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Does financial performance follow firm life cycle? Evidence from Indonesian firms

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Abstract

This study aims to determine whether the asset turnover ratio, current ratio, debt ratio and return on net worth influences profitability at each firm life cycle stages in manufacturing companies on the Indonesia Stock Exchange. The study only focuses on introduction stage and growth stage. The classification at each stage of the firm life stages uses the sales growth variable to categorize it. The population in this study are manufacturing companies listed on the Indonesia Stock Exchange for the 2016-2020 period. The sampling technique in this study used purposive sampling technique and obtained a sample of 36 companies. The data analysis method used is panel data multiple regression analysis. The results indicate that at introduction stage only debt ratio and return on net worth that found has a significance influences on profitability. At growth stage almost all independent variable has a significance influences on profitability, except current ratio variable.

Introduction

Competition has become tighter especially for companies in the same industry (Chandra & Juliawati, 2020). It forces companies to always grow their business to sustain the market and manage things well and precise. This economic situation requires companies to have good policies to maintain their survival and increase firm growth. The establishment of a firm certainly has a goal to be achieved.

Companies at specific stages of their life cycles show a variety of economic characteristics, both financial analyst and academic researcher recommend the use of life cycle stage to describe economic qualities of firm. According to the life cycle literature first, differences in the underlying economics of value-relevant variables such as production function and investment opportunity set can be explained by life cycle stages. Second, to be successful companies at various stages of their life cycle must run their companies differently. Third, understanding a firm life cycle stage might assist firm to comprehend where it has been and where it has heading (Park & Chen, 2006). As a result, it is important to using a proper proxy for firm life cycle stages because it effects how companies shape and rearrange strategies within companies that have long term impacts.

Gort and Klepper (1982) interpret that the five stages of a firm life cycle are introduction, growth, mature, decline, and shakeouts. Anthony and Ramesh (1992) and Black (1998) stated that sales growth, changes in capital expenditure, annual dividend payout ratio, and firm age were used to classify the firm into several life cycle stages. While sales growth will used as determination to categorize the firm life cycle. This research will only focus on two stage of firm life cycle, namely introduction stage and growth stage.

In this study, four variables are used to determine whether there is a relationship to profitability in each firm life cycle. There are, asset turnover ratio, current ratio, debt ratio and return on net worth.

Profitability is the basic goal of all businesses without it, the business would eventually fail (Hofstrand, 2019). As a result, it is critical to assess current and past profitability as well as forecast future profitability. Profitability is a measure of a firm total efficiency. It demonstrates the firm ability to earn from all of its operations and also how effective managers may profit by utilizing all available resources (Innocent et al., 2013). The profitability ratios that will be used in this research is net profit margin (NPM).

Asset turnover ratio is used as a proxy for operational efficiency. Asset turnover ratio is a ratio used to calculate the total effectiveness of a firm assets in generating sales, or how many sales will be generated from each rupiah fund invested in total assets (Qamara et al., 2020). According to Gitman (2015), asset turnover is a measurement that illustrates how efficiently a firm uses its assets to create sales. A higher ratio number shows that the firm can manage its assets to generate revenue and, as a result, earn a higher profit (Sunjoko & Arilyn, 2016).

Current ratio is used as a proxy for liquidity. Current ratio is a ratio used to assess a firm capacity to pay short-term obligations or debt that is due immediately when billed as a whole. In other words, how much current assets are accessible to satisfy immediate short-term liabilities (Kasmir, 2014). A high current ratio may indicate an excess of cash relative to the degree of requirement or an element of current assets with limited liquidity that is excessive (Jumingan, 2014). A low current ratio also indicates that a firm working capital is insufficient to pay its short-term obligations (Hery, 2015).

Debt ratio is used as a proxy for leverage. debt ratio is used to measure how much debt is utilized to finance a firm assets or how much debt has an impact on asset management (Vatansever & Hepsen, 2013). The higher the debt ratio, the more likely the corporation will be unable to meet its obligations. As a result, in order to optimize profit opportunities, the loan must be used effectively (PWC, 2017).

Return on net worth is used as a proxy for shareholder profitability. From the perspective of an investor, return on net worth is a measure of how much profit investors will make or the rate of return on ownership interest from investors. This ratio depicts how well the firm uses investor funds to achieve income growth, as well as the efficiency with which it generates profits from each net asset (Kumar & Bansal, 2008). The results of the higher return on net worth indicate that the profits earned by investors have increased and the firm has succeeded in using each shareholder capital efficiently.

