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# Working Capital Management and Leverage to Profitability: Case of Manufacturing Firms in Indonesia

Working Capital  
Management

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## Abstract

This study aims to investigate whether Working Capital Management (WCM) and leverage affect firm profitability. Data concern was gathered from Bloomberg database terminal. Sample is manufacturing companies listed in Indonesian Stock Exchange (IDX) over the period of 2014 – 2020, which already established for some time. WCM is measured by using Cash Conversion Cycle (CCC), profitability is proxied with ROA while leverage is proxied by Debt-to-Equity. Panel data regression using random effect model is utilized to test hypotheses. Result shows that CCC has no significant relationship with profitability, it implies that the length of CCC days does not affect profitability. Leverage affects negatively and growth positively profitability performance, the higher the proportion of debt to equity will lower profitability, on the other hand, the higher sales growth will enhance better firms' profitability performance. Our findings contribute to understanding of the relationship of CCC and leverage on profitability of manufacturing firms in emerging markets.

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## Introduction

The rapid changes in economic development and the technology enhance competition to companies that have long been established so that competitive advantage is the most sought after by companies in winning competitions in the market. According to Amponsah-Kwatiah and Asiamah (2020), the goal of each organization is the maximization of profits; hence profitability measures are commonly used in comparison with other performance ratios. Profitability is a firm's ability to obtain profit and to survive in a market, thus leading to sustainability and stability (Alarussi & Gao, 2021).

Working Capital Management (WCM) is a period since material purchased to its conversion into finished goods and finally be converted into cash from sales (Wang, 2019). WCM can provide a sufficient liquidity level to allow companies to pay the costs of short-term liabilities resulting from the company's operational activities (Aldubhani et al., 2022). WCM plays an essential and influential role in the operational performance and liquidity, profitability, and therefore affects the overall company value (Aldubhani et al., 2022). Efficient WCM can have a significant impact on profitability. There exists an optimum level of Working capital to support and develop a business. Failing to achieve this, the firm faces risk of failure (Tran et al., 2017). Balanced working capital can increase the company's value in the market in terms of liquidity and, at the same time, also accelerate shareholder value (Singhania & Mehta, 2017), while excessive working capital can influence companies to invest heavily in fixed assets and will eventually bring the company into an over-capitalized situation, and sales may not compensate for this. On the other hand, sufficient working capital can help companies' operations.



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External funding is crucial to leverage the company's performance and profits. In line with this argument, Alarussi and Gao (2021) maintain that companies opt to finance their activities from an external source for various reasons, such as limited internal financial sources or when the company needs to maintain current ownership of the company. Therefore, the company requires various forms of external funding. According to Neves et al. (2021), the greater indebtedness in small firms will lower the company's performance because more resources required to fulfill obligations to third parties, resulting in lower yields and lower performance. In line with that, Samo and Murad (2019) study on Pakistani textile firms found a significant and negative relationship between leverage and profitability. Meanwhile, companies that have been established sometimes will pay attention to long-term decisions and capital structure to attract the attention of investors. Singhanian & Metha (2017) argues that since significant decisions of any company primarily focus on long-term financial investments and assets, it often overrides the importance of short-term assets and liabilities. Because the results of their long-term decisions will have an impact if the company pays attention to short-term decisions; therefore, short-term decisions have an essential role in increasing the satisfaction provided by the company to shareholders. Short-term decisions consist of two elements, namely Current Assets and Current Liabilities, which are part of Working Capital.

Kieso et al. (2017) define leverage as a company's ability to pay its debts when they are due. According to Dalci (2018) leverage drives profitability since debt reduces agency problems, allows managers to utilize resources efficiently, and reduces tax. However, leverage negatively affects profitability after a certain level due to financial difficulties, asymmetric information, and debt agency costs. Therefore, the positive impact of leverage can be associated with tax protection, while the negative impact of leverage is bankruptcy, financial difficulties, severe agency problems, and information asymmetry. On the other hand, leverage increases risk exposure because the higher the leverage, the more likely the company will be depressed. Similarly, Neves et al. (2021) maintain that leverage implies less financial flexibility and more significant risk and exposure. Therefore, an optimal level of leverage is needed so that companies can use the benefits and minimize the risks in the leverage itself (Alarussi & Gao, 2021).

