The Effect of Fundamental Ratios on Stock Return

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Abstrak

Tujuan penelitian ini adalah menguji pengaruh rasio fundamental terhadap return saham. Piotroski menunjukkan bahwa strategi berdasarkan analisis fundamental dalam penilaian saham berhasil membedakan kinerja kinerja saham yang winner dan loser yang akan datang. Mohanram menguji strategi pada saham yang bertumbuh atau saham dengan rasio book to market (BM) yang rendah.

Penelitian ini menguji pengaruh rasio fundamental terhadap perusahaan dengan rasio BM tinggi dan rendah dengan mengkhususkan pada fundamental akuntansi seperti likuiditas, leverage, profitabilitas dan efisiensi operasi.

Sampel penelitian adalah perusahaan menufaktur yang terdaftar di Bursa Efek Jakarta. Pengumpulan data menggunakan pendekatan penyampelan bersasaran. Jumlah perusahaan yang memenuhi criteria sebagai sample adalah 85 perusahaan dari tahun 1999 hingga 2003. Hasil pengujian mengindikasikan bahwa rasio fundamental tidak berhasil bagi perusahaan dengan BM yang rendah. Bagi saham dengan BM rendah, stabilitas laba dapat membantu perbedaan antar perusahaan dan investor cenderung overvalued dalam menilai saham ini.

Kata kunci: *rasio fundamental, rasio Book-to-Market, likuiditas, leverage, profitabilitas, efisiensi operasi*

Introduction

Investors need financial information for making investment decision. They have to make interpretation for financial statement information to avoid adverse selection. They have to make fundamental analysis and technical analysis. The important factors for investment decision are stocks return and variables that affect them.

There have been a lot of researches in finding empirical evidences about fundamental analysis. Chan et al. (1991) examined the variables of earnings yield, size, book to market ratio and cash flow yield. The results indicate that book to market ratios and cash flow yield positively affected stock returns.

Piotroski (2000) demonstrates that a strategy based on fundamental analysis of value stock is successful in differentiating between winners and losers in terms of future stock returns performance. Mohanram (2002) tests whether such a strategy works for growth stock, or low book to market stocks.

The objective of the study is to examine the effect of book to market ratios to the stock returns and also examine fundamental ratios to the stock returns for low and high book to market ratios. The result hopefully will be necessary for adding more empirical evidence of fundamental ratios that affect firms values of low book to market firms and high book to market firms

Literature Review and Hypothesis Development

The firm values are indicated by financial statement information. Financial information shows the conditions of what has the firm achieved. Accounting information can give guidance for investors concerning the allocation of capital which have been invested. It indicates that the behavior of investor can be controlled through accounting information that communicates the investment decision.

The purpose of publishing the accounting information is to reduce the uncertainty for external investor to make an economic decision. Fundamental analysis is technical analysis which views that the stock has intrinsic value or the accurate value which predicted by investors to obtain expected returns and to anticipate possible risk (Penman, 2001).

Lev and Thiagarajan (1993) examined the significance of fundamental signal in different macro economic and environment. They identified the relation of earnings persistence by analyzing 12 financial signals to reflect the relation of the current accounting data. The signals are also important to predict the change of net income in the future. The result indicated that 12 signals correlated with return.

Book to Market Ratios and Stock Return

Book to market ratio is a ratio between book value to stock price. There have been a lot of researches that examined book to market ratios, such as (Fama and French 1995) conducted. They investigated the effect of size and book to market ratios on the stock returns. They found that size and book to market related to profitability. Davis (1994) examined variables book to market equity, earnings yield, cash flow yield, historical sales growth, beta, size and shares price. The results show that cash flow yield, earnings yield, and book to market ratio significantly affect stock returns.

Based on the argument, I predict that low book to market ratio is more profitable than high to book market ratio. So the hypothesis is:

H1: Book market ratio has a negative relation with stock return.

Liquidity and Stock Return

Liquidity indicates the financial position of a company. It is also indicates the ability of company to fulfill the short term liabilities. The company with low liquidity can affect investor's trust to give the credit. In contrast, a company with a high liquidity will be considered highly credible because the company due to their higher surviving. The company with high liquidity can avoid some risks thus able to attract investors to invest in the company.

