

# THE DETERMINANTS OF PROFIT CHANGE IN MANUFACTURING COMPANIES AT THE INDONESIAN STOCK EXCHANGE

**Ariwan Joko Nusbantoro, Elok Sri Utami, Nori Alfiani Sanjaya**  
Faculty of Economics and Business Universitas Jember

**Abstract:** This study examines the determinants of profit change of companies in the manufacturing sector listed at the Indonesia Stock Exchange. The independent variables include working capital ratio, time interest earned ratio, gross profit ratio, and firm size. The data are extracted from the companies' financial statements covering a period from 2012 to 2015. A total of 83 companies met the sample selection criteria. Results using multiple linear regression analysis show that working capital ratio and gross profit ratio both have significant negative effect on profit change, the ratio of interest payment has no positive effect on profit change, and firm size has no significant effect on profit change.

**Keywords:** profit growth, working capital, gross profit, firm size

## A. Introduction

According to the Financial Accounting Standards Board (FASB), one of the best company performance measurement indicators is profit (Stice et al., 2004). Companies must pay attention to changes in profit, because for interested parties, the company's financial information is very useful to make decisions about whether the company is performing well or not. Financial ratio analysis is one of the methods to determine the usefulness of financial information in order to predict change in earnings.

Creditors and investors use financial ratio analysis as an effort to assess a company's performance. According to Gumanti (2011:111), a financial ratio analysis is a method for analyzing a company's business performance. This analysis uses historical data from financial statements, which include statements

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\*Corresponding Author.  
e-mail: jk\_ariwan@yahoo.com

of financial position (balance sheet), profit and loss, statement, statement of change in capital, as well as the statement of cash flows. The size can be used as an explanation for how the company performs in a period.

Because the size of the company's profits cannot be predicted with certainty, the analysts must estimate the size of the profit change. The profit change prediction is very beneficial for company management, among others, as a guide in determining the decision in running the business, and also as a motivation for management in controlling the company. Investors' investment decisions can be influenced by changes in company profit, because profit is one of the main indicators in determining the company's performance.

Changes in a company's earnings can be measured by comparing the amount of profit a period of years now with the amount of profit the previous year (Scott, 2009). There are many factors that affect the size of the company's profits. The intended factors can be obtained from the company's financial statements (internal) or from other sources, such as rating agencies or market analysis. The components in the income statement, which are known as the determinants of earning change are sales, cost of goods sold, operation expenses, interest expenses, income tax expenses, or any extraordinary items.

There are a number of variables that can affect change in corporate profits. Empirical evidence shows that firm size, company age, level of debt, sales volume, including any changes in corporate earnings in the past period (Angkoso, 2006:20; Warsidi and Pramuka, 2000:45). Profit change will be good if the company has good financial skills. It was later believed to increase the company value. One indicator is the amount of dividend. The condition of the company determines the amount of dividend to be paid in the future. In other words, changes in company profits will be a mirror for change in dividends.

Several studies have examined the determinants of earning change. For example, changes in earnings are positively influenced by the operating income to total liabilities, quick ratio, average age of receivables, ratio to total liabilities to total assets, total asset turnover, profit margin, time interest earned, price earning ratio, fixed assets turnover, inventory turnover, and return on assets (Asri, 2009; Agustina and Silvia, 2012; Oktanto and Nuryatno, 2014). On the other hand, debt to asset ratio, current ratio, operating income to total assets, debt ratio, earning per share, payment of dividends, and company size have

negative effects on changes in earnings (Asri, 2009; Agustina and Silvia, 2012; Cahyaningrum, 2012; Oktanto and Nuryatno, 2014).

However, the results of existing researches do not always show consistent findings. For example, gross profit margin is found to have a positive influence on change in earnings (Hapsari, 2007), but Agustina and Silvia (2012) found negative influence. Working capital to total assets is found to have positive impact (Hapsari, 2007), but Cahyaningrum (2012) reported negative influence. Total assets turnover is found to have a positive effect (Hapsari, 2007; Hapsari, 2007), but other studies found negative effect (Agustina and Silvia, 2012; Cahyaningrum, 2012; Oktanto and Nuryatno, 2014). Net profit margin is found to have a positive effect (Epri, 2007; Cahyaningrum, 2012), whereas Agustina and Silvia (2012) found negative impact. Oktanto and Nuryatno (2014) showed that debt to equity ratio has a positive effect. In Contrast, Agustina and Silvia (2012), Cahyaningrum (2012), and Gunawan and Wahyuni (2013) reported a negative effect.

