Working Capital Management Effect in Indonesia and Thailand Manufacturing Sector

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ABSTRACT

This research aims to analyze working capital management in selected manufacturing firms in Indonesia and Thailand. Database of 216 companies is selected for the ten years from 2008-2017. The cash conversion cycle is the measuring tool to calculate the efficiency of working capital management. Tobin's Q was used to examine market valuation. Meanwhile, Return On Asset was used to represent profitability. Leverage, firm size, firm age, growth opportunities, and economic conditions are taken as control variables. The study used panel data and regression analysis to test the hypothesis. The study results show similar things for both countries that there is a significant negative effect between cash conversion cycle and manufacturing firm's profitability in Indonesia and Thailand. Meanwhile, the cash conversion cycle proved to have no significant effect on firms' value in Indonesia and Thailand.

Keywords: Working Capital Management, Indonesia, Thailand Manufacturing.

1. INTRODUCTION

Financial decision-making involves analyzing financial problems that the firm faces and deciding which action should be taken. One of the critical issues during financial decision-making is working capital management [1]. Reference [2] found that working capital management considered as one of the most influential components of a firm's value, risk, and profitability (as cited in [3]). Working capital management (WCM) deals with managing company assets and liabilities in the short term that must be carried out and analyzed carefully, considering that working capital management plays a vital role in a firm's profitability, risk as well as in its value [4].

Some empirical studies related to working capital management and profitability support the fact that more aggressive working capital management policies enhance a firm's profitability [5-12]. Reference [13] stated that investors prefer firms that follow more restrictive working capital management policies because this is related to the company's higher value and lower investment in working capital needs. In another study, it was proven that efficient working capital management has added value to shareholders [4]. By managing

working capital efficiently, both small companies and large companies will create corporate financial flexibility and reduce corporate dependence on external funding sources [4, 14]. On the other research, [15] argues that a large number of business failures have occurred due to improper management of working capital.

Various empirical studies have proven that efficient working capital management within the company is associated with higher profitability. However, some researchers find evidence to the contrary. The study by [16-18] found evidence that an increase in the cash conversion cycle (a comprehensive measure of working capital) will improve firm performance. Research by [3] found that firms can enhance their profitability by expanding their cash conversion cycle. This reveals that companies with high-profitability levels are less motivated to manage their working capital. Another study in Egypt & Turkey also found that investors value firms with a longer cash conversion cycle because they attain higher return levels on their assets [3, 19].

The concepts of WCM and the cash conversion cycle (CCC) have been studied from different angles. There is, however, some ambiguity to the relationship between CCC and profitability. This may be because studies have

been conducted in different contexts, with somewhat varying methodological approaches and using different sample sizes and/or employing different firm characteristics. Therefore, there is a substantial gap in the literature which this research seeks to fill.

While working capital management is vital to all firm sizes operating in both developed and emerging countries, working capital management is essential to the business firms operating in emerging markets [20]. As one of the emerging markets in Indonesia and Thailand, the industrial sector contributing the most to their GDP in 2017 was the manufacturing sector. The manufacturing industry's contribution to Indonesia's GDP over the past 5 years is in the range of 20%-21% [21]. Meanwhile, Thailand's manufacturing industry sector plays a role around 27-28% of Thailand's GDP [22].

The latest report compiled by [23] about the manufacturing industry in the world explains that more efficient and focused working capital management is one of the keys for manufacturing companies to generate more profits. This report also stated that the NWC Days (Net Working Capital Days) trend in manufacturing companies has decreased over the last 5 years. With the deteriorating performance of working capital, it requires additional capital for the company to continue generating profits.

Based on the above discussion, the purpose of this study to examine whether manufacturing firms in Indonesia and Thailand can benefit from WCM to enhance their profitability and value. The study examined the effect of working capital management for manufacturing firms listed on the Indonesia Stock Exchange and Stock Exchange of Thailand during the period ranging from 2008 to 2017. To understand the way working capital is managed, the cash conversion cycle effect on firms' market and firms' profitability will be statistically analyzed.