Piotroski (2000) found that the company with high book to market indicated that the liquidity could be a good signal as company's ability for short term liabilities if the change of liquidity history indicate a positive figure or other alternatives. But, liquidity also can be bad signal only if the company has liquidity closes with 1. Mohanram (2003) investigated the liquidity effectiveness of company with low book to market ratio. His findings indicated that liquidity can be an important measure. They result of Piotroski (2000) and Mohanram (2003) showed a different result about the

effect of liquidity for the firm with high book to market ratio and firm with low book to market ratio. Based on those arguments, the hypothesis is:

H2: The effect of fundamental ratio in liquidity aspect on return between a firm with high book to market and firm with low book to market is different.

Leverage and Stock Return

Leverage indicates a firm capital structure which is related to best debt equity mix. The higher the leverage proportion used by the firm the higher the investor bear the risk. It is due to the fixed rate of used long term debt for financing the assets in order to obtain a bigger profit. If the company obtains less profit, the net income after tax will be less, consequently, dividend received by investor will be decreased.

Most firms with high book to market has a potential to face financial problem due to increased financial leverage (Fama and French, 1995; Chen and Zhang, 1998). Higher leverage will make the liquidity worse. It can be a bad signal for financial risk. Lakonishok et al. (1994) said stock market assumed that low book to market stock has a good performance due to overvaluation. The research, however could not find that leverage is one of a judgment to purchase stock with low book to market. Based on that argument, the hypothesis is:

H3: The effect of fundamental ratio in leverage aspect on return between a firm with high book to market and firm with low book to market is different.

Profitability and Stock Return

Profitability provides information about firm's ability to obtain internal financing. Profitability analysis is not only useful for describing the current position of the firm but it also functions a tool for management planning and decision making (Penman, 2000). (Piotroski 2000) said that profitability could provide information about prospect of the performance and predictions of the future company. Penman (1992;1996), Fama and French (1995), and Bernard (1994) found that there was negative association between book to market ratio and profitability. Mohanram (2003) in his research used two profitability aspects, they are a firm which has potential to obtain profit and a firm which increases profitability trend.

Based on the previous research, the fact showed that there was a different view of investors in evaluating their ability of future profitability between low book to market ratio and high book to market ratio. The hypothesis is:

H4: The effect of fundamental ratio in profitability aspect on return between a firm with high book to market and firm with low book to market is different.

Operating Efficiency and Stock Return

Big firms are usually more efficient than a small firm. The more efficient the firm, the less the assets used by the operating activity (White et al., 2002). Operating Efficiency is not very beneficial for investors in firm with high book to market. Therefore, operating efficiency in a firm with high book to market is more important than in a firm with low book to market.

The hypothesis is:

H5: The effect of fundamental ratio in operating efficiency aspect on return between a firm with high book to market and firm with low book to market is different.

Research Method

The sample of this research is manufacturing companies listed in Jakarta Stock Exchange (JXS) for the period 1999-2003. This research used 414 observations with 90 companies. The data was obtained from database of Magister Sains UGM and home page of JXS. The companies chosen as samples are the companies that issued financial statement for 31 December.

The dependent variable is the stock return measured by the percentage in stock price changes. Meanwhile, the independent variables are book to market ratios, liquidity proxied by current asset, leverage proxied by debt to asset ratio, profitability proxied by ROA, and operating efficiency proxied by asset turnover.

Data Analysis Method

This research used pooled regression to explain the association between the return and firm values. The research model used multiple regression analysis. The model can be formulated as follows:

$$\text{Return} = \alpha + \beta_1 \log(\text{MVE}) + \beta_1 \text{BM} + \varepsilon \quad \text{(model 1)}$$

$$\text{Return} = \alpha + \beta_1 \log(\text{MVE}) + \beta_2 \text{LIQUID} + \beta_3 \text{LEVER} + \beta_4 \text{ROA} + \beta_5 \text{TURN} + \varepsilon \quad \text{(model 2)}$$

α	= Interception point
β	= Regression Coefficient
BM	= Book to Market
MVE	= Market Value of Equity
LEVER	= Debt to Asset Ratio
LIQUID	= Current Ratio

Result and Analysis

This research used the classical assumption because it used multiple regression analysis. Generally, this research has fulfilled the classical assumption to determine whether the model is properly used.

