Fundamental Analysis In Indonesia Stock Exchange

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Abstract— This research examines the effect of fundamental variables (inventory turnover, accounts receivable turnover, gross profit margin, labor force, debt to equity ratio) on stock returns of manufacturing firms listed in Indonesia Stock Exchange. The sample consists of 47 companies selected from a total of 147 manufacturing companies. Results using multiple linear regression analysis show that all fundamental variables have a varying effect to stock return. Inventory turnover and gross profit margin have positive and significant effect on stock returns. Accounts receivable and labor force have negative and significant effect on stock returns. Debt to equity ratio does not influential to the stock returns.

Index Terms— Fundamental analisis, stock returns, manufacturing companies.

1 Introduction

Studies have been conducted to examine the effect of fundamental factors on the cross-sectional of stock returns. The evidence suggests that many fundamental factors are related to the variation of stock returns, for example [1] [2] [3] [4]. These studies assert the importance of the companies' fundamental factors as determinants of stock returns. Fundamental analysis includes estimating the value of a company's stock or equity using fundamental factors as the reference in valuing the shares of a company traded in the capital market. Fundamental analysis assumes that a security has certain intrinsic value and firm value can be predicted by using fundamental variables. By comparing intrinsic value with market price of securities, the analysis can know generate reasonable price (according to its intrinsic value). Investors will certainly be able to take advantage of the situation to gain profit by buying or selling shares using their estimates. A number of studies have been conducted to examine the effect of fundamentals factors of the issuer and the macroeconomic influence of a country on stock returns with different results. For example, [5] [6] document that inventory turnover has positive effect on stock returns, but [1] [2] [7] report otherwise. Abarbanell and Bushee [2] find that receivable turnover accounts have positive effect on stock returns, but [1] [[5] report the opposite. Some studies find that gross margin is negatively related to the stock returns [1] [2] [7], but [5] report positive association. Labor force was found to have negatively effect on stock returns [1] [2] [7], whereas [5] do not find significant influence. Debt to equity ratio is found to have a positive effect on stock returns [8] [9], but [10] finds otherwise. Thus, empirical results show conflicting findings. This has made the issue interesting to be further tested using different data to seek for the external validity. The focus of this study is manufacturing companies listed on the Indonesia Stock Exchange. The manufacturing sector is a combination of three sectors, namely basic and chemical industry, miscellaneous industry, and consumer goods industry. Manufacturing firms have the 19 most dominant industrial sub-sectors in the exchange and contribute enormous added value to the Indonesia's Gross Domestic Product (GDP). Based on information from the Central Bureau of Statistics (BPS), the increase in demand for finished products both domestically and internationally has encouraged the development of the manufacturing sector to become the largest sector of the role in the formation of GDP since 1991. Based on the description that has been described, this article aims to analyze the influence of the fundamental variables on stock returns.

2 Hypotheses Development

According to [10] inventory turnover indicates how long the goods must settle in the warehouse before they are sold. The smaller inventory turnover ratio indicates that sales activity is constrained. As a result, the company takes longer to convert the inventory into cash back and this will result in the risk of loss for the company by earning a low return. Inventory turnover, which increased due to increased sales, risks faced by the company also increased. Firms that are able to increase sales due to good management, then the risks it faces low, but not yet tentun return is also low. Firms that can increase sales in order to sell or pursue targets, it will face a high risk, and can generate high returns. Wahyu et al. [5] [6] show consistent results that Inventory is a fundamental variable that has a positive effect on stock returns. Considering the results of previous studies, the proposed hypothesis is:

H_1: Inventory Turnover has a positive effect on the stock returns of manufacturing companies on the IDX.