The objective of this research is to examine the relationship between asset turnover ratio, current ratio, debt ratio, return on net worth and profitability in manufacturing companies that listed on the Indonesia Stock Exchange from 2016 to 2020.

Literature Review

Firm Life Cycle Theory

A firm life cycle is an extension of the concept of a product life cycle. The product life cycle idea can be utilized prescriptively in the selection of marketing actions and planning by representing the evolution of product qualities and market factors across time (Polli, 1968). A firm life cycle is made up of the life cycles of the products and services it provides, but because various product offerings may be at different life cycle stages, drawing and capturing the firm life cycle can be difficult. Each stage of a firm life cycle has its own set of traits and demands, which require specialized organizational structures, staff, leadership styles, and decision-making processes (Kazanjian, 1988). The firm life cycle describes the progression of a business through the various stages that it goes through. Life cycle in companies are categorized into five stages, introduction, growth, mature, decline and shakeouts (Gort & Klepper, 1982).

The 'Introduction' stage in the life cycle of a firm is the stage where innovation is commercialized and business opportunities exploited. This stage is characterized by low

investments in assets, new production processes with high business risk and high borrowing costs (Jovanic, 1982). The 'Growth' stage is explained as the stage when a firm starts to grow in business, profits start coming and investment increases and financing happens through reinvestment (Spence, 1977). The 'Maturity' stage is recognized as the optimization of the production process with earnings expectations at highest. At this stage the firms focus more on servicing debt and distributing profits (Jensen, 1986; Myers, 1977). The 'Decline' stage is normally characterized by falling sales, declining earnings and increase in unutilized production capacity. The 'Shakeout' stage is defined where the number of producers begins to decline. Furthermore, Myers (1977) and Jensen (1986) discovered that at this stage, companies focus more on debt servicing and profit distribution.

Asset Turnover Ratio on Profitability

Asset turnover ratio is a metric that shows how effectively a firm uses its assets to create revenue (Gitman, 2015). Asset turnover ratio is the activity ratios that the firm is able to know the effectiveness of the use of assets in generating sales and measuring the turnover of all assets that they own and measuring how many sales are obtained from the assets. The higher this ratio is, the better the corporation can manage its assets to create revenue and hence earn a higher profit (Sunjoko & Arilyn, 2016). Research conducted by Qamara et al. (2020), Barus and Leliani (2013) Wikardi and Wiyani (2017) and Kusriyanti (2017) states that asset turnover ratio influences profitability.

H1a: Asset turnover ratio influences profitability at introduction stage.

H1b: Asset turnover ratio influences profitability at growth stage.

Current Ratio on Profitability

According to Kasmir (2015) current ratio is a liquidity ratio that can be used to measure the firm ability to meet short-term obligations or debts that will soon be due when fully billed. Besides that in Amir and Wu (2020) and Horne and Wachowicz (2014), current ratio shows the firm ability to pay its short-term liabilities using its current assets. The current ratio can also be said as a form of measuring the level of safety of a firm. It is said whether a firm is able to pay its debts both short term and long term. A high current ratio may indicate an excess of cash relative to the degree of requirement or an element of current assets with limited liquidity (such as inventory) that is excessive Jumangan (2014). Besides that, a low current ratio shows that a corporation has insufficient working capital (current assets) to meet its short-term obligations (Hery, 2015). Research conducted by Sunjoko and Arilyn (2016), Sefiani and Sitohang (2015), Angelina et al. (2020) and Barus and Leliani (2013) stated that current ratio influences profitability.

H2a: Current ratio influences profitability at introduction stage.

H2b: Current ratio influences profitability at growth stage.

Debt Ratio on Profitability

According to Barus and Leliani (2013) debt ratio is a ratio that measures the amount of debt owed to the total amount of assets owned. The bigger the amount of debt used to purchase assets, the higher the interest on the loan that the firm will have to bear, posing a challenge for the smaller the amount of profit that can be made. Moreover, Kasmir (2008) stated that debt ratio is a metric for determining the proportion of total debt to total assets. The higher the debt ratio, the more likely the corporation will be unable to meet its financial obligations. As a result, the loan must be used prudently to maximize profit prospects (PWC, 2017). The greater the total debt, the greater the financial risk, or ratio, of the firm failing to repay the loan, and vice versa, the smaller the debt ratio, the lower the financial risk of the firm repaying the loan. Research conducted by Barus and Leliani (2013), Farihah (2015) and Kusriyanti (2017) stated that debt ratio influences profitability.