Based on the aforementioned description, it can be seen that a number of financial ratios affect the change in earnings. In connection with the uncertainty of the future state of the change in earnings, the analysis of financial ratios allow it to be used as a means to predict the rate of change in an earnings company.

Previous studies have shown inconsistencies related to factors that influence changes in earnings. Ratios that have not been consistent in their effects on changes in earnings are working capital ratio, interest payment ratio, and gross profit ratio. Thus, the purpose of this study is to examine the influence of working capital to total assets, time interest earned ratio, the ratio of gross profit margin in manufacturing companies listed on Indonesia stock exchange over the four years period of 2012–2015.

## **B. Literature Review**

Profit is often interpreted as the difference of income from a certain period over the costs incurred (Wahyuni; 2012). Profit is measured by taking into account a certain period of time. It has an important influence on the progress of a company. A company is said to have been capable of managing and utilizing the available resources effectively and efficiently if the change of profit is

positive. One method for detecting the efficiency of company management related to profit performance is the analysis of financial statements.

Changes in earnings are an increase in the percentage of earnings in this period compared to the previous period. Various parties, in making decisions about the company, need information on the profit change. These include the managers of companies, investors, creditors, and other interested institutions. Changes in corporate profits can be measured by the achievement of profit via comparison between earnings from one period to another.

### **1. Liquidity and Profit Change Ratios**

The liquidity ratio or current ratio is the ratio which tells us about the company's ability to meet its short-term obligations (liabilities). The current ratio stresses on how well a company is in meeting all its current maturing obligations prior to one year. The liquidity ratio has several types, among them are the current ratio, quick ratio, operating cash flows ratio, and working capital ratio. This study uses the working capital ratio.

The ratio of working capital to total asset shows a comparison between the size of the net current assets over current liabilities (Riyanto, 2009: 333). Ambarwati and Ari (2010: 112) explained that working capital is a capital that must remain available in the company to guarantee and maintain the company's operational activity. The smooth operation of the company is expected to increase company revenue.

If company income gets bigger, then the company will be able to pay its current liabilities that are about to be paid. If the company's income increases, then the potential for more profits also increase. This can affect performance change in company profits. Working capital to total assets ratio is calculated by the reduction of current assets over current liabilities, and the result is divided by the number of assets.

### **2. Leverage and Profit Change**

Leverage ratio or the gearing ratio reflects how capable the company can meet its long-term obligations. It shows the liability adequacy level of the

company. It indicates how much the portion of the liability is, either expressed in terms of long term liability or total liability, compared to the amount of either total capital or total assets (Gumanti, 2011: 113). The solvency ratio has several types, among them are the time interest earned ratio, debt ratio, and the ratio of operating activities to fixed costs. This study uses time interest earned ratio.

Time interest earned ratio shows how much the company is able to obtain profit before interest payment obligation of the loans is incurred. If the ratio of company interest payments is high, then the company is said to have the ability to meet the obligations of loan interest payments (Gumanti, 2011:114). Time interest earned ratio is calculated by means of earnings before interest costs and taxes divided by the amount of interest costs in an accounting period.

### **3. Profitability and Profits Change**

Profitability analysis is related to the company's ability to generate information on profit. This ratio is often sourced from the company's income statement. There are several profitability ratios that are calculated using data from the statement of financial position (balance sheet). The ratio implies the capability of the company in obtaining profits, as measured by the achievement of sales or total assets (Gumanti, 2011:114). Profitability ratios have several ratios, among them are profit margins, return on assets, total asset turnover, return on capital, and gross profit ratio. This study uses the ratio of gross profit.

