

**THE FUNDAMENTAL ANALYSIS OF INDONESIAN STOCK RETURN
(CASE STUDY: LISTED PUBLIC COMPANIES IN SUB-SECTOR FOOD AND
BEVERAGE FOR THE PERIOD 2003-2012)**

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Abstract. Indonesia stock market which reflected by IHSG grows extraordinary and stable for the last decade with average growth 28.67 % per year. Despite of stable growth of Indonesia economy, not all companies' performance have similar good condition. Investigation of company's performance especially fundamental analysis is needed to make sure that the investment is promising and can run for long term. In this investigation, Current Ratio, Book to Market, and Total Asset Turnover are used as fundamental factor affecting stock return. Using multiple regression method, these ratios are analyzed to determine which financial factors affect stock return. The result shows that Current Ratio, Book to Market, and Total Asset Turnover give significant effects to stock return. The relationship of these independent variables with stock return are negative for current ratio but positive for both Book to Market and Total Asset Turnover. This result explains that financial ratio especially Book to Market and Total Asset Turnover are indeed useful in making decision on investment and have same level of interest with other ratios. This research also exposes the possibility of other factors besides company's financial performance affect the movement of firm's stock price which lead to stock return. Therefore, the author suggest to conduct further research uses other macro level variables which can influence stock return such as money supply, economic growth (GDP), and inflation.

Keywords: Fundamental Analysis, Stock Return, Financial Ratios, Multiple Regression

Category: Finance

Introduction

Despite of stable growth of Indonesia economy, not all companies' performance have similar condition. There are a lot of companies grow well and look promising but there are also a lot of companies fail to follow the economic growth. Investors need to investigate each company's performance carefully and thoroughly beside the national economy or industry performance thus investors can gain profit and promising income from both divided and return.

Book to market, current ratio, and total asset turnover ratio are important ratios for analyze company's performance. Book to Market Ratio is an assessment of how investors view the firms' performance, total asset turnover is an explanation of the efficiency of firm's management while current ratio is a measure of firm's ability to meet its short-term obligations. Current ratio is common among investors. They usually use this ratio to investigate company's performance from liquidity side. In the other hand, book to market and total asset turnover ratio usually get less attention from investors. This final project will analyze and determine whether these three ratio have effect on stock return performance and can be used as important factor that should be considered by investor. This project will also determine which ratio among these three ratios that have the most influence in stock return.

Literature Review

Fundamental analysis is a technique that attempts to determine a security's value by focusing on underlying factors that affect a company's actual business and its future prospects (*Investopedia.com*). Fundamental analysis was needed in order to know whether the company has growing revenue and is profitable, has a strong-enough position to beat out its competitors in the future and ability to repay its debts or the company is trusted because it has good management. Fundamental analysis can ensure whether the company's stock is a good investment or not (*Investopedia.com*). Usually, people use financial ratios to do fundamental analysis.

Current ratio, sometimes called the working capital ratio or banker's ratio, is a measure of a firm's ability to meet its short-term obligations. Current ratio is one of the ratios in the Liquidity ratio category. Liquidity Ratio is an indicator to determine the firm's ability to satisfy its short-term obligations as they come due. Gitman and Zutter said that *"it refers to the solvency of the firm's overall financial position which is the ease with which firms can pay its bill. A higher Current Ratio indicates a greater degree of liquidity."* It means that the higher the current ratio is the better.

Total Asset Turnover is one of the ratios that can explain the efficiency of a firm's management. This ratio is part of the *Activity Ratio* category. Activity Ratio is an indicator of the efficiency of a firm in managing its operation process. It measures the speed of converting various accounts into sales or cash both inflows and outflows. According to Gitman and Zutter *"The asset turnover ratio measures a company's ability to generate sales from its assets by comparing net sales with average total assets". In other words, this ratio shows how efficiently a company can use its assets to generate sales. This ratio is probably the greatest interest to management because it indicates whether the firm's operations have been financially efficient. Since the ratio measures how efficiently a firm uses its assets to generate sales, a higher ratio is always more favorable."* Higher turnover ratios mean the company is using its assets more efficiently. Lower ratios mean that the company isn't using its assets efficiently and most likely has management or production problems.