H3a: Debt ratio influence profitability at introduction stage.

H3b: Debt ratio influence profitability at growth stage.

Return on Net Worth on Profitability

Return on net worth is a measure of how much profit investors will make or the rate of return on ownership interest from investors, devised from the standpoint of an investor. This ratio illustrates how well the firm uses investor funds to generate income growth, and it gauges the firm efficiency in creating profits from each net asset (Kumar & Bansal, 2008). High returns indicate a good use of shareholder capital. The results of the higher return on net worth indicate that the profits earned by investors have increased and the firm has succeeded in using each shareholder capital efficiently. The good synergy that occurs from the merger and acquisition process will make the firm profitability better than before so that the return on net worth will increase.

H4a: Return on net worth influences profitability at introduction stage.

H4b: Return on net worth influences profitability at growth stage.

Research Methods

The population is a generalization area made up of things or persons with specific attributes and characteristics that researchers have chosen to study and derive conclusions from (Sugiyono, 2017). In this study, the population is a manufacturing firm listed on the Indonesia Stock Exchange for the period 2016-2020.

The sample is part of the number and characteristics possessed by the population (Sugiyono, 2017). The criteria for a representative sample depend on two interrelated aspects, namely sample accuracy and sample precision (precession). Sample accuracy is the extent to which sample statistics can estimate population parameters correctly. The sampling technique method in this research is to use purposive sampling method, where the determination of the sample is carried out based on the provisions of certain criteria or the determination of the sample from the existing population based on the criteria. The average sales growth during the research year (5 years) is used to categorize the company as being in the introduction or growth stage. The criteria for determining the sample to be used in this study are as follows:

1. Manufacturing companies listed on the IDX during the period 2016-2020.
2. Manufacturing companies that financial reports in the 2016-2020 period are available to access.
3. Manufacturing companies that do not have complete financial data will be eliminated.
4. Manufacturing companies that are included in the two firm life cycle stages (Anthony & Ramesh, 1992; Black, 1998).

Table 1. Research Sample

Sample Criteria	Total Number of Observation
Manufacturing companies that listed on the Indonesia Stock Exchange from 2016 to 2020.	133
Manufacturing companies that do not publish annual report and financial statements in a row from 2016 to 2020.	(11)
Manufacturing companies that do not have complete financial data.	(26)
Manufacturing companies that do not included in the two firm life cycle stages.	(60)
Full sample.	36
Full sample of Manufacturing companies for the research period 2016 to 2020.	180

Table 2. Firm Categorization into Each Life Cycle Stage

Quadrant	Sales Growth (%) (Aldaas, 2021)	Life Cycle Stage	Total Companies
Quadrant 1	0 - 4.42	Introduction	30
Quadrant 2	12.7 - 24.28	Growth	6

The data collection method used in this study is a documentation study, which is a data collection strategy that involves reviewing documents to obtain data or information about the subject under investigation (Sugiyono, 2017). Documentation data collection through the categorization and classification of written data related to research in the form of books, journals, documents, and so on.

Operational Definition and Measurement Variable

Variable dependent

The dependent variable used in this research is profitability. Profitability ratio is a metric that assesses a firm capacity to make a profit or profit over a set period of time. This ratio also serves as a gauge of a firm managerial effectiveness, as measured by profit from sales or investment income. (Wulandari & Zulhaimi, 2017). The profitability ratios that will be used in this research is net profit margin (NPM).

Variable independent

The independent variable used in this research is asset turnover ratio, current ratio, debt ratio and return on net worth. Asset turnover ratio is a ratio used to calculate the total effectiveness of a firm assets in generating sales, or how many sales will be generated from each rupiah fund invested in total assets (Qamara et al., 2020).

Current ratio is a liquidity ratio that can be used to measure the firm ability to meet short-term obligations or debts that will soon be due when fully billed (Kasmir, 2015). Debt ratio is a metric for determining the proportion of total debt to total assets (Kasmir, 2008). Return on net worth is a measure of how much profit investors will make or the rate of return on ownership interest from investors, devised from the standpoint of an investor. This ratio illustrates how well the firm uses investor funds to generate income growth, and it gauges the firm efficiency in creating profits from each net asset (Kumar & Bansal, 2008).

Results and Discussion

Descriptive Statistics Results

Descriptive statistics results at each company life cycle stage on manufacturing sector companies listed on the Indonesia Stock Exchange for the 2016-2020 period can be seen Table 3.