Reference [24] stated that financial managers spend most of their official time solving daily problems and working capital decisions are one of the main problems. Working Capital Management (WCM) decision involves the amount and mix of current assets and their financing mechanism. Working capital is a measure of both a company's efficiency and its short-term financial health, affecting firm performance and firm value. The working capital policy concerns the level of current assets and proportion of short-term debt to use in the financing of these assets [25].

Prior research conduct by [5-7, 11, 12, 20, 26, 27], used Cash Conversion Cycle (CCC) as the WCM measurement methods. Reference [11] mentioned that CCC is the time from goods being purchased and the reception of payment from customers. Over this period, the firm needs to finance its operating activities, so longer

CCC will lead to higher working capital levels and vice versa. Working capital management was said to be quite efficient if the CCC of a company was getting shorter, which certainly indicates that the company was able to settle collection of accounts receivable quickly and there were delays in payments to suppliers [11].

Regarding the impact of WCM on firm profitability, various studies explore whether the efficiency of WCM affected the corporate profitability, they found that WCM was negatively affected with different indicators of firm profitability [5-7, 9-12]. In contrast, some studies that examined the impact of various WCM measurements found that a firm's profitability is positively affected by CCC [3]; [20]. These findings indicate that profitable companies pay less attention to WCM, and they are less efficient in managing their working capital. To sum up, there seems to be a tendency towards a negative effect between profitability and CCC, and this appears to be consistent throughout the world, although different profitability measures have been employed. Based on the explanation above and by the empirical findings of prior literature, the first hypothesis is as follows:

- Hypothesis 1 There is a negative effect between the working capital of a firm and its profitability.

Despite the importance of WCM to firm profitability, it was also proven that efficient working capital management has added value to shareholders [4]. Therefore, the impact of WCM on firm value cannot be ignored, given the primary goal of any organization is to maximize shareholder value in both a safe and profitable manner [13]. Regarding the impact of WCM on firm value, a prior study found that firm value is affected positively by the CCC length [3, 16, 19]. In contrast, [28, 29] explored the impact of WCM on firm value and reported a negative effect between CCC and firm value. Based on the explanation above and by the empirical findings of prior literature, the second hypothesis is as follows:

- Hypothesis 2 There is a negative effect between the working capital of the firm and its value.

There are multiple ways of measuring firm profitability and firm value. In more recent studies, such as [5, 11, 26, 27], Return On Asset (ROA) are used as measures of profitability. Meanwhile, as a proxy for firm value, [3, 19, 20, 28, 29], and used Tobin's Q Ratio for the measurement. The study also considers the control variables Firm Age, Firm Size, Sales Growth, Leverage, and Gross Domestic Product. Larger firms seem to be more profitable than smaller firms, which may be due to scale economy [5, 7, 30] and better access to capital markets [31]. Recent studies, however, find a positive effect between size and profitability [8-11, 19, 32, 33].

A study from [3] examined the relationship between firm age and firm profitability as well as firm value. The research shows the fact that there was a positive effect

between firm age and firm value, which indicated that older firms more maximized the value of the company to their shareholders compared to younger firms. Another research by [34] concludes that firm age has a positive relationship with firm profitability, which can be interpreted that older firms are considered to be more profitable than younger ones. In contrast, a study by [9] suggests that firm age is significantly and negatively affects profitability, indicating that younger firms are more likely to be profitable than are older ones.

Increased sales growth is generally associated with higher profitability [35] due to profits being retained within the firm to invest in more profit opportunities. Thus resulting in a positive effect between sales growth and profitability. This positive effect is also found in other studies [7, 8, 10, 33]. In line with this, growth has a significant positive effect on firm value, while companies with higher market values have a higher sales increase [3].

Reference [36] argue that higher leverage may promote higher profitability because firms with higher profitability have easier access to external capital markets and funding. However, [11] explained that firms with large debt ratios compared to equity might struggle with their liquidity, which necessitates the high leverage, and in the next turn, increase the risk of bankruptcy. This negative effect between leverage and firm profitability as well as firm value is confirmed by other studies [7, 10, 19, 33, 32]. Contrarily, research by [3, 28, 29] stated that any increase in leverage would significantly increase firm value.