Extant literature shows the significant role of WCM in determining profitability. Some found significant negative relationship between WCM to profitability (Le, 2019; Chang, 2018; Ren et al., 2019; Fernández-López et al., 2020). On the contrary, other studies found a significant positive relationship between WCM to profitability (Singhanian & Mehta, 2017; Amponsah-Kwatiah & Asiamah, 2020). Some others found a nonlinear relationship between WCM and profitability (Bořoc & Anton, 2017; Singhanian & Mehta, 2017). Lastly, some studies found an insignificant relationship between these variables (Ahmed et al., 2018).

Many researchers examine the relationship between WCM and leverage on profitability; specifically, Cash Conversion Cycle (CCC) is used as a proxy of WCM. Previous research found that leverage significantly affects profitability; however, the results are inconclusive. Some studies demonstrate a negative relationship between leverage and profitability (Neves et al., 2021; Alarussi & Gao, 2021). On the contrary, some research shows a positive relationship between leverage and profitability (Dalci, 2018).

Based on the explanation above, this research aims to examine whether WCM and leverage affect profitability. This research focuses on manufacturing firms listed on Indonesian Stock Exchange (IDX) in 2014 - 2020 that have been established for at least 26 years in 2020, so this study uses sales growth and age as the control variable. Cyril and Singla (2021) found that older firms will generate a better profit than younger firms because older companies benefit from learning and experience.

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The rest of the paper is organized as follows. Section 2 reviews the related literature and develops the hypothesis, followed by sample selection and research designed in Section 3. Section 4 displays findings and discussion, and finally, Section 5 concludes and gives recommendations for future research.

## Literature Review

### *Resource-based Theory*

Resource-based Theory (RBT) explains that the ownership of valuable resources cannot be replaced. There are two types of resources, namely tangible, intangible and financial resources. Tangible resources have a physical form, for example, equipment, plants, and others. Meanwhile, intangible resources do not have a physical form or are intangible; an example of a company's intangible resource is human capital. Trade credit from suppliers is a facility to pay accounts payable in a certain period. It is a firm's unique resource since it reflects a good relationship with the firm's suppliers to provide materials continuously trusting that firm able to pay at the given time. Trade receivable acts as spontaneous fund firms, being able to delay payment to suppliers means firm can use that fund for operation instead of borrowing from external parties (Laughlin, 1980). Normally, the longer the trade credit from supplier the greater resources a firm enjoys.

### *Trade-off Theory*

The trade-off theory suggests that financial leverage can affect profitability in several ways, i.e., tax effect, financial distress, agency costs, and information asymmetry. Firms that use funding from external sources can increase profitability since the debt's interest is tax-deductible. Tax deductions, in turn, will boost profitability. On the other hand, more debt firms use increases interest expense, leading to financial distress and bankruptcy (Dalci, 2018).

### *Cash Conversion Cycle Theory*

The cash conversion cycle theory describes the period needed to convert cash disbursements into cash inflows. This theory offers a complete approach to liquidity viewing from both the balance sheet and income statement approach. Unlike the current ratio, which is calculated by dividing current assets by current liabilities, CCC integrates time intervals of firms' receivables, inventory, and payables turnover performance. Longer CCC tends to require more committed investment in cash and non-cash assets, reducing flexibility in managing cash flow when facing uncertain economic and business environments. In general, the shorter cash conversion cycle indicates a company's health, which will positively affect profitability (Richards & Laughlin, 1980).

### *Profitability*

Amponsah-Kwatiah and Asiamah (2020) define company profitability as an ability to improve decisions and operational and investment strategies to achieve financial stability. Undeniably, a business can last only for a relatively short time if it does not generate profits. Profitability is crucial in attracting new investors, increasing the satisfaction of existing shareholders, and signaling management success, and ensuring the company's sustainability. Profit is generally measured by subtracting expenses incurred from revenue generated during a specific period. There are many ways to measure profitability such as Net Operating Margin (NOM), Gross Profit Margins (GPM), return on capital employed (ROCE), one of which will be used in this study is Return on Assets (ROA). ROA demonstrates the company's ability to generate profits from the assets used. The greater the ROA, the better the firm's profitability performance because the return rate is bigger.