Table 3. Descriptive Statistics Results at Each Firm Life Cycle Stages

		Introduction Stage			
	NPM (Y)	ATO	CR	DR	RONW
Mean	0.0362	1.0599	2.3129	0.4682	0.0966
Max	0.2172	3.1048	10.4798	0.9151	1.4509
Min	-0.2398	0.2363	0.2667	0.0925	-1.2636
Median	0.0299	0.9163	1.4669	0.4937	0.0508
		Growth Stage			
	NPM (Y)	ATO	CR	DR	RONW
Mean	-0.0053	0.9554	1.6280	0.4962	-0.0306
Max	0.1586	2.0131	2.9787	0.8904	0.2347
Min	-2.1525	0.2095	0.6748	0.2506	-4.1125
Median	0.0626	0.7571	1.5349	0.4917	0.1264

NPM : Net Profit Margin (Y)

ATO : Asset Turnover Ratio

CR : Current Ratio

DR : Debt Ratio

RONW : Return on Net Worth

Source: Processed Data 2022

At the introduction stage, it shows that asset turnover ratio variable has a mean value of 1.0599, a maximum value of 3.1048, a minimum value of 0.2363 and a median value of 0.9163. Current ratio variable has a mean value of 2.3129, a maximum value of 10.4798, a minimum value of 0.2667 and a median value of 1.4669. Debt ratio variable has a mean value of 0.4682, a maximum value of 0.9151, a minimum value 0.0925 of and a median value of 0.4937. Return on net worth has a mean value of 0.0966, a maximum value of 1.4509, a minimum value -1.2636 of and a median value of 0.0508.

At the growth stage, it shows that asset turnover ratio variable has a mean value of 0.9554, a maximum value of 2.0131, a minimum value 0.2095 of and a median value of 0.7571. Current ratio variable has a mean value of 1.6280, a maximum value of 2.9787, a minimum value of 0.6748 and a median value of 1.5349. Debt ratio variable has a mean value of 0.4962, a maximum value of 0.8904, a minimum value of 0.2506 and a median value of 0.4917. Return on net worth variable has a mean value of -0.0306, a maximum value of 0.2347, a minimum value of -4.1125 and a median value of 0.1264.

Panel Data Model Multiple Regression Analysis

The model used in this study is panel data model multiple regression, to test model specifications and the suitability of theories with reality. The discussion on the effect of asset turnover ratio, current ratio, debt ratio and return on net worth at each firm life cycle stage is based on the t statistic test. The t statistic test was carried out by comparing the t table value with t arithmetic, and using the sig t value. In this section, the selection of the best panel data regression model will be carried out. Processing data to choose which model is the most appropriate.

Table 4. Multiple Regression Analysis Introduction Stage

Variable	Coefficients	t-stat	Prob.	Conclusion
Constant	0.0664	2.4177	0.0169	
ATO	0.0124	1.1871	0.2371	H1a not supported
CR	0.0007	0.1885	0.8507	H2a not supported
DR	-0.1258	-3.3008	0.0012**	H3a supported
RONW	0.1451	8.1746	0.0000***	H4a supported
N				150
F-statistics				29.4164
Adjusted R Square				0.4327
***, **, * indicates levels significance at the 1%, 5%, and 10%				

Source: Processed Data 2022

Based on the Table 4 it shows that the probability of asset turnover ratio in this study is 0.2371 (23.71%), where the number is exceeds the number of the basic level of significance. Which means the results on the relationship between asset turnover ratio and profitability that asset turnover ratio is not significantly influences profitability (H_{1a}). The result of this study supported by the research conducted by Sunjoko and Arilyn (2016) and Chandra and Juliawati (2020) where it states that asset turnover ratio has no influences on profitability.

For current ratio, it shows that the probability of current ratio in this study is 0.8507 (85.07%), where the number is exceeds the number of the basic level of significance. Which means the results on the relationship between current ratio and profitability that current ratio is not significantly influences profitability (H_{2a}). The result of this study supported by the research conducted by Qamara et al. (2020) and Halim (2017) stated that current ratio has no influences on profitability.

For debt ratio, it shows that the probability of debt ratio in this study is 0.0012 (0.12%), where this number is accordance with the basic level of significance. Which means the results on

the relationship between debt ratio and profitability that debt ratio is significantly influences profitability (H_{3a}). The result of this study supported by the research conducted by Farihah (2015) and Barus and Leliani (2013) stated that debt ratio has influences on profitability.