The macroeconomic cycle may also have an impact on the level of investment in working capital and profitability. During recessions, firms may have trouble getting external financing for their operating activities and may also increase inventory levels, which may be due to an inability to sell their goods [11]. A study by [7, 10] found a positive effect between gross domestic product and firm profitability as well as the positive effect between gross domestic product and firm value whose study was conducted by [3].

2. METHODS

The study uses panel data from 85 manufacturing firms listed on the Indonesia Stock Exchange and 131 manufacturing firms listed on Thailand's Stock Exchange. The research data covered the years 2008–2017. The data were obtained from Thomson Reuters. This study tested two empirical models to explore the impact of WCM on firms' profitability and firms' value. The first model tested the effect of the CCC on firms' profitability, as measured by ROA in (1). The second model explored the CCC's impact on firms' value, as measured by Tobin's Q in (2). This study also employed a set of control variables to control differences in firm

characteristics and economic conditions. Table 1 illustrates the definitions of dependent, independent, and control variables used in the analysis.

$$ROA_{i,t} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 CCC_{i,t} + \beta_3 GROWTH_{i,t} + \beta_4 AGE_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 GDP_t + \varepsilon_{i,t} \quad (1)$$

$$Tobin's\ Q_{i,t} = \beta_0 + \beta_1 Tobin's\ Q_{i,t} + \beta_2 CCC_{i,t} + \beta_3 GROWTH_{i,t} + \beta_4 AGE_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 LEV_{i,t} + \beta_7 GDP_t + \varepsilon_{i,t} \quad (2)$$

Table 1. Variables abbreviation and calculation.

Abbreviation	Variables	Calculation
ROA	Firm Profitability	Net Income After Tax/Total Assets
Tobin's Q	Firm Value	(Market Value of Equity + Book Value of Total Debts)/Total Assets
CCC	Cash Conversion Cycle	(Accounts Receivable Period + Inventory Period) – Accounts Payable Period
AR Period	Accounts Receivable Period	(Accounts Receivables/Sales) x 365 days
INV Period	Inventory Period	(Inventory/Cost of Good Sold) x 365 days
AP Period	Accounts Payable Period	(Accounts Payable/Cost of Good Sold) x 365 days
Growth	Growth Opportunities	Percentage change in sales over the previous year
Age	Firm Age	Number of years since the firm establishment
Size	Firm Size	Natural logarithm of total assets
Lev	Leverage	Total Debt/Total Assets
GDP	Economic Condition	Annual change in the real gross domestic product

3. RESULTS AND DISCUSSION

3.1 Descriptive Statistics

Descriptive statistics for all dependent, independent, and control variables are illustrated in Table 2 and Table 3. Table 2 illustrates descriptive analysis for sample data Indonesia. Meanwhile, Table 3 illustrates descriptive analysis for sample data Thailand. The average ROA ratio is 5,57% for Indonesia and 5,84% for Thailand. As measured by Tobin's Q ratio, the firms' value has a mean value of 1,44 for Indonesia and 1,26 for Thailand, which means that manufacturing firms in Indonesia have a better potential market value compared to manufacturing firms in Thailand. It also shows that both countries' manufacturing companies are valued higher in the market (*overvalued*).

Table 2. Descriptive Statistics for Indonesia.

Variable	Minimum	Maximum	Mean
ROA	-0,074211	0,23648	0,0557223
TOBINSQ	0,5858	4,5684	1,438209
CCC	1,064	260,4031	102,2477
LEV	0	1,417884	0,2511817
SIZE	1,733598	9,990679	5,213184
AGE	13	104	38,53647
GROWTH	-0,787374	50,90627	0,1770489
GDP	0,0327409	0,0482946	0,0415121

Table 3. Descriptive Statistics for Thailand.