### *Working Capital Management*

Working Capital Management (WCM) can be defined as the ability of management to manage the company's current assets against the company's current liabilities. According to Tran et al. (2017), WCM is one of the critical areas in corporate finance where both company's decision on financing and investment in short term period can directly affect profitability. Working capital involves several elements in the company's daily operations, such as procurement, production, and sales. In addition, it is invested cyclically in various accounts such as inventory, accounts payable, and accounts receivable. Thus, WCM is considered essential for overall business management because it consists of company operations and finances since they are part of current assets and current liabilities (Singhania & Mehta, 2017; Le, 2019; Ren et al., 2019; Amponsah-Kwatiah & Asiamah, 2020). In addition, WCM is also considered vital for companies because it can expand their investment during the economic recovery period (Le, 2019). For this reason, WCM is considered vital in financial management because of its effect on performance, risk, and corporate value (Amponsah-Kwatiah & Asiamah, 2020).

Inefficient WCM can exacerbate the strength of a company (Singhania & Mehta, 2017). Therefore, working capital needs to be maintained at an optimal level to maintain and develop the business; when the business does not achieve this, there is the potential for the company to fail. Le (2019) argues that companies that have control over their WCM, when working capital is managed efficiently it can increase their companies' economic value. Thus, WCM is considered a life-giving force for a company, and efficient WCM is one of the prerequisites for the financial success of an organization and company goals (Amponsah-Kwatiah & Asiamah 2020).

Traditional WCM measures, such as Current Ratio dan Quick ratio, do not convey sufficient information on flow of the working capital accounts, which derived from four main activities of "purchasing/production, sales, collection and payment"; therefore, CCC, calculated from Days Sales Outstanding (DSO) plus Days Inventory Outstanding (DIO) minus Days Payable Outstanding (DPO), is proposed a proxy of WCM (Richards & Laughlin, 1980 as cited in Ren et al., 2019). Since then, CCC has been widely used as a proxy of WCM (Singhania & Mehta, 2017; Wang, 2019; Boisjoly et al., 2020). In addition, WCM is also measured by total of (accounts receivable + inventory – accounts payable) divided by total assets (Hatane et al., 2019), total cash cycle, and net trade cycle. Shorter days of CCC indicate aggressive WCM practice (Chang, 2018), which can be achieved, for example, through aggressive policies on accounts receivable collection, extending period of accounts payable payment (Boisjoly et al., 2020).

### *Leverage*

Leverage is the usage of debt to fund companies' operations. Leverage also implies less financial flexibility, greater financial risk, and greater exposure to third parties, which puts companies under pressure and make periodic capital disbursements (Neves et al., 2021). Therefore, the level of leverage must be maintained to provide benefits for the company and minimize risk. Das et al. (2021) maintain that an optimum level of leverage enhances firms' performance. Leverage in the capital structure can reduce agency costs by limiting or encouraging managers to act more in the interests of shareholders by regulating investment choices. Leverage can enhance company profits and benefit equity holders because interest on debt can be deducted before tax payments to reduce actual costs. Leverage can be calculated using total liabilities divided by total assets, total debt to total assets, and long-term debt plus debt in current assets divided by total equity. On the other hand, a higher level of external funding suggests a higher cost of capital, which will reduce profitability. Firms with higher level of leverage are associated with higher risk (Yadav et al., 2022).

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### *Firm Age*

Akben-Selcuk (2016) explains that aging causes a decrease in organizational performance in three ways. First, research shows that older companies have better financial performance because they possess more experience and enjoy the benefits of "learning by doing" (Akben-Selcuk, 2016; Dimitrić et al., 2019). Second, older firms enjoy better performance due to a "selection effect" that arises when less productive firms are forced to go out of business, leading to higher average productivity (Akben-Selcuk, 2016). Third, aging can harm a company's financial performance because the "inertial effect" causes companies to become inflexible and have difficulty adjusting to the rapidly changing business environment in which they operate (Akben-Selcuk, 2016). Moreover, Rahman and Yilun (2021) argues that as firms grow old, they become more rigid with rules and regulations thus causing longer process of decision making; this inefficiency will severely impact firm profitability.

### *Firm Growth*

Firm growth illustrates that companies can develop their business well. There are several patterns of firm growth identified, among others organic, acquisition (Adams et al., 2014), and hybrid. Current research defines firm growth from internally / organic growth (Adams, et al., 2014) which is measured by sales growth in comparison with previous sales performance. Yadav et al. (2022) found that firm growth is positively correlated with profitability for nonfinancial firms in Asia- Pacific. Positive firm growth denotes an increase of sales compared to previous year, which in turn will affect profitability in positive direction.