Book to Market Ratio is one of the market ratio category. Market ratio relates a firm's market value, as measured by its current price, to certain accounting value. Market ratio provides insight into how investors in the marketplace feel the firm is doing in terms of risk and return. Book to Market Ratio itself provides an assessment of how investors view the firm's performance. Investors use this ratio to find the value of a company by comparing the book value of a firm to its market value. Book value is calculated by looking at the firm's historical cost, or accounting value. Market value is determined in the stock market through its market capitalization. If the ratio is high, it means that the actual value of the company is higher than market value (Gitman and Zutter: 2012).

There are many studies regarding the relationship between financial ratios and stock return. In 1997, Mukherji, Dhatt and Kim tried to determine the existence of the relationship of financial ratios and stock return in Korea. They examined Beta, Book to Market, Debt-Equity Ratio, Earning Price Ratio, Firm size and Sales-Price Ratio. From their research they found that the determined predictors for stock return are Book to Market, Debt-Equity Ratio, Firm size and Sales-Price Ratio. The relationship of these ratios to stock return are positive for Book to Market, Debt-Equity Ratio, and Sales-Price Ratio, and negative for Firm size. In their paper, they suggest that for Korean stocks, B/M and S/P are more consistent indicators of fundamental value than E/P and D/E is a more reliable proxy for risk than beta. They also explain that greater leverage and smaller size generally result in higher returns for both value and growth stocks.

In 1999, Mukherji worked together with Dhatt and Kim again to study Korea's stock market. In this study, they examined relations between stock returns and potential explanatory factors in Korea for the period 1977-1992. The independent variables used in this research are book-to-market, sales-price, market value of equity, and debt-equity ratios. The results show that financial ratios affect the

performance of stock return where stock return significantly positively related to book-to-market, sales-price, and debt-equity ratios, but not significantly related to market value of equity. They also found that among the variables investigated, book-to-market ratio has the greatest explanatory power for stock returns and it indicates superior returns for value stocks. Their findings strengthen the international evidence of the role of book-to market ratio in explaining stock returns by demonstrating its significance even in the segmented Korean market.

Another researcher from Indonesia, Dwi Martani worked together with Mulyono and Rahfiani Khairurizka in 2009 to studying and examining Indonesian stock market. The objective of their study is to examine the value relevance of accounting information in explaining stock return. In their study, they used profitability, liquidity, leverage, market ratio, size and cash flow as independent variables and cumulative abnormal return and market adjusted return as dependent variables. The samples of the study are listed companies in manufacturing industries that actively trading for period 2003-2006 in Indonesia Stock Market. The study finds that profitability, turnover and market ratio has significant impact to the stock return.

In 2012, Er and Vuran conducted study in Istanbul Stock Exchange (ISE) with main aim is to investigate the factors affecting stock returns that motivate investors. With sample of 64 manufacturing firms that are continuously quoted in ISE during the period of 2003-2007, they applied Dynamic Panel Data Analysis Methods to explain the factors affecting stock returns of. The variables that investigated in this research are common ratio from five financial ratio categories and several macro variables. The empirical results of the study show that stock returns are affected by previous year's returns, financial ratios and macroeconomic variables. Financial ratio that affect stock return are Market Performance Ratios, Activity Ratios, Debt Management Ratios and Profitability Ratios while for macroeconomic are the oil prices, exchange rate, and interest rate.

Methodology

Data and Variable Tested

The data that are used in this research are financial reports consists of the balance sheet and income statement, and stock price of Indonesian public listed companies from sector food and beverage manufacture for period 2003-2012. For the balance sheet and income statement used is annually report. Then for stock price, the data used is stock price when the financial report released publicly, first quarter of the following year. Therefore, the author decided to use stock price of the end of first quarter. As for Variable tested in this project, the author decided to use stock return as dependent variable and Book to market, current ratio, and total asset turnover ratio as independent variables.

Data Analysis

For this research, the author uses multiple regression analysis using SPSS 21 software to analyze the relationship of financial ratios and stock return and which variable that affects stock return. This analysis includes correlation test, assumption test, and hypothesis test. The research model is shown by the figure below.

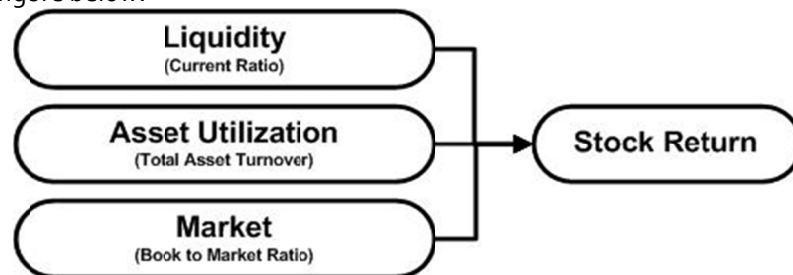


Figure 1 Research Model

While for the equation is as follow.