For return on net worth, it shows that the probability of debt ratio in this study is 0.0000 (0%), where this number is accordance with the basic level of significance. Which means the results on the relationship between return on net worth and profitability that return on net worth is significantly influences profitability (H_{4a}).

Table 5. Multiple Regression Analysis Growth Stage

Variable	Coefficients	t-stat	Prob.	Conclusion
Constant	0.0777	2.8646	0.0096	
ATO	-0.0263	-2.9712	0.0075***	H1 supported
CR	0.0004	0.0401	0.9684	H2b not supported
DR	-0.0850	-2.4231	0.0250**	H3b supported
RONW	0.5333	150.8407	0.0000***	H4b supported
N				30
F-statistics				6720.550
Adjusted R Square				0.9995

***, **, * indicates levels significance at the 1%, 5%, and 10%

Source: Processed Data 2022

Based on Table 4 and 5, the multiple regression model equation for each firm life cycle is as follows:

- a. Panel 1: A panel OLS regression for the introduction stage companies indicated that random effects are more appropriate for this panel (Hausman test Prob. Value = 0.8045).

$$NPM = 0.0664 + 0.0124 \times ATO + 0.0007 \times CR - 0.1258 \times DR + 0.1451 \times RONW$$

- b. Panel 2: A panel OLS regression for the growth stage companies indicated that fixed effects are more appropriate for this panel (Hausman test Prob. Value = 0.000).

$$NPM = 0.0777 - 0.0263 \times ATO + 0.0004 \times CR - 0.0850 \times DR + 0.5333 \times RONW$$

Based on the Table 5 it shows that the probability of asset turnover ratio in this study is 0.0075 (0.75%), where this number is accordance with the basic level of significance. Which means the results on the relationship between asset turnover ratio and profitability that asset turnover ratio is significantly influences profitability (H_{1b}). The result of this study supported by the research conducted by Qamara et al. (2020) and Barus and Leliani (2013) stated that asset turnover ratio has influences on profitability.

For current ratio, it shows that the probability of current ratio in this study is 0.9684 (96.84%), where the number is exceeds the number of the basic level of significance. Which means the results on the relationship between current ratio and profitability that current ratio is not significantly influences profitability (H_{2b}). The result of this study supported by the research conducted by Qamara et al. (2020) and Halim (2017) stated that current ratio has no influences on profitability.

For debt ratio, it shows that the probability of debt ratio in this study is 0.0250 (2.5%), where this number is accordance with the basic level of significance. Which means the results on the relationship between debt ratio and profitability that debt ratio is significantly influences profitability (H_{3b}). The result of this study supported by the research conducted by Farihah (2015) and Barus and Leliani (2013) stated that debt ratio has influences on profitability.

For return on net worth, it shows that the probability of return on net worth in this study is 0.0000 (0%), where this number is accordance with the basic level of significance. Which means the results on the relationship between return on net worth and profitability that return on net worth is significantly influences profitability (H_{4b}).

Conclusion

The purpose of this study is to determine whether there is an effect of asset turnover ratio, current ratio, debt ratio and return on net worth (as independent variable) on profitability (as dependent variable) in each firm life cycle (introduction and growth). Firm in different life cycle stages have different levels of resource base, competitive advantages, information asymmetry, and riskiness. Therefore, the assets, equity and liabilities owned must vary in each firm life cycle stages. Using a sample of companies in the manufacturing sector from 2016-2020, it is also found that there are differences in the value of each independent variable in each firm life cycle stages. Almost all data at introduction and growth stage can be seen it has a positive coefficient value on each dependent and independent variable. However, both debt ratio at the introduction stage and growth stage has a negative coefficient value. Also, asset turnover ratio at growth stage has a negative coefficient value. Moreover, at the introduction stage, only debt ratio and return on net worth that found to have a significant influence on profitability and it is consistent with the characteristics of the introduction stage where the level of borrowing or debt is high, which means the company is relying on debt to manage its assets. At the growth stage, almost all independent variable has a significant influence on profitability, except the current ratio variable.

This research cannot be separated from its limitations. The first limitation is that the variables used in this study are limited such as asset turnover ratio, current ratio, debt ratio and return on net worth. Second the sample used in this study only focused on manufacture sector companies listed on the Indonesia Stock Exchange.

Based on the results of the research and the conclusions that have been described, suggestions that can be given for this research are first, further research should be able to add other variables that are considered influential and provide a broader picture of profitability and firm life cycle stages. Second, future research should be able to use other sector companies that have a life cycle similar to this research.

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