### *CCC and Profitability*

CCC is a crucial element that affects firms' profitability, and their relationships have been studied in many countries. For example, Portugal (Neves et al., 2021), China (Dalci, 2018; Ren et al., 2019; Alarussi & Gao, 2021), Malaysia (Wasiuzzaman, 2015), Thailand (Singhania & Mehta, 2017), Vietnam (Tran et al., 2017, Le, 2019), Jordan (Soda et al., 2022), and Ghana (Amponsah-Kwatiah & Asiamah, 2020). Some study multiple countries, such as Boțoc and Anton (2017) in Central, Eastern, and Southeastern Europe (CESEE), Singhania and Mehta (2017) on 14 emerging Asian region countries, or Chang (2018) on 46 countries.

Tran et al. (2017) explained that stable cash flow is significant to maintain a business; sufficient working capital will maximize profitability, while poor working capital management is one of the main reasons for business failure. WCM in this study is measured by CCC, calculated from  $DSO + DIO - DPO$ . Granting long credit terms for customers (DSO) and large inventory holding (DIO) reduces available money as working capital. More significant DIO days denote additional costs in managing inventory, for example, warehouse, insurance, and security, and will negatively affect profitability if the sales generated from large inventory do not cover the additional committed costs. Although longer payable period to suppliers (DPO) is favorable in general, extending DPO might severe firms' reputation. A longer CCC signifies a more extended period between the cash disbursement and cash inflows and is negatively associated with profitability, as demonstrated by previous studies (Le 2019; Ren et al., 2019; Fernández-López et al., 2020; Alarussi & Gao, 2021). Longer CCC days mean firms require higher working capital, which causes high financing costs leading to financial distress. In fact, majority research (79%) found negative significant relationship between relationship between CCC and profitability (Prasad et al., 2019).

On the other hand, few studies found that CCC has a positive relationship with profitability. For example, Amponsah-Kwatiah (2020) study using manufacturing firms in Ghana shows a positive relationship between CCC and ROA. The longer the CCC days will increase profitability could be explained by its components. CCC formula consists of  $DSO + DIO - DPO$ . Positive CCCs mean total DSOs and DIO days are greater than DPO days (Amponsah-Kwatiah, 2020). Longer DSOs mean that companies receive longer cash from their customers, and companies that provide extended credit sales to their customers make customers order goods in larger quantities. These longer credit terms also allow ample time for customers to check the quality of the merchandise bought on credit, thus could attract sales and ultimately increasing profitability (Amponsah-Kwatiah, 2020). In addition, the longer DIO means a relatively large inventory on hand, allowing the company to achieve economies of scale to reduce production costs per unit, hence increasing profitability. Besides that, a large stock of raw material inventory can also reduce the risk of disruption in production. A large stock of finished goods prevents loss of sales due to stock-out, ultimately increasing profitability (Amponsah-Kwatiah, 2020).

Some studies exhibit a nonlinear relationship between CCC and profitability. For example, Bořoc and Anton (2017) found that a relationship of inverted U shape of working capital ratio and ROA in nonfinancial high growth firms from 13 CESEE countries over the period of 2006 to 2015. This concave relationship suggests an optimal level of working capital ratio at 0.79 sales. Increasing working capital ratio will enhance profitability, but when it has negative impact on profitability when it reaches this optimum level. Similarly, Singhania and Mehta (2017) found a non-linear relationship of CCC and profitability.

Based on above explication, we develop the following hypothesis:

**H1:** the days of CCC is related to profitability (nonpredictive direction)

#### *Leverage and Profitability*

Several previous studies prove a relationship between leverage and profitability, but no consistent results exist. In general, many studies have found a significant and negative relationship between leverage and profitability (Singhania & Mehta, 2017; Samo & Murad, 2019; Batool & Sahi, 2019; Nazir et al., 2019; Neves et al., 2021). Singhania and Mehta (2017) study of nonfinancial companies from 2004 to 2014 found that firms in Japan, Vietnam, and Taiwan that use lower leverage will enhance their profitability. In addition, Batool and Sahi (2019) found that leverage correlate negatively profitability in the UK insurance companies. When firms have external financing, the cost of capital will decrease profitability. A high level of leverage exhibits a higher cost of capital, which will lead to financial distress.

In addition, other studies find that leverage has a positive correlation with profitability. For example, Dalci (2018) and Alarussi and Gao (2021) study on listed manufacturing firms and nonfinancial companies in China found that a higher level of leverage will increase profitability. This relationship is because the debt's interest is tax deductible, thereby increasing profitability. However, this study also found that leverage will reduce profitability when it passes an optimum leverage level. Similarly, Batool and Sahi (2019) study on insurance companies in the USA found that leverage is positively correlated with profitability.