Gross profit ratio shows the ratio of gross profit to sales. The ratio can be increased in two ways, increase in sales and reduction of cost (efficiency). The increase in gross profit ratios shows the increase in the company's efficiency in production costs. That is, the company is able to produce goods or services at a lower cost compared to previous costs. Gross profit ratio is calculated as gross profit divided by the value of net sales.

### **4. Development Hypotheses**

Researches on factors that influence changes in profits have been done with various types of objects. The focus of existing researches is more directed at how capable financial ratios predict variations of earning changes. Yet, there

are differences in the object of each research, differences in research periods and differences in the variables used. All these have caused difference in the results of the studies.

If seen from the results of some early researchers, it can be concluded that there are a number of variables that are consistently found affecting the extent of change in company profit. For example, operating income to total liabilities, quick ratio, current liabilities to inventory, total asset turnover, average age of receivables, total debt ratio to total assets, profit margin, time interest earned, price earning ratio, fixed turnover assets, inventory turnover, fixed assets turnover, and return on assets oversight have been found to have a positive effect to changes in income. However, the research found that debt to assets ratio, current ratio, operating income to total assets, debt ratio, earnings per share, payment ratio dividend, and company size have a negative effect on earning changes. In fact, so far there are still different results in the working capital to variable total assets, inventory turnover, total assets turnover, gross profit margin, net profit margin, and debt to equity ratio, which allegedly affected the change in earnings.

## 5. Effect of Working Capital Ratios and Profit Changes

Working capital to total assets ratio shows the ratio of the company's working capital to its total assets. If the capital owned by the company is large, it is then expected that the company will be able to run operational activities better. This means that the company's capital adequacy is identical with the company's ability to maintain its operational activities and will be a guarantee for increasing efficiency and business productivity which, in turn, will be able to become a means of increasing profits. Hapsari (2007) found positive influence in working capital to total assets on earnings change. Conversely, Cahyaningrum (2012) found a negative influence. Ideally, the working capital ratio has a positive impact on the company's profit performance. Therefore, this study proposes the following hypothesis:

H<sub>1</sub>: Working capital ratio has a negative effect on earnings change

## 6. Effect of Interest Payment Ratio on Profit Change

Time interest earned ratio shows how the ability of company in meeting interest payment obligations of the loan with its ability to generate earnings before interest. The interest payment ratio will inform investors about how well the company is able to pay its annual interest expense. The low interest payment ratio shows the company's low ability to fulfill its obligations to pay interest expenses, and this is bad. If the interest payment ratio is low, then this will have an impact on failure in paying interest, which can further exacerbate the potential for business bankruptcy. Asri (2009) found positive influence of time interest earned ratio on profits change. Following the description, the research hypothesis is stated as follows:

H<sub>2</sub>: Interest payment ratio has a positive effect on the company's profits change.

## 7. Effect of Gross Profit on Profit Change

Gross profit margin ratio shows the company's ability to reduce production costs or cost of goods sold. Companies with high cost efficiency will have a lower ratio of gross profit to sales, which will eventually be able to increase the company's profitability. This means that the more efficient the costs incurred by the company to produce goods and services, the better this ratio will be. Hapsari (2007) found positive influence of gross profit margin against future earnings, but Agustina and Silvia (2012) found that gross profit margin has a negative effect on earnings change. Based on the description mentioned previously, the research hypothesis is stated as follows:

H<sub>3</sub>: Gross profit ratio has a positive effect on earnings change

## C. Research Method

### 1. Samples and Definitions of Variables

The population that became the object of this study are all manufacturing companies that published financial statements at the Indonesian stock exchange (IDX) from 2012 to 2015. The total population are 134 manufacturing companies. Selected companies must meet two criteria. First, they have never relisted

or delisted during the period of the research. If the companies experiences relisting, then the required data are not comparable with other companies. Relisting is a situation where a company relists its shares on the stock exchange floor. Delisting is a situation where a company is no longer existing in the stock exchange. Second, the companies's financial reports must be able to be obtained during the period of the study. Lastly, the companies's financial reports are expressed in terms of rupiah.

The description of the operational definition of the research variables along with the measurement scale is as follows.