As shown in table 1, the mean of BM is 1.8737 with standard deviation is 4.0575. The mean or return is 3.0468 with standard deviation is 22.1104. The mean of MVE is 11.2577 with standard deviation is 0.8326. The mean of LIQUID is 14.25 with standard deviation is 132.47, the mean of LEVER is –0.25 with standard deviation is 5.86, the mean of ROA is 1.9557 with standard deviation is 23.0529, the mean of TURN is 2 with standard deviation is 18.4764.

Table 1
Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Dev.
Return	-0.9851	315.6667	3.0468	22.1104
BM	0.0055	33.3333	1.8737	4.0575
MVE (log)	8.9956	13.7095	11.2577	0.8326
LIQUID	0.0336	2351.8796	14.25	132.4784
LEVER	-119.2109	1.8245	-0.2577	5.8654
ROA	0.0008	469.4349	1.9557	23.0529
TURN	0.0003	376.3479	2.0014	18.4764

The Hypothesis Testing of H1

The hypothesis testing of H1 examine whether there is association between BM and stock return. The result shown in table 2 below:

Table 2

Independent Variable	*Unstandardized Coefficient*	*Standardized Coefficient*	*t*	*Sig (1-tailed)*
Constant	0.631	-	1.107	0.27.
MVE(log)	0	-0.078	-1.023	0.307
BM	-0.292	-0.252	-3.284	0.001
ANOVA : F= 5.926 (*p-value* 0.003)				
Adjusted R^2 : 0.039				
Dependent Variable : Return				

As shown in table 2, book to market ratio has a negative relation with stock return, F value is 5.926 and significance value is 0.003 which translate that regression model could be predicted return. Adjusted R square is 3.9% shows that return explained by book to market ratio and MVE, and the rest indicated other variables outside the models.

The Hypothesis Testing of H2 until H5

The hypothesis testing of H2-H5 used multiple regression analysis. The results of hypothesis testing of regression analysis are shown in table 3 until table 5 below:

Table 3

Independent Variable	*Unstandardized Coefficient*	*Standardized Coefficient*	*t*	*Sig (1-tailed)*
Constant	-1.738	-	-2.427	0.016
MVE(log)	0.153	0.193	2.534	0.012
LIQUID	0.009	0.143	1.958	0.052
LEVER	-0.008	-0.106	-1.245	0.215
ROA	0.203	0.077	0.949	0.344
TURN	-0.001	-0.010	-0.137	0.891
ANOVA : F= 3.868 (*p-value* 0.002)				
Adjusted R^2 : 0.075				
Dependent Variable : Return				

As shown in table 3, MVE is significant at 5%, the significance of liquidity is 10%, and the other variables have no association on return. F value is 3.868 and significance value is 0.002 that mean regression model could predict return. Adjusted R square is 75% shows that return explained by liquidity, leverage, profitability and operating efficiency, and the rest indicted other variables outside the models.

The second step is made classification into two groups, there are low book to market firm and high book to market firm. The result of regression testing for low book to market firm shown in table 4 below.

Table 4

LOW BOOK TO MARKET				
Independent Variable	*Unstandardized Coefficient*	*Standardized Coefficient*	*t*	*Sig (1-tailed)*
Constant	0.007	-	0.087	0.931
MVE(log)	0.004	0.050	0.450	0.654
LIQUID	-0.258	-0.255	-2.244	0.028
LEVER	1.582	0.004	0.031	0.976
ROA	0	0.243	1.777	0.079
TURN	-0.225	-0.218	-1.970	0.052
ANOVA : F= 2.093 (*p-value* 0.75)				
Adjusted R^2 : 0.061				
Dependent Variable : Return				

As shown in table 4, F value is 2.093 but significance value is 0.75 that mean regression model could not be predicted return.