In this case, the hypothesis is formulated by:

**H2:** Proportion of debt to equity has a negative effect on profitability.

Firms that have been founded for a long time have more experience of competitive rivalry than their competitors who have just entered the market. For example, older companies gain experience, enjoy the benefits of "learning by doing", and are exposed to the

"selection effect", which yields insights needed into the market and customers' tastes, attitudes, and behavior (Akben-Selcuk, 2016, p.2). Thus, companies can take more precise and careful steps to increase sales and profit. Besides that, Cyril and Singla (2021) maintain that firms that are older are more profitable. On the contrary, Rahman & Yilun (2021) found that older firms are less profitable than younger firms.

Empirical studies found mixed result effect of growth to profitability. For example, Yadav et. al (2022) examining 12 industries in Asia Pacific from period of 1995 to 2016 firm found positive correlation between growth and profitability in Hong Kong, Indonesia, India, Japan, South Korea, Malaysia, the Philippines, and Singapore. However, the relationship is insignificant for China, Israel, Pakistan, and Thailand. Singhania found that the higher the sales growth will enhance profit in non-financial firms (Singhania & Mehta, 2017).

### Methodology

This research investigates the relationship between CCC and leverage (LEV) to profitability (ROA), where the ROA is dependent variable, CCC and LEV are independent variables; and AGE, GROWTH and COVID are control variables. A dummy COVID variable is used to control the effect of Covid-19 pandemic to firms' profitability. Our research model can be seen in Figure 1.

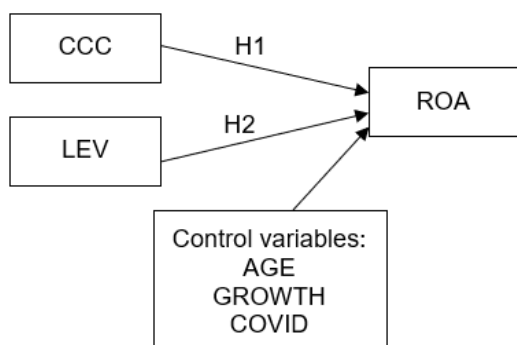


Figure 1. research model

To examine effect of CCC and leverage to profitability, this study uses the following model:

$$ROA_{it} = \alpha + \beta_1 CCC_{i,t} + \beta_2 LEV_{i,t} + \beta_3 AGE_{i,t} + \beta_4 GROWTH_{i,t} + \beta_5 COVID_{i,t} + \varepsilon_{i,t} \quad (1)$$

where the variables are explained above,  $i$  denotes the firm and  $t$  denotes the year,  $\beta_1 - \beta_5$  regression coefficient of each variable. Measurement of variables and research reference is presented on Table 1. IN this research, independent and dependent variables are from the same year.

Data were derived from manufacturing firms listed in IDX covering 2014 To 2020. To control the effect of Covid -19 pandemic, dummy variable of COVID was used. The years 2020 and 2021 were coded 1, when pandemic-19 took place, and 0 otherwise. During Covid-19, to reduce the spread of the Covid-19, governments introduced several health measures, including closing some business activities, reducing travelling between cities and countries. These in turn negatively affect firms' sale, and ultimately impair profitability.

**Table 1.** Variable operational definition

Variable	Symbol	Measure	Reference
Profitability	ROA	$ROA = \frac{Net\ Income}{Total\ Asset} \times 100$	(Singhania & Mehta, 2017, Amponsah-Kwatiah & Asiamah (2020))
Working Capital Management (WCM)	CCC	CCC = DSO + DIO – DPO, where: $DSO = \frac{Average\ Account\ Receivable}{Sales} \times 365$ $DIO = \frac{Average\ Inventory}{COGS} \times 365$ $DPO = \frac{Average\ Account\ Payable}{COGS} \times 365$	(Ren et al. 2019)
Leverage	LEV	$LEV = \frac{Total\ Debt}{Total\ Equity} \times 100$	(Le, 2019)
Firm Age	AGE	AGE = Log (Observation Year – established year)	(Cyril & Singla, 2021)
Firm Growth	GROWTH	The percentage of the company's sales growth compared to the previous year. $GROWTH = \frac{Total\ Revenue_t - Total\ Revenue_{t-1}}{Total\ Revenue_{t-1}} \times 100$	(Le, 2019)
Covid	COVID	Dummy variable, where 1 is given during Covid-19 pandemic (year 2020) and 0 otherwise	