Variable	Minimum	Maximum	Mean
ROA	-0,068962	0,21821	0,0584863
TOBINSQ	0,5827	3,0724	1,263911
CCC	9,8517	241,9735	106,537
LEV	0	1,106501	0,2017293
SIZE	1,721546	9,769237	4,707581
AGE	10	104	32,95038
GROWTH	-0,8962484	7,252516	0,064413
GDP	-0,0118982	0,0699059	0,0261988

The average CCC is about 102 days in Indonesia and 106 days in Thailand, between the payment of raw materials and collection on sales. This indicates that Indonesia's average CCC of manufacturing firms is slightly shorter than the average CCC manufacturing firms in Thailand. As measured by total assets in US Dollar, the average firm size is about 5,21 for sample data Indonesia and 4,71 for sample data Thailand, which implies that the size of manufacturing firms in Indonesia is greater than the size of manufacturing firms in Thailand.

The average sales growth is 17,7% for Indonesia and 6,4% for Thailand, whereas the maximum and minimum sales growth imply that growth rates varied widely across the sample. During the study period, manufacturing firms in Indonesia have a better ability to increase sales than manufacturing firms in Thailand. Firm age had a mean value of 38,54 for sample data Indonesia and 32,95 for sample data Thailand, which implies that the average operational life of manufacturing firms in Indonesia is slightly older than manufacturing firms in Thailand.

The debt-to-total assets ratio has a mean value of 25,12% for Indonesia and 20,17% for Thailand, which is less than 30% of a firm's total assets. Therefore, both firms in Indonesia and Thailand in the study sample were not heavily leveraged. However, manufacturing firms in Indonesia use more debt as a fund source than manufacturing firms in Thailand. The annual change in the real gross domestic product (GDP) as a proxy of the economic condition has a mean value of about 4,15% for Indonesia and about 2,62% for Thailand, showing that Indonesia's economic conditions are better compared to economic conditions in Thailand during the study period.

3.2 Effect of WCM and Firms' Profitability

Table 4 and Table 5 illustrate the empirical findings of the first empirical model that uses ROA as a proxy for firms' profitability. As a measure of WCM efficiency, the CCC exhibits a significant negative effect on ROA at the 10% level of Indonesia's significance. Moreover, table 5 shows that the CCC exhibits a significant negative effect on ROA at the 1% level of significance for Thailand. Hence, the shorter the CCC length, the higher the performance of the firm. These findings are consistent with prior studies [7, 9-12]. For Indonesian and Thailand

firms, the results support their current use of WCM-aggressive strategy, as it contributes to profitability.

Table 4. The Impact of CCC on Firms' Profitability in Indonesia.

	Coefficient	t-Value	p-value
Constant	0,1440148	4,13	0,000
CCC	-0,0000973*	-1,55	0,06
LEV	-0,1164399***	-7,41	0,000
SIZE	0,0060426	0,88	0,1885
AGE	-0,0026156***	-3,77	0,000
GROWTH	-0,0012216*	-1,38	0,0845
GDP	0,4917861*	1,51	0,0655
Model's R2	11,45%		

Notes: Table 4 shows the results of running the following equation from (1) to examine if working capital management affects Indonesia's profitability. Results were obtained using fixed-effect estimation. ***, ** and * denote significance at 99%, 95% and 90% respectively.

Table 5. The Impact of CCC on Firms' Profitability in Thailand.

	Coefficient	t-Value	p-value
Constant	0,0665244	3,14	0,002
CCC	-0,0001687***	-3,48	0,0005
LEV	-0,2267841***	-14,96	0,000
SIZE	0,0240059***	4,84	0,000
AGE	-0,0019299***	-3,82	0,000
GROWTH	0,0146025***	4,21	0,000
GDP	0,2033195***	3,99	0,000
Model's R^2	20,72%		

Notes: Table 5 shows the results of running the following model from (1) to examine if working capital management affects firms' profitability in Thailand. Results were obtained using fixed-effect estimation. ***, ** and * denote significance at 99%, 95% and 90% respectively.

The coefficient of debt-to-total asset ratio reflects a substantial negative effect on ROA at the 1% level of significance in both countries. Hence, the lower the degree of debt financing in firms, the higher the firms' performance. This is in line with the findings reported by [7, 10, 11, 32] and.