The result of regression testing for high book to market firm shown in table 5 below:

Table 5

HIGH BOOK TO MARKET				
Independent Variable	*Unstandardized Coefficient*	*Standardized Coefficient*	*t*	*Sig (1-tailed)*
Constant	-10918	-	-1.821	0.075
MVE(log)	0.173	0.288	2.017	0.049
LIQUID	-0.005	-0.150	-0.943	0.350
LEVER	-0.256	-0.209	-1.251	0.217
ROA	0.890	0.225	1.693	0.097
TURN	0.135	-0.154	1.099	0.277
ANOVA : F= 3.058 (*p-value* 0.018) *Adjusted* R^2 : 0.159 Dependent Variable : Return				

As shown in table 5, MVE is significance at level 5%, ROA is significance at level 10% ant the other variables have no association return value is 0.018 that mean regression model could be predicted return. Adjusted R square is 15.9% which shows that return is explained by liquidity, leverage, profitability and operating efficiency, and the rest indicated other variables outside the models. Based on table 4 and 5 below, it indicates the effect of fundamental ratio between a firm with high book to market and firm with low book to market are different. This support Fama and French (1995) and Chen and Zhang (1998).

Analysis Sensitivity Result

Analysis sensitivity testing used independent sample t-test to examine whether there is a difference between the effect of fundamental ratio for low book to market firm and high book to market firm. Table 6 showed that mean of low book to market firm. Table 6 showed that mean of low book to market firm is higher than high book to market firm.

Table 6

BM Group		Mean	Std. Dev.	Std. Error
LG_MVE	1	2.8897	11.2563	1.0684
	2	1.1564	1.0830	0.1474
LIQUID	1	0.0013	0.2684	0.0055
	2	-0.0042	0.1279	0.0017
LEVER	1	0.7751	0.7716	0.0073
	2	0.9586	0.7917	0.1077
ROA	1	1.0885	0.5456	0.0052
	2	0.6420	0.4773	0.0065
TURN	1	11.4228	0.6605	0.0063
	2	10.6764	0.6594	0.0089

Table 7
Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2-tailed)
MVE(log)	Equal variances assumed	0.58	0.810	6.815	163	0.000
	Equal variances not assumed			6.819	105.28	0.000
LIQUID	Equal variances assumed	1.696	0.195	1.127	163	0.261
	Equal variances not assumed			1.607	114.14	0.111
LEVER	Equal variances assumed	1.538	0.217	-1.422	163	0.157
	Equal variances not assumed			-1.409	102.73	0.162
ROA	Equal variances assumed	0.353	0.553	1.418	163	0.158
	Equal variances not assumed			1.771	162.97	0.078
TURN	Equal variances assumed	1.059	0.305	5.131	163	0.000
	Equal variances not assumed			5.374	118.69	0.000

As shown in the table 7, the average of low book to market group is higher than high book to market group, unless leverage. There is a significant difference between low and high book to market for MVE and TURN.

Conclusion

This research has two objectives to provide more empirical evidence about the association between book to market ratio and stock return. This research also examines the effect of fundamental ratios on stock returns. The fundamental ratio variables are liquidity, leverage, profitability, and operating efficiency. This research used multiple regression analysis.

Hypothesis 1 shown that book to market ratio has negative relation with stock return. The result shows book to market ratio significance at level 1%, this result support the previous research. Hypothesis 2 until 5 indicate that generally fundamental ratio is affected stock return, but they are different for low book to market firm and high book to market firm. This result indicates that investor tend to overvalue the low book to market stock performance. On the other hand, investors need fundamental ratio for investment decision making. The result support Fama and French (1995) and Chen and Zhang (1998) which stated that, book to market ratio has a negative relation with stock market.