1. Profits Change ( $\Delta Y$ ) is the change in current period's profit from the previous period's profit and is expressed in a ratio scale (%).
2. Working Capital Ratio (WCR) is the ratio of operational capital to total assets and is expressed in a ratio scale (%).
3. Interest Payment Ratio (IPR) is a comparison between earnings before interest and liabilities of interest on loans that are made and expressed in the form of a ratio scale (%).
4. Gross Profit Margin Ratio (GPM) shows the ability of the company to obtain gross profit per sales in rupiah and is expressed in the form of a ratio scale (%).
5. Dummy (D) shows the company's manufactures, classified as having large assets (D1) and small assets (D0). The value is obtained by dividing the number of companies.

All variables (working capital ratios, interest payment ratios, and gross profit ratios) are measured using the ratio scale, except for the firm size as it is expressed in a nominal scale. The research analysis method is a multiple linear regression model, expressed as follows:

$$Y_i = b_0 + b_1 WCR_{it-1} + b_2 IPR_{it-1} + b_3 GPM_{it-1} + b_4 D_{it-1} + e_{it-1}$$

#### D. Results and Discussion

The number of population is 134 companies. Based on the sampling criteria, 83 companies met the sample selection criteria. Manufacturing companies are composed of three main industries or sectors. These are basic and



chemical industry, miscellaneous industry, and consumers' goods industry. The research sample selection process is presented in Table 1.

Distribution of the samples based on industry classification is shown in Table 2. As shown in Table 2, when viewed from the number the samples, the basic and chemical industry accounts for the largest number of companies of 40 companies. The miscellaneous industry has the lowest number of sample with merely 14 companies.

**Table 1 Research Sample Selection Process**

Description	Number of Companies
Manufacturing companies listed on the IDX during the study period.	134
The company has relisted or delisted during the study period.	(2)
Company financial statements cannot be obtained	(26)
Financial statements are not stated in rupiah	(23)
Final Number of Samples	83

**Table 2 Distribution of the Companies Based on Industrial Classification**

Industry Type	Total Population	Number of Samples	Percentage
Basic and chemical industry	66	40	48%
Miscellaneous industry	30	14	17%
Consumers goods industry	38	29	35%
Total	134	83	100%

Statistical description that covers the average, maximum, minimum, and standard deviation of each variable is shown in Table 3. As shown in Table 3, the average value of the working capital ratio is 0.225 and the standard deviation value is 0.244. The value of the standard deviation is greater than the mean value, which could mean that data variation of the working capital ratio is high. The average value of the interest payment ratio is 28.657 and the standard deviation value is 108.851. Similar to working capital ratio, the variation of

interest payment ratio is also high as the standard deviation is larger than the mean.

The average value of the gross profit ratio is 3.138 and the standard deviation value is 77.515. The standard deviation value is higher than the average value, which means that the distribution of data is high. The mean value of profits change is 0.152 and the standard deviation value is 0.185, showing that the data variation is high.

**Table 3 Descriptive Statistics of Variables (n = 331)**

Variable	Minimum	Maximum	Average	Standard Deviation
WCR (%)	-0.766	0.799	0.225	0.244
IPR (%)	-951.835	661.314	28.657	108.851
GPM (%)	-753.973	976.060	3.138	77.515
$\Delta Y$ (%)	-0.478	0.813	0.152	0.185

Notes: WCR is Working Capital Ratio, IPR is the Interest Payment Ratio, GPM is the ratio of Gross Profit,  $\Delta Y$  is the profits change.

### 1. Data Analysis Results

The results of multiple linear regression analysis to test the effect of R for each free variable is shown in Table 4.

**Table 4 Results of Regression Analysis of Profits Change Determinants**

Variable	Prediction	Coefficient	t-stat	F-Value (p-value) R <sup>2</sup> (Adj. R <sup>2</sup> )
Constant		0.176	9,973 **	1,420 (0.227) 0.017 (0.005)
WCR	Negative	-0,082	-1,464 *	
IPR	Positive	0.008	-0,151	
GPM	Positive	-0,086	-1,558 *	
Dummy	Negative	-0,053	-0,968	

Information:

\*\* , \* show coefficients are significant at  $\alpha = 5\%$  and  $\alpha = 10\%$ , respectively.