### Population and sample

Financial data used were drawn from the Bloomberg database terminal. The population of this study is manufacturing companies listed on the Indonesia Stock Exchange (IDX) from 2014 to 2020, with a total of 79 companies. The purposive sampling method was used to draw a sample of companies that have been established for at least 26 years in 2020, as we answered call from Cyril and Singla (2021) for study on age and profitability. It also includes only firms that have data available for all years studied (2014 – 2020) since sales growth is one of control variable that requires complete data across different years. From total 266 observation as shown in Table 2, we exclude one observation where CCC is large (CCC = 16,434 days) since it will distort data analysis. Further, some data where total equity is less than 0 or when debt to equity percentage too large were eliminated. The final sample resulted was 253 observations of unbalanced panel data.

Statistic descriptive and panel data regression were used to analyze data and to test hypotheses in this study. After performing statistics descriptive, pooled OLS regression was run on data followed by panel specification. There are 3 different tests (Chow test, Breusch and Pagan's Lagrange Multiplier (LM) test, and Hausman) were used select the best model between OLS, fixed effects, or random effects. The Chow test will determine between OLS and fixed effects model where if p-value of Chow test is significant then it favors fixed effects model. The Lagrane test will determine between OLS and random effects model where if p-value of Lagrange test is significant, it favors random effects model. Lastly, if the p-value of Hausman test shows significant, it favors fixed effects over random effects model (Dalci, 2018). Gretl 2022a statistical software was utilized to analyze data.

**Table 2.** Sample Selection Results

Manufacturing firms listed in IDX during 2014 - 2020	79
Less: firms' age less than 26 years in 2020	(2)
Less: firms with not available information from Bloomberg data	(39)
Total sample firms	38
Year	7
Total observations	<b>266</b>



*Descriptive Statistics*

Table 3 displays the means, minimums, maximums, and standard deviations of the variables tested. The mean value of ROA is 2.454 means average sampled firms experienced 2.45 percent of net income to total assets. In average sample firms has average debt to equity ratio 145 per cent, with highest LEV is 42 times of their equity. Mean of AGE of firms is 3.6036 (38 years) shows that sampled companies age are between 19 to 63 years old. A large negative value of ROA (-27.178 percent) suggests that although studied firms are relatively established, some firms still experienced loss, with minimum -27,178%. Average CCC of sampled firms is 111 days, while CCC in Vietnam manufacturing is 154 days (Ren et al., 2019). There is large variation of the CCC among studied data, with maximum CCC is 427 days, or around 14 months. Mean The mean value of GROWTH -1.32 per cent indicates relatively lower sales growth compared to the previous period. Out of the samples, 13 per cent observations (n=34) were during pandemic period.

**Table 3.** Descriptive Statistics

Variable	Unit	Mean	Minimum	Maximum	Std. Dev.
ROA	Percent	2.8454	-27.178	26.209	6.0113
LEV	Percent	145.44	0.1237	4151.6	355.45
CCC	Days	110.82	-65	427	79.524
AGE	Ln (year)	3.6036	2.9444	4.1431	0.24336
GROWTH	Percent	-1.3176	-152.68	41.957	23.477

Covid	No. of observation	%
0	219	87%
1	34	13%
Total	253	100%

**Table 4.** Panel Estimation Model

Test	p-value	
Chow test	1.60574e-013	Fixed effects model
Lagrange Multiplier test	1.96541e-019	Random effects model
Hausman test	0.223042	Random effects model

Table 4 shows Chow test ( $p < 0,05$ ) suggests fixed effects model while both LM and Hausman test suggest for random effects model, therefore random effects model was the best fit for the data. The result of hypotheses testing using random effects model can be seen at Table 5.