Accounts Receivable Turnover is used to measure a company's ability to manage funds embedded in receivables that rotate over a given period. According to [11], receivable turnover is the ratio used to measure how long the collection of receivables over a period or how many times the funds invested in these receivables rotate for one period. Accounts receivable turnover in one period is usually 30-60 days, no later than receivable turnover is less than one year. The softer the terms of payment, the longer the capital is bound in the receivables which means lower turnover rate. Increase in Accounts Receivable Turnover is caused by increased receivables, so firms must face high risks to obtain high returns. Accounts receivable turnover decreases as a result of fewer receivables, so firms face only low risk with low returns. Accounts receivable turnover has positive effect on stock returns [2].

Following the aforementioned explanation, the following hypothesis is proposed:

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H_2: Accounts Receivable Turnover has positive effect on stock returns of manufacturing companies listed on Indonesia stock exchange

Gross profit margin shows the profit relative to the sales. The greater the gross profit margin the better the state of operations of the company, as it shows that the cost of goods sold is relatively lower than the sales. Risks faced by the company will be greater to generate high returns. Conversely, the lower the gross profit margin the lower the ability of the company in generating profits. However, empirical evidence suggests that profitability has a negative effect on stock returns such as [1] [2] [7] show consistent results that gross profit margin has a negative effect on return stock. Interestingly [5] find that gross profit margin has positive effect on stock returns.

The above arguments lead us to propose the following hypothesis:

H_3: Gross Profit Margin has positive effect on stock returns of manufacturing companies listed on Indonesia stock exchange

The number of labor in a company determines the quality of the product produced, because every workforce has its parts and responsibilities. The larger number of labor should be related with better performance of a company in producing the product. However, the company is facing potential problem related to the possible conflict with the labor force. So, company with large labor force is exposed to larger risk of conflict. Three studies, [1] [2] [7] report that labor force has negatively effect stock returns.

Based on previous studies, the following hypothesis is proposed:

H_4: Labor force has negative effect on stock returns of manufacturing companies listed on Indonesia stock exchange

Debt to Equity Ratio is a ratio that shows the company's ability to meet obligations with equity. The resulting analysis can help the investors to know the return that will be obtained in the period to come. According to [10], debt to equity is a ratio used to assess debt and equity. This ratio shows the relationship between the amount of long-term loans granted to the creditors with the amount of capital itself provided by the owner of the company. The increasing DER ratio of each period shows that the company's financial performance is good, because the company is able to cover its debts through its own capital well enough. In this respect, [8] [9] find that debt to equity ratio positively related with stock return, but [10] reports the opposite, whereas debt to equity ratio has negative effect on stock returns.

Considering the results of previous research and existing theory, the proposed hypothesis is:

H_5: Debt to Equity Ratio has positive effect the stock returns of manufacturing companies listed on Indonesia stock exchange

3 Research Methods

This study uses secondary data in the form of annual financial reports published during 2010-2014 period generated from the Indonesia Stock Exchange website (www.idx.co.id) whilst the historical stock price data were extracted from www.yahoofinance.com.

The population consist of all manufacturing firms listed on the IDX during the period of 2010-2014. From a total of 146 companies, 47 companies meet the selection criteria. Table 1 presents the sample selection process.

No	Description	# of Firms
1	Manufacturing firm listed on BEI	146
2	Firms not listed consecutively or been delisted from IDX during the period of observation	(26)
3	Firms with trading frequency of less than 100 transaction days each year	(51)
4	Firms having corporate actions during period of analysis (performs a stock split and / or reverse stock split)	(16)
5	Firms with no annual financial statements during the period of analysis	(6)
6	Firms satisfy the criteria for sample selection	47

The regression model used to test the hypotheses is as follows:

$$CAR = a + b_1ITO + b_2AR + b_3GPM + b_4LF + b_5DER + e$$

Table 2 presents the definition of variables used in the study.

Table 2. of Variables Definition

Symbol	Variable	Measurement
CAR	Cumulative abnormal return	The sum of monthly abnormal returns for one year
ITO	Inventory Turnover berbasis tahunan	Sales divided by average inventory
AR	Accounts Receivable Turnover	Account receivable divided by average daily sales, whilst average daily sales is measured as sales divided by 360 days
GPM	Gross Profit Margin	Gross profit divided by Sales
DER	Debt to Equity Ratio	Total liabilities divided by total equity

Following [1], labor force (LF) is measured using the following formula:

$$\{(S_{t-1}/[NOE_{t-1}])-(S_t/NOE_t)\}/(S_{t-1}/NOE_{t-1})$$

where S is Sales and NOP is number of Employees.

