Nonlinear Relationship Between Working Capital and Firm Performance Moderated by Financial Constraints on Manufacture Firms Listed in Indonesia Stock Exchange

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Abstract—The research aims to analyze the relationship between the working capital and firm performance of manufacturing companies listed in Indonesia stock exchange (IDX). Data were obtained from 33 manufactured from 2014 to 2018 using the Eviews 9.0 multiple regression analysis methods. The outcome showed the existence of a nonlinear relationship between both parties, which applies to the rise of financial constraints. Therefore, an increase in working capital helps firms to raise their sales till a certain optimal point is achieved. It also raises cost and risks of bankruptcy. This study, therefore, provides evidence of the nonlinear relationship between working capital management and firm performance of manufactured firms listed in the IDX.

Keywords—financial constraints, firm performance, working capital, net trade cycle

I. INTRODUCTION

Profitability is a relationship between revenues and cost, leading to the use of current or fixed assets by firms in productive activities [1]. Efficient working capital management aims to avoid excessive investment in assets and maintain a company's ability to determine the balance amid liquidity and profitability [2]. High investment in working capital has the ability to help companies increase sales, obtain a higher discount for early payments, and raise their value [3]. However, an excess investment in working capital leads to a few unwanted impacts with the ability to harm the value of shareholders [3]. This is because excess investment needs adequate financing and thereby, increasing the probability of bankruptcy [4]. These two views create a perspective that proves the existence of a tradeoff between benefits and costs for every level.

In 2018, Bank of Indonesia reported that the Prompt Manufacturing Index (PMI) was on the third quartile with 52.02%. The percentage beyond 50 showed that manufacture sectors were going through an expansion phase due to the increase in production volume with a positive impact in the domestic market. Some previous studies stated is the possibility of a nonlinear relationship between the investment level of working capital with the firm's profitability, thereby encouraging them to maximize their performance [5]. Therefore, maximizing the stock value of firms at an optimal level tends to improve their performance [3]. According to the studies carried out by a few researchers, there are inconsistencies associated with the working capital management effects on firm performance [6,7]. Hence, the result can be linear/quadratic and positive/negative, depending on the relevant variable and situations. In addition, previous studies majority focused on the linear relationship of firm performance [8-10]. Meanwhile, Baños-Caballero et al., [11], Simon et al., [12], and Afrifa [13] stated that failed to examine the nonlinear relationship between these parties. A research carried out in China, examined the nonlinear relationship using financial constraints [14]. However, according to Charitou, no research has been conducted with the firm's profitability using data from Indonesia [15].

II. LITERATURE REVIEW

According to numerous studies, working capital management affects profitability, liquidity, value, and corporate performance significantly [3]. Therefore, it is important to manage current assets and liabilities efficiently in order to reduce the risk associated with the inability to meet the companies' short-term obligations by avoiding excess investment [16], which eventually tends to affect profitability. Simon [12] et al., Afrifa [13], Pais and Gama [17], and Mun and Jang [18], stated that there is the existence of a nonlinear relationship between working capital and profitability. Furthermore, corporate performance increases by maintaining an optimum level and decreases with an increase in the working capital. Therefore, firms have to maintain an optimum
level by keeping a balance between costs and its beneficial values. In accordance with these descriptions, the following was formed:

H1: There is a nonlinear relationship between working capital and corporate performance, which is positive at a low level and vice versa.

A firm easily gains external financing without any obstacles with the non-existence of market imperfections. Therefore, they do not always have to depend on the availability of internal financing. According to Chauhan and Banerjee [19], these kinds of situations are almost impossible in reality, because investment decision is affected by the constraint and availability of external financing. They also stated that firms try to reduce their production cost by optimizing its working capital level and increasing the availability of internal financing for investment projects. In addition, working capital is affected by the financial needs of a firm, therefore, it is a significant way to affect its behavior [20]. Firms with a high capability of internal financing have more access to the capital market [21]. According to these descriptions, the following hypothesis is formed:

H2: There is a positive relationship between working capital and corporate performance at a low investment level.

III. METHODS

This research uses secondary data obtained from libraries, documentary, and financial reports published in intermediary media such as the idx.co.id and www.sahamok.com obtained from 2014 till 2018. A total of 162 companies were listed in IDX, however, amongst them, 44 companies failed to publish its financial report, while approximately 27 companies used different currency in its financial report. Furthermore, 58 companies did not pay dividends continuously, therefore, after performing purposive sampling, only 33 companies met the criteria for this research. The data in this research were tested using Eviews, with the multiple regression method used to determine the relationship between independent and dependent variables, asset size, financial leverage, growth, and operating cash flows. The measurement for each variable is shown in table 1 as follows:

| TABLE I. VARIABLE AND MEASUREMENT |
|-------------------------------|-----------------|-----------------|-----------------|-----------------|
| Variable                      | Proxy           | Measurement     | References      |
| Dependent                     |                 |                 |                 |
| Firm Performance              | ROA             | Earnings Before Interest and Taxes / Total Asset       | [14]             |
|                              |                 | Market value of equity + Book value of total asset - Book value of equity / Book value of the total asset | [13]             |
| TOBINS’S Q                    |                 |                 |                 |
| Independent                   |                 |                 |                 |
| Working Capital               | NET             | (Account Receivables/Sales) x 365 + (Inventories/Sales) x 365 - (Account payable/Sales) x 365 / Total Asset | [14]             |
|                              | NET2            | [(Account Receivables/Sales) x 365 + (Inventories/Sales) x 365 - (Account payable/Sales) x 365]2 / Total Asset | [14]             |
| Control                       | AS              | Log (Total asset) / Total asset                       | [14]             |
| Financial Leverage            | FL              | Total Debt / Total Asset                              | [14]             |
| Growth                        | Gr              | Sales this year – Sales previous year / Sales previous year | [14]             |
| Operating Cash Flows          | OCF             | Operating income before depreciation and amortization - interest expense – income tax expense / Total Asset | [14]             |
| Moderating                    |                 |                 |                 |
The result of table 2 shows an insignificant effect on working capital as measured by the Net Trade Cycle and its square on measuring firm performance, return on assets (ROA), and Tobin’s Q, respectively. These results are not in accordance with the research of Laghari and Chengang [14], which stated that financial leverage has a negative and positive effect on both variables. This study also used operating cash flow as a control variable, which has a negative and positive significant effect on these variables. This is in accordance with the study conducted by Laghari and Chengang [14], which stated that operating cash flow has a significant positive effect on Tobin’s Q, and none on ROA.

**VI. RESULTS AND DISCUSSION**

The result of table 2 shows an insignificant effect on working capital as measured by the Net Trade Cycle and its square on measuring firm performance, return on assets (ROA), and Tobin’s Q with positive and negative coefficients. This shows an indirect relationship between these two variables [14].

The results of Table 2 also show that financial leverage has no significant and insignificant effect on return on assets.
V. CONCLUSION

In conclusion, the working capital investment, which is measured with the Net Trade cycle and its square, has a nonlinear relationship with firm performance in accordance with the ROA and Tobin’s Q. Therefore, an increase leads to a rise in firm performance till its optimal point. However, a rise beyond this point, leads to a decrease in firm performance, due to additional costs incurred by the company to maintain and monitor its working capital. Therefore, firms tend to use this research as a reference to pay more attention to their investment in order to anticipate and maintain high performance. In addition, the result has the ability to help investors in considering and reviewing firm performance to avoid bankruptcy and waste of resources.

REFERENCES