## 2. Discussion of Research

Working capital ratio provides an overview of the capital of a company in carrying out its operations. The result of the study proves that it has significant negative effects on earnings change. The result of this study supports the hypothesis. This negative result implies that there is an increase in the working capital ratio and this will be followed by a decrease of profits change.

The result of this study differs from Cahyaningrum (2012) who found that working capital ratio does not have a significant effect on profits change. The result of the study differs also from that of Asri (2009) who reported that working capital to total assets has a positive and significant effect on profits change.

The study finds that the interest payment ratio had no significant effect on earnings change. This is the ratio of earnings before interest and taxes over interest costs. It indicates the company's obligation to pay interest on loans. The higher the risk means the higher the ability of the company is to pay all of its obligations, such as paying interest on loans.

To ascertain whether the ratio of earnings change is sensitive to the changes in the interest payment ratio, the data are divided into two groups based on the value of the interest payment ratio. The average difference test is carried out. The data are divided by ranking them from the least to the highest value. The result of the independent t-test showed no difference ( $p = 0.138$ ). So, the results of this study proved that the interest payment ratio variable is not significant to change in earnings. In other words, the ratio of interest payments is not a determinant of change in company profit. The results of this study do not support Asri (2009), who found that the interest payment ratio has a positive effect on changes of profit for manufacturing companies.

The gross profit ratio is found to have negative and significant effects on earnings change. That is, the variation of gross profit determines the variation of profits change but it is in contrast to the prediction. We predicted that it will have positive effects, yet the result is negative. Thus, the research hypothesis is not supported. The result of this study does not support Hapsari (2007), who reported gross profit ratio having positive and significant effects on changes in

profits in manufacturing companies, yet it is similar to Agustia (2016) who also found negative effects.

The analysis results show that the company size measured using the dummy model has a negative but insignificant effect. Thus, in contrast to predictions, the size of the company is not a determinant of the size of change in earnings. Thus, we reject the prediction that the company size will have a positive effect on profits change. Companies that have larger assets do not guarantee predictions that it will have high profits change.

To ensure that the size of the company is not a determinant of variations in earnings change, the research data are divided into two groups based on the size of the company. The average difference test result shows that the group of large companies have an average change in earnings, greater than the group of small companies ( $p = 0.018$ ). These results are interesting to observe because the group of large-sized companies statistically have an average value of change in earnings, and higher than the average value of change in earnings of small group companies. In other words, focusing the group of companies into groups of companies with large and small company size resulted in findings that indicated that large-scale companies had higher earnings changes.

### 3. Research Limitations

This study has a number of research limitations, which are described as follows.

- a. This study has a number of extreme data to adjust to. This study assumes that all data are normally distributed because the number of observations is relatively large. So, the findings shall be interpreted with caution.
- b. This study uses four independent variables as predictors of earnings change. It does not cover other variables, as theoretically there are many proxies for financial variables. Focusing on only four variables may lead to the inability to generate better results.
- c. Omitted from the discussion, this study finds that there are heteroscedasticity and autocorrelation problems. Thus, the findings shall be interpreted with caution.

## E. Conclusion

The objective of the study is to test whether the working capital ratio, the ratio of interest payments, the gross profit ratio, and the size of the company affect the extent of profits change of companies in the manufacturing sector listed on the Indonesian Stock Exchange from 2012 to 2015. The results of the test, which used multiple linear regression, showed that working capital ratio has negative and significant effect on earnings change. The ratio of interest payments does not affect changes in earnings. Gross profit margin has negative and significant effect, but the direction of the coefficients differs from the predictions. The size of the company is not a determinant of the variation of earnings change.

Based on the results of the research, conclusions, and limitations, several suggestions for future researches can be proposed. Subsequent researches are recommended to use a longer observation period so that longer-termed data may be obtained and also to eliminate extreme periods. Future researches may use other proxies, which were not found to be significant. For example, for the interest payment ratio, next studies can use other ratios and the ratio of gross profit using other profitability ratios such as return on assets or return on equity.

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