Where:

Y = Dependent variable

a = Constant coefficient

b = Independent variable coefficient

X = Independent variable

Result and Discussion

Assumption Test

In order to validate any conclusion reached, the assumption test should be conducted before hypothesis test. The assumption test in this research is Normality Test, Autocorrelation Test, Multicollinearity Test, and Heteroscedasticity Test.

The first assumption test is *Normality Test*. Normality test is used to examine the residual variable or intruder variable whether distributed normally or not in the regression model. In this research, Kolmogorov-Smirnov Analysis is used to test the distribution of residual variable. The research will pass the normality test if significant value is greater than 0.1. The normality test result of this research which is shown by the following table shows that residual variable have significant value greater than 0.1. It can be concluded that Null hypothesis fail rejected which mean the distribution of data tested has no different from normal data or in other words data tested has the normal distribution.

Table 1 Result of Normality Test

	Kolmogorov-Smirnov		
	Statistic	df	Sig.
Unstandardized Residual	.120	27	.200*

(The process of data)

Besides numerical result, Kolmogorov-Smirnov Analysis also makes four graphics that also important for analysis. First diagram is Stem and Leaf Plot Diagram. Stem and Leaf Plot Diagram shows the distribution of tested data. The graphic created will look following Normal Distribution if the data tested has normal distribution. Based on the Figure 1 below, the data tested actually cannot be called normally distributed but this kind of curve can still be tolerated as statistical analysis thus the p value resulted is still bigger than 0.1. Though having the extreme data, the diagram also shows that the data tested can be classified as a good data because the extreme data or outlier still can be tolerated by SPSS system so that the p value is still bigger than 0.1.

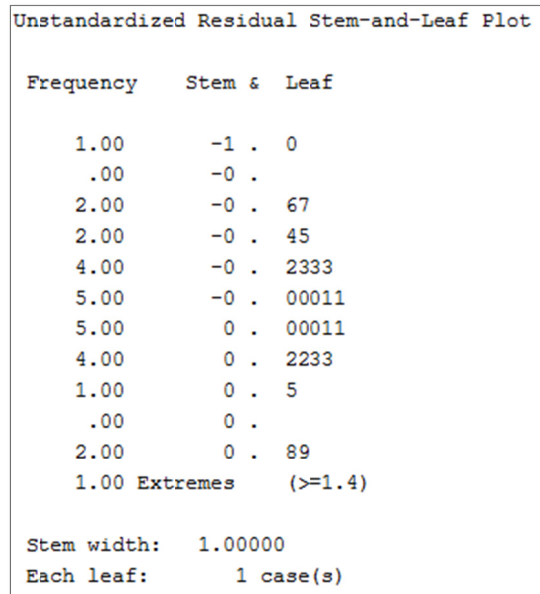


Figure 2 Diagram Stem and Leaf Plot

Extreme data or outlier furthermore is explained by the Boxplot Diagram showed by Figure 2. Data tested can be classified as a good data if there is no extreme data or outlier. In the figure below, it can be seen that there is one outlier within data; data number 99. However, the outliers in this data still can be tolerated by SPSS system so that the p value is still bigger than 0.1.

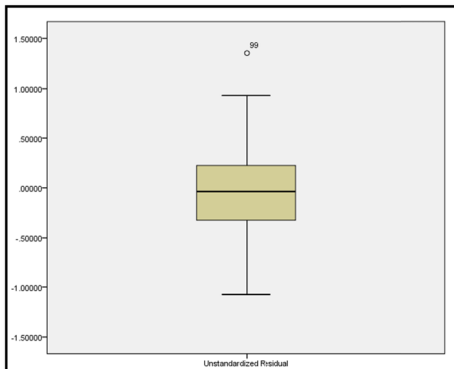


Figure 3 Diagram Boxplots

The third diagram is Normal Q-Q Plot diagram showed in Figure 3. The diagram also explains the condition of data tested whether following the normal distribution or not. In the figure, the diagonal line explains the ideal condition of normal distribution data while the dots around of the line are data tested. Data tested can be said have normal distribution if most of dots are very close or even stick to the line. The graphic below shows that most of data are very close to the line and even several data stick to the line. It also shows the existence and the position of two extreme data in this research.