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Lampiran

Daftar Perusahaan

No.	Nama Perusahaan
1	PT Ades Alfindo Putrasetia Tbk
2	PT Aqua Golden Mississippi Tbk
3	PT Cahaya Kalbar Tbk
4	PT Davomas Abadi Tbk
5	PT Indofood Sukses Makmur Tbk
6	PT Multi Bintang Indonesia Tbk
7	PT Prasida Aneka Niaga Tbk
8	PT Sari Husada Tbk
9	PT Sekar Laut Tbk
10	PT Siantar Top Tbk
11	PT BAT Indoesia Tbk (Tobacco)
12	PT Gudang Garam Tbk
13	PT Hanjaya Mandala Sampoerna Tbk
14	PT Argo Pantes Tbk (textile)
15	PT Century Textile Industry (CENTEX) Tbk
16	PT Eratex Djaja Limited Tbk
17	PT Panasia Filament Tbk
18	PT Roda Vivatex Tbk
19	PT Sunson Textile Manufacturer Tbk
20	PT APAC Citra Centertex Tbk
21	PT Ever Shine textile Industry Tbk
22	PT Hanson Industri Utama Tbk
23	PT Karwell Indonesia Tbk
24	PT Kasogi Internasional Tbk
25	PT Primarindo Asia Infrastructure Tbk
26	PT Sarasa Nugraha Tbk
27	PT Sepatu Bata Tbk
28	PT Barito Pacific Timber Tbk
29	PT Daya Sakti Unggul Corporation Tbk
30	PT Surya Dumai Industri Tbk

No.	Nama Perusahaan
44	PT Intan Wijaya Internasional Tbk
45	PT Argha Karya Prima Industry Tbk
46	PT Berlina Tbk
47	PT Dynaplast Tbk
48	PT Siwani Makmur Tbk
49	PT Trias Sentosa Tbk
50	PT Wahan Jaya Perkasa Tbk
51	PT Indocement Tunggal Perkasa Tbk
52	PT Semen Cibinong Tbk
53	PT Semen Gresik (persero) Tbk
54	PT Alakasa Industrindo Tbk
55	PT Alumindo Light Metal Industry Tbk
56	PT Jakarta Kyoei Steel Works Ltd Tbk
57	PT Jaya Pan Steel Tbk
58	PT Lion Mesh Prima Tbk
59	PT Lion Metal Works Tbk
60	PT Merck Tbk
61	PT Kedaung Citra Can Tbk (metal)
62	PT Intikeramik Alamsari Industri Tbk
63	PT Surya Toto Indonesia Tbk
64	PT GT Kabel Indonesia Tbk
65	PT Jembo Cable Company Tbk
66	PT Sumi Indo Kabel Tbk
67	PT Astra Graphia Tbk (electronic)
68	PT Metrodata Electronics Tbk
69	PT Multi Argo Persada Tbk
70	PT Multipolar Corporation Tbk
71	PT Astra International Tbk
72	PT Branta Mulia Tbk
73	PT Gajah Tunggal Tbk

31	PT Tirta Mahakam Plywood Industry Tbk
32	PT Fajar Surya Wisesa Tbk
33	PT Indah Kiat Pulp & Paper Corporation Tbk
34	PT Suparma Tbk
35	PT Surabaya Agung Industri Pulp & Kertas Tbk
36	PT Aneka Kimia Raya Tbk (chemical)
37	PT Lautan Luas Tbk
38	PT Polysindo Eka Perkasa Tbk
39	PT Sorini Corporation Tbk
40	PT Duta Pertiwi Nusantara Tbk
41	PT Eka Dharma Tape Industries Tbk
42	PT Schering-Piough Indonesia Tbk
43	PT Mandom Indonesia Tbk

74	PT Goodyear Indonesia Tbk
75	PT Hexindo Adiperkasa Tbk
76	PT Indomobil Sukses Internasional Tbk
77	PT Indospring Tbk
78	PT Intraco Penta Tbk
79	PT Multi Prima Sejahtera Tbk
80	PT Prima Alloy Steel Tbk
81	PT Selamat Sempurna Tbk
82	PT Dankos Laboratories Tbk
83	PT Darya-Varia Laboratoria Tbk
84	PT Kalbe Farma Tbk
85	PT Mustika Ratu Tbk
86	PT Unilever Indonesia Tbk