Firm size in Thailand reflects a positive effect on ROA at the 1% level of significance. These results indicate that, in Thailand, large manufacturing firms were more profitable than small manufacturing firms. Previous studies also provided the same results regarding a significant positive effect between firm size and company profitability [5, 7, 8, 10-12, 19, 30, 32, 33]. However, the results in Indonesia show that there is no significant effect exists between firm size and firms' profitability.

Firm age, both in Indonesia and Thailand, exhibits a significant negative effect on ROA at the 1% level of significance, which illustrates that older firms are less profitable than younger firms. These results supported by [9], which provides empirical evidence that younger firms are more likely to be profitable than are older ones. Another study by [37] in non-state small and medium manufacturing industries in Vietnam found that firm age was associated with lower efficiency levels. For older firms, the learning by doing process could be offset by obsolete technology compared with younger firms [37].

Reference [38] also found that older firms tend to possess older machinery and equipment, while younger firms that have just entered the market are more equipped with modern technology.

As measured by annual sales growth, growth opportunities in Thailand reflect a significant positive effect on ROA at the 1% level of significance. These findings indicate that manufacturing firms in Thailand with high growth opportunities were more profitable. Empirically, prior studies have demonstrated that sales growth reflects a substantial positive effect on firms' profitability [7, 8, 11, 20, 32, 35]. However, the results in Indonesia provide the opposite evidence. Growth opportunities reflect a significant negative effect ROA at the 10% level of significance. The negative effect between ROA and the GROWTH means that Indonesia's manufacturing firms with high growth opportunities were less profitable. The significant negative effect between growth sales and profitability in Indonesia's manufacturing firms', possibly due to the depreciated Rupiah against US Dollar. On the other hand, growth sales in Thai manufacturing firms' have a positive effect on profitability because the Baht exchange rate against the US Dollar does not depreciate when compared with the condition of the weakening of the Rupiah against the US Dollar in the same period. Therefore, Thai's manufacturing firms' are still able to generate profits, in line with the firms' increase in sales.

Regarding the relationship between economic conditions and firm performance, the results indicate a significant positive effect exists between GDP and ROA at the 1% level of significance in Thailand and Indonesia. These findings imply that in good economic conditions (i.e., at high GDP levels), manufacturing firms in Thailand and Indonesia tend to attain high-profit levels. These results confirm those of previous studies conducted by [10, 11, 20].

3.3 Effect of WCM and Firms' Value

Table 6 and Table 7 illustrate the empirical findings of the second empirical model that uses Tobin's Q as a proxy for firm value. An empirical result in Table 6 and Table 7 demonstrates that CCC had no significant effect on Tobin's Q ratio. These results apply to both manufacturing firms in Indonesia and Thailand. This may occur due to less than enough transparency which affects investors' decisions or investors' inability to efficiently translate received information and market signals [20].

The results in Thailand show that debt financing (i.e., debt-to-total assets ratio) has a negative effect on Tobin's Q ratio at the 1% level of significance. These results indicate that with the increase of corporate debt, it will decrease the firms' value and vice versa. The empirical results in this model are in line with the research conducted by [19]. On the other hand, the results in

Indonesia show that there is no significant effect exists between debt financing and firms' value.

Table 6. The Impact of CCC on Firms' Value in Indonesia

	Coefficient	t-Value	p-value
Constant	-0,4159731	-1,32	0,188
CCC	-0,0000122	-0,02	0,4925
LEV	0,1676448	0,99	0,162
SIZE	0,1192605**	2,58	0,05
AGE	0,020575***	4,47	0,000
GROWTH	-0,0010887	-0,11	0,4575
GDP	9,609225***	2,72	0,0035
Model's R2	3,12%		

Notes: Table 6 shows the results of running the following equation from Equation 2 to examine if working capital management affects Indonesia's value. Results were obtained using random effect estimation. ***, ** and * denote significance at 99%, 95% and 90% respectively.