The last diagram is Detrended Normal Q-Q Plots diagram. This diagram is a further explanation of Normal Q-Q Plots diagram and explains about the difference between data tested and diagonal line. If data tested have normal distribution perfectly, all dots will fell within the 0.0 line. The more dots scattered far from this line indicating that data less normal. The graphic below shows that all data tested are very close to the line and explain that data tested has normal distribution.

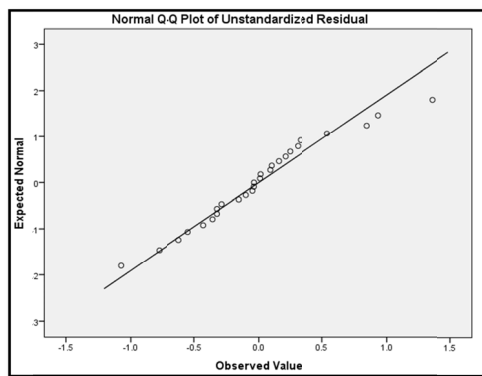


Figure 4 Diagram Normal Q-Q Plot

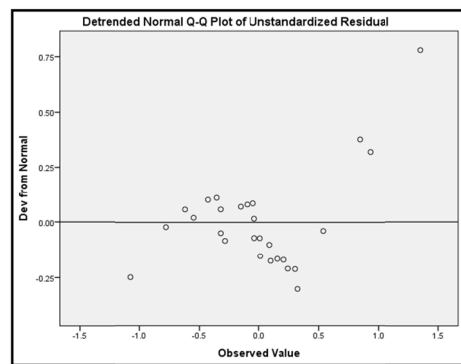


Figure 5 Diagram Detrended Normal Q-Q Plot

The next assumption test is *Autocorrelation Test*. Autocorrelation test is used to determine whether there is a correlation between the intruder errors in the particular period (t) and the previous period (t-1). Usually, this problem is arise because of sequential observation are related to each other where the residual variables are not acquitted between the observations. This observation uses Run-test Analysis to determine the autocorrelation problem. The research will pass the autocorrelation test if the significant value is greater than α . The Autocorrelation Test result which is shown by the following table shows the significant value form Autocorrelation Test is 0.436. In this test, α value that used is 0.05. Since the significant value is bigger than α , the result indicates that data used in this regression is random enough and shows that there is no autocorrelation problem on data tested.

Table 2 Autocorrelation Test Result

	Unstandardized Residual
Test Value ^a	-.03721
Cases < Test Value	13
Cases >= Test Value	14
Total Cases	27
Number of Runs	12
Z	-.779
Asymp. Sig. (2-tailed)	.436

(The process of data)

The next test is Multicollinearity Test which is used to examine whether there is correlation among independent variables. The assumption of good regression model is there is no correlation among independent variables. If each independent variable has correlation, it means that these variables

are not orthogonal variable. Orthogonal variable is independent variable in which the correlation value among independent variables is zero. In order to examine the correlation among independent variable, this research uses Variance Inflation Factor (VIF) of each independent variable. The multicollinierity problem occurs if the VIF value is no less than 10. From the table below, it can be seen that the value of VIF of all independent variables are below 10. It means that all variables in this equation have no multicollinierity problem and can be tested in to the next step.

Table 3 The Result of Multicollinierity Test

Model	Collinierity Statistics	
	Tolerance	VIF
(Constant)		
1 Current Ratio	.962	1.039
Total Asset turnover	.931	1.074
BOOK TO MARKET	.960	1.041

(The process of data)

The last test of assumption test is Heteroscedasticity test. Heteroscedasticity problem can be detected by analyzing the scatterplot of Residual variable. The regression model is free from heteroscedasticity if residual value is spread well. The dots on image should spread above or below on the axis Y. The figure 5 below shows that dots do not spread well. It indicates that there is heteroscedasticity problem. To solve this problem, Weighted Least Square Analysis is applied in the regression. The result that shows in the figure 6 evidenced that the dots is spread well. It indicates that the heteroscedasticity problem has been solved.