**Table 5.** Regression results

Variable	Expected sign	Coefficient	p-value	
CCC	N/A	-0.00405	0.3453	
LEV	-	-0.00530	0.0000	***
AGE	+	1.79428	0.2064	
GROWTH	+	0.07425	0.0000	***
Covid	-	1.07190	0.2983	
Constant		-2.44533	0.6310	
F (5, 247)		13.78431		
Prob > F		0.0000		
R <sup>2</sup>		0.2182		
Adjusted R <sup>2</sup>		0.2023		
N		253		

Note(s): \*\*\*, \*\* and \* denote significant in less than 1%, 5% and 10%, respectively

Our result in Table 5 shows negative but not significant relationship ( $\beta = -2.44553, p > 0.05$ ) between CCC and ROA, therefore H1 is rejected. It suggests that the lengths of CCC do not affect profitability. Table 5 shows a negative and significant relationship at one percent level ( $\beta = -0.00530, p < 0.05$ ) between LEV and ROA, thus confirming Hypothesis 2. It suggests that an increasing leverage will reduce profitability. GROWTH is significantly positive ( $\beta = 0.07425, p < 0.05$ ) affect profitability at 1% significance level, suggesting that firms with higher sales growth will increase profitability. The results imply that reduction of leverage and increase of sales growth will enhance profitability. The Adjusted R-squared value shows that CCC, leverage and control variables explain 20.23% of variance in the ROA of manufacturing firms listed in IDX.

### **Discussion**

Our result in Table 5 shows negative but not significant relationship ( $-2.44553, p > 0.05$ ) between CCC and ROA, therefore H1 is rejected. This research is in line with Ahmed et al. (2018) that CCC has an insignificant effect on profitability. This finding does not support extant studies (Chang, 2018; Ren et al., 2019; Le, 2019; Fernández-López et al., 2020; Alarussi & Gao, 2021; Soda et al., 2022) which show negative significant relationship between CCC and profitability. Our empirical result indicates that the longer or shorter of CCC days does not enhance firm profitability, in terms of ROA. Samples firms that have relatively longer CCC days are from chemical, ceramic metal, and pulp and paper companies. DIO are relatively high since these subsector inventories are relatively imperishable. CCC is crucial in manufacturing firms, since its operation involve inventory in different forms (raw materials, work in process and finished goods) which is denoted by DIO, accounts payable reflecting DPO from suppliers, and DSO representing credit to customers. Thus, it is necessary to have CCC in manufacturing firms, although our study result does not show its relevance toward profitability.

Table 5 shows a negative and significant relationship ( $-0.00530, p < 0.05$ ) between LEV and ROA, thus confirming Hypothesis 2. This result is consistent with prior research (Alarussi & Gao, 2021; Neves *et al.*, 2021). This implies that a higher proportion of firms' financing from external sources will reduce profitability. Leverage is essential in financing firms' operation; however, the level of external funding needs to be maintained so that the cost of capital will not cover more than the benefits it provided.

The result shows a positive relationship between sales growth and profitability, means a greater proportion of sales growth compared to the previous year will increase profitability. This result is consistent with previous research (Yadav et al., 2022). Maintaining and increasing sales growth is a crucial element to boost profitability. Managers can increase sales by managing DSO through extending the credit policy to customers to stimulate sales.

### **Conclusions and Recommendations**

This research was conducted on 38 manufacturing companies listed on IDX over seven years from 2014 to 2020. The study investigates the influence of WCM and Leverage on profitability in manufacturing companies that have been established for at least 19 years. This study used three control variables, namely firm age, sales growth, and Covid-19. Tests were conducted using panel data regression utilizing a random effects model. The result of the analysis shows that CCC does not affect profitability. Leverage negatively affects profitability, the greater external funding will deteriorate firm performance. A greater percentage of sales growth compared to the previous year will increase profitability in terms of ROA.

Our findings show that CCC does not exhibit to be a determinant of profitability, nevertheless managing CCC is crucial in ensuring company's operation smooth and

establish company's reputation. This implies that the Manager must manage the CCC days, by managing DSO, DIO and DPO.

This research has limitations. The research was conducted at a manufacturing company listed in IDX means that the findings are not generalized to other industries with different characteristics than manufacturing firms, nor are they still developing. This study's R-squared value is minimal, only 22%, which implies there are still many other variables outside of this study that influence the relationship between WCM and leverage on profitability. The debt measures leverage in this study to equity ratio. However, in the sample companies, some companies are losing money which causes fluctuations in the equity value so that the leverage value is tremendous. Therefore, measuring leverage with the debt to assets ratio may give different results.

Future researchers can extend this research by comparing CCC and profitability in companies that have been established for a long time and those that have just been established or by comparing the performance of several industries. In addition, researchers can also examine data from several countries to provide a comprehensive perspective by considering several factors specific to each country's business environment. Besides that, other studies can also add control variables such as firm size, firm efficiency, firm value, and market capitalization.

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