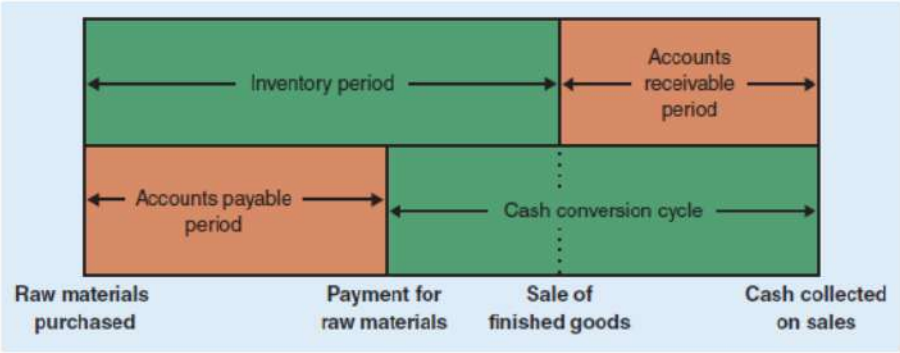

Figure 1. The Cash Conversion Cycle (Brealey, Myers, and Marcus, 2012)

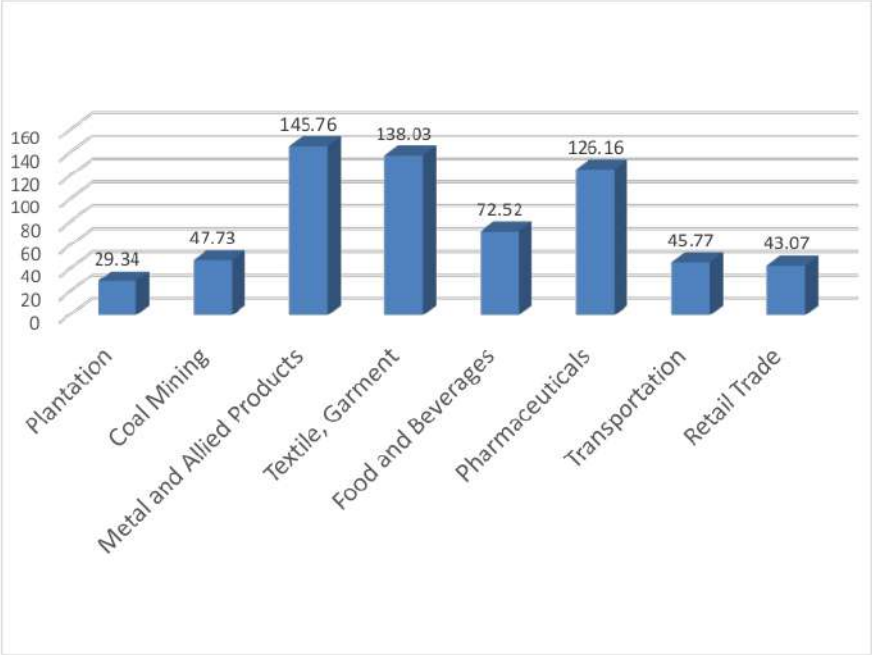

Figure2. Average Cash Conversion Cycle (Days)

Table 1

Hypotheses Test for Cash Conversion Cycle Across Industries

ANOVA

Cash_conversion_cycle

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	264231,891	7	37747,413	7,057	,000
Within Groups	695339,611	130	5348,766		
Total	959571,502	137			

Table 2

Cash Conversion Cycle and Profitability

This table presents the coefficient value, followed by t statistics underneath it, which results from ordinary least squares regressions. The dependent variable is the firm profitability (ROA). Two independent variable are lag ROA (ROA_{-1}) and cash coversion cycle (CCC). This table also presents the coefficients of determination and the values of F statistic. Note: * p<.1; ** p<.05; *** p<.01.

Industry	Constant	CCC	ROA_{-1}	R^2	F
Total	0.002	-0.000031	0.687***	0.540	79.126
	0.216	-0.419	12.551		
Plantation	0.029**	-0.000009	0.507***	0.727	15.991
	2.747	-0.038	5.394		
Coal Mining	0.006	-0.000112	0.735***	0.526	10.001
	0.367	-0.628	4.396		
Metal and Allied Products	0.001	-0.000004	0.389**	0.337	3.310
	0.030	-0.043	2.545		
Textile, Garment	-0.074*	0.000276	-0.071	0.097	0.808
	-2.007	1.263	-0.162		
Food and Beverages	0.056	-0.000473	0.566***	0.865	31.924
	1.721	-1.335	7.385		
Pharmaceuticals	0.029*	-0.000267***	0.995***	0.989	275.973
	2.393	-3.751	22.843		
Transportation	-0.015	0.000270	0.545***	0.342	6.764
	-0.572	0.734	3.538		
Retail Trade	-0.028*	1.756E-005	1.084***	0.901	63.777
	-1.818	0.094	11.158		

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