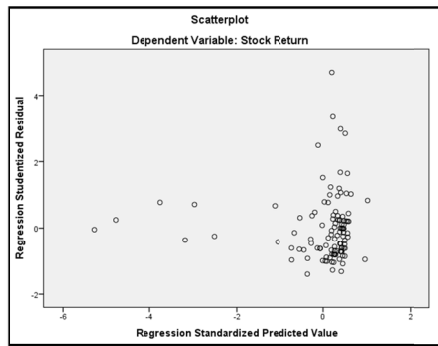


Figure 6 Scatterplot Residual

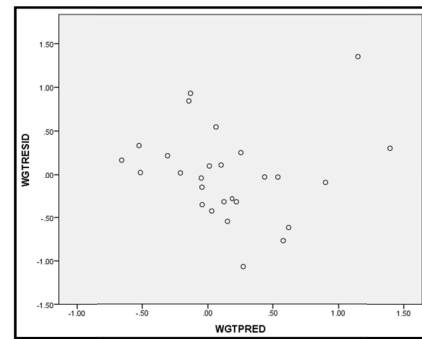


Figure 7 Scatterplot after Conduct Weighted Estimation

Coefficient of Multiple Determination (R²)

The Coefficient of Multiple Determination which is represented by coefficient of multiple regressions (R²) measures how many percent of these independent variables can explain dependent variable. Based on table of R² Analysis below, this research has R² score of 0.456. It indicates that the determined independent variables, includes profitability ratio, liquidity ratio, leverage ratio, asset utilization ratio, and market ratio, jointly affect only 45.6% of dependent variable. The remaining 54.4% is probably affected by other financial ratio or other information besides internal fundamental factors that also affect the movement of firm’s stock price which lead to stock return. There are several possible factors that can affect the movement of stock return besides internal fundamental factors.

Er and Vuran in 2012 have proved that stock return also affected by other factors besides internal fundamental factors which is macroeconomic variables. The macroeconomic variables that affect

significantly stock returns are exchange rate, interest rate and oil price. The results show that the exchange rate has positive but oil price and interest rate have a negative effect on stock returns.

Table 4 R² Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.676	.456	.385	.5569237	2.088

(The process of data)

Hypothesis Testing

F-Test

F-test statistic is conducted to test whether all independent variables included in the model have simultaneous significant effect to dependent variable. The hypothesis can be tested by analysis of variance (ANOVA).

Table 5 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5.989	3	1.996	6.437	.003
	Residual	7.134	23	.310		
	Total	13.123	26			

(The process of data)

Based on table above, the F value is 6.437 with significance value of 0.003. Therefore, the significance value is smaller than significance level (0.05), it can be concluded that the predictor variables; Current Ratio, Total Asset Turnover, and Book to Market Ratio are simultaneously affect dependent variable of Stock return.

T-Test

T-test statistic is used to test the partial hypothesis. It shows the significant impact from each independent variable to dependent variable. The T-test result of this research is shown by the following table.

Table 6 T-Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.447	.141		3.180	.004
	Book to Market	.259	.081	.511	3.202	.004
	Total Asset Turnover	.350	.124	.433	2.808	.010
	Current Ratio	-.180	.074	-.390	-2.440	.023

(The process of data)

Current Ratio

With coefficient variable of -0.180 and significant value of 0.023 which less than α value of 0.05; Current Ratio has significant and negative impact on Stock Return which supported by the result of research performed by Martani et al (2009). Current ratio, sometimes called the working capital ratio or banker's ratio, is reliable indicator of the ability to pay current liabilities. Ross et al stated in Corporate Finance 9th Edition (2010) that the higher the current ratio is the better for a creditor, particularly short-term creditor such as supplier. There will be no doubt for supplier in trusting their products before payment since the company has ability to pay quickly. However, it contrasts for the company. A high current ratio indicates liquidity, but it is also may indicate an inefficient use of cash and other short-term assets. Thus, the impact of current ratio on Stock Return will be negative.

Book to Market Ratio (B/M Ratio)

The market ratio represented by B/M Ratio (Book to Market Ratio) is significant and has positive impact on return, which supports the result of research performed by Er and Vuran in 2012 and

Mukherji et al in 1999. This variable has coefficient variable of 0.259 and significant value of 0.004 which less than α value of 0.05. Book to Market Ratio provides an assessment of how investors view the firms' performance. Investors use this ratio to find the value of a company by comparing the book value of a firm to its market value. Book value is calculated by looking at the firm's historical cost, or accounting value. Market value is determined in the stock market through its market capitalization. If the ratio is high, it means that the actual value of company is higher than market value. The company has a high possibility to increase its market value in the future and investors can generate return high. Thus, the impact of Book to Market Ratio on Stock Return will be positive.