4 Results and Discussion

The descriptive statistics of variables are presented in Table 3.

Table 3. Descriptive statistics of variables

Variable	Mean	Min.	Max.	Std.Dev.
CAR (%)	3.98	-89.00	157.00	41.84
ITO	5.52	1.01	12.15	2.35
AR	51.69	4.51	137.97	25.98
GPM (%)	16.83	-66.00	60.00	19.77
LF (%)	-7.77	-90.00	63.00	18.98
DER (%)	87.03	-2124	1125.00	225.00

Note:
CAR (Cummulative Abnormal Return), ITO (Inventory Turnover), AR (Accounts Receivable Turnover), GPM (Gross Profit Margin), LF (Labor Force), DER (Debt to Equity Ratio).

The average CAR (cumulative abnormal return) of samples for 5 years is 3.98%. The standard deviation value is 41.84% which is greater than the average value. The value indicates that the CAR data is spreading or not close to the average. The average ITO (inventory turnover) is 5.52 times per year. The standard deviation of 2.35 is smaller than 5.52 indicating

that the data is gathered around the mean mean that the spread of ITO variable data is close to the average. The AR (Accounts Receivable Turnover) measured as the comparison between sales and accounts receivable each company has an average of 51.70 times per year. The maximum AR value of 137.97 times owned by PT. Mustika Ratu Tbk in the period 2014, while the minimum AR value is 4.51 times recorded by PT. Hanjaya Mandala Sampoerna Tbk in the period 2014. The standard deviation of 25.97 is smaller than the mean of 51.70 means the data is gathered around the average and shows the level of the spread approaching the average value. The average GPM (Gross Profit Margin) measured as the ratio between gross profit and sales of each company is 16.83%. Maximum GPM value of 60% owned by PT. Darya Varia Laboratoria Tbk in 2012 period, while minimum GPM value is -66% recorded by PT. Pyridam Farma Tbk in 2012. The standard deviation value of 19.77% is greater than the average of 16.83%. The value indicates that GPM data is spreading or not close to the average.

LF (Labor Force) is measured by comparing the difference between the sales t-1 divided by the number of t-1 employees and the sales divided by the number of employees with sales t-1 divided by the number of employees t-1, has an average value of -7.77%. Maximum LF value of 63% found in PT. Three Pilar Prosperous Food Tbk in the period 2013, minimum LF value is -90% also owned by PT. Three Pilar Prosperous Food Tbk in the period 2011. Standard deviation value 18.98% greater than average -7.77% means LF data spread or not close to the average. The average Debt to Equity Ratio (DER) measured as a ratio between liabilities and equity is 87.03%. The maximum DER value of 1125% owned by PT. Tirta Mahakam Resources Tbk in the period 2013, while the minimum DER value is -2124% found in PT. Apac Citra Centertex Tbk in the period 2013. The standard deviation of 225% is greater than the average of 87.03% means the distribution of DER data spread or not close to the average. Results of regression analysis is shown in Table 4. As depicted in Table 4, the test results show that ITO and GPM have a significant positive effect on CAR while AR and LF have a significant negative effect on CAR. While DER has no effect on CAR.

Variable	Prediction	Regression Coefficient	t-stat.	Conclusion
Constant		-0,069	-0,822	
ITO	Positive	0,023	2,056*	Accept Hypothesis
AR	Positive	-0,003	-2,600**	Reject Hypothesis
GPM	Positive	0,500	3,796**	Accept Hypothesis
LF	Negative	-0,324	-2,373*	Accept Hypothesis
DER	Positive	0,008	0,681	Reject Hypothesis
R^2 = 0.119; Adj. R^2 = 0.099; F-stat = 6.171 (p = 0.000), DW = 1.908				

Table 4. Results of Regression Analysis

Note:
CAR (*Cummulative Abnormal Return*), ITO (*Inventory Turnover*), AR (*Accounts Receivable Turnover*), GPM (*Gross Profit Margin*), LF (*Labor Force*), DER (*Debt to Equity Ratio*), **, * indicate significant at 5% and 1%, respectively.