Table 7. The Impact of CCC on Firms' Value in Thailand

	Coefficient	t-Value	p-value
Constant	-0,2312148	-1,43	0,153
CCC	0,0000737	0,20	0,4215
LEV	-0,5414758***	-4,68	0,000
SIZE	0,071068**	1,87	0,0305
AGE	0,0365185***	9,45	0,000
GROWTH	0,0577356**	2,18	0,0145
GDP	2,096588***	5,38	0,000
Model's R2	16,75%		

Notes: Table 7 shows the results of running the following model from Equation 2 to examine if working capital management affects firms' value in Thailand. Results were obtained using fixed-effect estimation. ***, ** and * denote significance at 99%, 95% and 90% respectively.

In this study, the regression findings indicate a significant positive effect exists between firms' size and firms' value, both in Indonesia and Thailand. These findings demonstrate that large firms maximize value for their shareholders. This result agrees with the research conducted by [20].

The regression output result shows that the firm age coefficient has a positive effect on Tobin's Q ratio at the 1% level of significance for both countries. This positive effect between firm age and firm value implies that older firms maximize their shareholders' value compared with the youngesr firms. These results are supported by the prior research of [3]. According to [39], the older the firm, the more easily it can acquire resources over time. This is because firms age is associated with, for example, greater experience, more information, better reputation, and greater access to business networks and financial institutions, all of which help the firm overcome limited access to resources and operate more efficiently. These positive things will undoubtedly have a positive impact on investors and the increasing market value of the company.

In addition, the regression output shows that growth opportunities were not significant with firms' value in Indonesia. In other words, the sales growth in Indonesia's manufacturing firm does not give a meaningful reaction

to the market, so it does not affect its value. Meanwhile, in Thailand, growth opportunities positively affect Tobin's Q ratio at the 5% level of significance. These results are in line with the research conducted by [3], which found that manufacturing firms with a high market value tend to have higher growth opportunities.

Regarding the relationship between economic conditions and firms' value, Indonesia and Thailand's results show a significant positive effect between GDP and Tobin's Q ratio at the 1% level of significance. These findings can be interpreted to mean that firms tend to be low-performance levels in times of economic recession (i.e., at low GDP levels) and, hence, low Tobin's Q ratios, and vice versa.

4. CONCLUSIONS

Thus, this study's main objective was to explore the impact of WCM on the performance and value of Indonesian and Thailand manufacturing corporations. To achieve this, the study employed a panel data analysis on 85 manufacturing firms listed in the Indonesia Stock Exchange and 131 manufacturing firms listed in the Stock Exchange of Thailand from 2008 to 2017. Panel data treatment with fixed effect and random effect regression was considered the most appropriate approach for describing and analyzing our sample, and this study controlled for differences in firm characteristics and economic conditions.

The study finds that in Indonesia, firm performance has a significant negative effect on the CCC. Debt financing, firm age, and growth opportunities also reflect a substantial negative effect on firm performance. Conversely, firm performance is positively affected by economic conditions. In addition, there is no significant effect between firm performance and firm size.

On the other hand, this study also demonstrates that firm performance in Thailand was negatively affected by the CCC, the level of debt financing, and firm age. Conversely, firm performance in Thailand was positively affected by firm size, growth opportunities, and economic conditions. In line with the prevailing view, a negative effect between the CCC and firm performance shows that the shorter the CCC length, the higher its performance. For Indonesian and Thailand firms, the results support their current use of WCM-aggressive strategy, as it contributes to profitability.

Using Tobin's Q ratio as a proxy of firm value, the result was the CCC had no significant effect on Tobin's Q ratio. These results apply to both manufacturing firms in Indonesia and Thailand. A positive effect was found between firm value and firm size, firm age, and economic condition. These results also apply to both manufacturing firms in Indonesia and Thailand. The result from Indonesia shows that there is no effect between firm value and the level of debt of financing and growth

opportunities. Conversely, a firm value in Thailand was negatively affected by the level of debt financing.

The current study has some limitations. This study focused on manufacturing firms only. Further studies could be expanding to firms that operate in another sector. Future studies also could use additional control variables such as corporate governance mechanism, industry concentration, or financial constraints. The scope of further research may be extended to the working capital components management, including cash, receivables, and inventory management. A qualitative study may reveal the underlying causes of the length of different components of CCC. In addition, future research could be extended to analyze working capital management practices and their effect on performance across the countries, especially those in the South-East Asian Community.

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