Total Asset Turnover

As evidenced by Table T-Test, Total Asset Turnover has coefficient variable of 0.350 and significant value of 0.010 which less than α value of 0.05. It means that Total Asset Turnover has significant and positive impact to Stock Return. This result contrasts research performed by Martani et al in 2009 which shows that the relationship between Total Asset Turnover and stock return is negative. However, this result supports the logical explanation of the impact Total Asset Turnover on Stock Return where Total Asset Turnover should have positive stock return. The asset turnover ratio is an efficiency ratio that measures a company's ability to generate sales from its assets by comparing net sales with average total assets. In other words, this ratio shows how efficiently a company can use its assets to generate sales. The higher the total asset turnover value means the management of companies' asset is better that caused by the increase in generating revenues per dollar of assets. Thus, the impact on Stock Return should be positive.

Multiple Linier Regression Equation

Based on the data processing in table 4.3.1.1, it can be formulated the equation of regression model:

$$Y = 0.447 - 0.180 (X_1) + 0.350 (X_2) + 0.259 (X_3)$$

Where:

Y = Stock Return

X₁ = Current Ratio

X₂ = Total Asset Turnover

X₃ = Book to Market

Conclusion and Suggestion

This research of The Fundamental Analysis of Indonesia Stock Market has main objective of determining the variables that influence stock return gained by investors. The research result and analysis show that stock returns are affected by financial ratios such as book to market, current ratio, and total asset turnover ratio. The relationship of these independent variables with stock return are negative for current ratio but positive for both Book to Market and Total Asset Turnover. This research result is supported be previous research for current ratio and book to market ratio but contrast for Total Asset Turnover. However, this different result is supported by the logical explanation of the impact total asset turnover on stock return where total asset turnover should have positive stock return. This research also exposes the possibility of other factors besides companies' financial performance affect the movement of firm's stock price which lead to stock return. Thus, the author suggests for another researcher to including macro level variables which can influence stock return such as money supply, economic growth (GDP), and inflation as independent variable to expand the next research beside increasing more sample both the numbers of company and observed period.

References

Algifari, (2013), Analisis Regresi Teori, Kasus dan Solusi Edisi 2, Yogyakarta, BPFE Yogyakarta.

- Er, S. and Vuran, B., 2012, Factors Affecting Stock Returns of Firms Quoted in ISE Market: A Dynamic Panel Data Approach, retrieve on September 12th, 2014 from <http://thejournalofbusiness.org/index.php/site/article/view/209/208>
- Ghazali, I., (2006), Aplikasi Analisis Multivariate dengan Program SPSS, Semarang, Badan Penerbit Universitas Diponegoro.
- Gitman, L.J. and Zutter, C.J., (2012), Principles of Managerial Finance: 13th Edition, Boston, Pearson Education.
- Indonesian Stock Exchange, 2013, Idx Statistics 1st Quarter 2013, retrieve on November 5th, 2014 from <http://www.idx.co.id/Portals/0/StaticData/Publication/Statistic/Quarterly/IDX%201st%20Quarter%202013.pdf>
- Investopedia, Introduction to Fundamental Analysis, retrieve on November 5th, 2014 from <http://www.investopedia.com/university/fundamentalanalysis/>
- Martani, D., Mulyono, and Khairurizka, R., (2009), The effect of financial ratios, firm size, and cash flow from operating activities in the interim report to the stock return, retrieve on September 12th, 2014 from http://staff.ui.ac.id/system/files/users/martani/publication/5-theeffectoffinancialratiosfirmssizeandcashflowfromoperatingactivitiesintheinterimreportto_o.pdf.
- Mukherji, S., Dhatt, M. S., and Kim, Y.H., (1997), A Fundamental Analysis of Korean Stock Returns, retrieve on September 12th, 2014 from <http://www.jstor.org/discover/10.2307/4479998?sid=21104981990311&uid=2&uid=4&uid=3737496>
- Mukherji, S., Dhatt, M. S., and Kim, Y.H., (1999), Relations between Stock Returns and Fundamental Variables: Evidence from a Segmented Market, retrieve on September 12th, 2014 from http://deepblue.lib.umich.edu/bitstream/handle/2027.42/42746/10690_2004_Article_231288.pdf?sequence=1&isAllowed=y
- Levine, D. M., Krehbiel, T. C., and Berenson, M. L., (2010), Business Statistic a First Course, 5th Edition, Boston, Pearson Education.
- Ross, S. A., Westerfield, R. W., and Jaffe, J., (2010), Corporate Finance, 9th Edition, New York, McGraw Hill Companies.