Test results show that ITO has a positive and significant effect on CAR, according to prediction. This means that the higher the ratio of ITO, the higher the return the company can earn, and vice versa. The results of this study support the research of [5] [6] that the faster the inventory turnover, the higher the return can be generated, and vice versa. The rapid inventory turnover indicates that the goods that settle in the warehouse get sold faster, so the sales do not experience obstacles and obtain a higher return. The test results show that AR has negative and significant effect on CAR, but has coefficients that are not in accordance with the prediction, so this result is contrary to the hypothesis. This means, the higher the AR ratio, the lower the return the company earns. The results of this study are consistent with [1] research which states that disproportionate receivables increase will lead to difficulties in the sale of company products (generally trigger lending), as well as the possibility of future profit increase decreases if there is an increase in receivables. So that the management of bad debts, causing profits will fall. The reasons underlie that the increase in receivables shows the current low persistence of earnings and decline in future earnings. Test results show that GPM has a positive and significant effect on CAR, according to prediction. This means, the higher the GPM ratio, the higher the return earned by the company, and vice versa. The bigger the company's GPM the better the state of operations of the company, because it shows that the cost of goods sold is relatively lower in comparison with sales. Good operating conditions can generate high returns. The results of this study are consistent with the research of [5]. The hypothesis proposes LF negatively affect the stock return (CAR). The result of hypothesis testing shows that LF has negative effect to CAR, according to prediction. The result means the higher the LF, the lower the return the company can generate, and vice versa. The results of this study support the research of [1] [2] [7]. The use of labor analysis is to estimate the persistence of earnings, associated with significant labor-reduction wages. Labor signals as annual percentage changes of sales per employee aimed at changes in labor efficiency and accounting for changes in the number of employees. Wage reduction of workforce will increase the company return, and vice versa. The results showed that DER has positive but not significant effect on stock return (CAR). The result means that the rise and fall of DER ratio does not affect the growth of stock return (CAR) of the company. The results of this study support the [9] study that DER has no effect on CAR. DER ratio shows the composition or capital structure of the total debt compared with the total capital itself, thus impacting the greater the company's burden on the creditor. DER variable does not affect CAR, it can happen because there are some value of outlier or value that deviate from other set of values in DER, both big outlier value which is in PT. Tirta Mahakam Resources Tbk in 2013 and small outlier value at PT. Apac Citra Centertex Tbk in year 2013. No significant DER variable to CAR means change in DER variable does not have big implication to change of stock return of company.

5 CONCLUSION

Based on the results of research and discussion on the effect of fundamental variables on stock returns in manufacturing firms 2010-2014 period can be concluded that the five independent variables have varied influences, namely ITO and GPM have a positive effect on stock returns, AR and LF negatively affect return Stock, DER has no effect on stock return. This study has several limitations that can be used as a reference for further research development. First, this study

only takes 5 financial ratios that have been used in previous studies, so it has not been able to explain the effect of other ratios on stock returns. Secondly, this study only used observation period for 5 years, so the ability of company to fulfill obligation with equity is not able to influence short-term profitability level. Finally, this study only uses manufacturing firms as a sample, so it has not been able to describe the state of the company entirely in the BEI. In the next study is expected to increase the period so that the ability of firms to meet obligations with equity can be seen in the long term. The independent variable used can be added with liquidity ratio not found in this research, so it can add variation to explain the influence of financial ratios to stock return. The company's sample is expected not only to be limited to manufacturing firms in order to illustrate the condition of firms in BEI with better percentage.

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