

DETERMINANTS IDENTIFICATION OF PUBLIC BANKS STOCK PRICES IN INDONESIA BASED ON FUNDAMENTAL ANALYSIS

Sugiarto¹ and Nursiana Adinoto²

Abstract: *Stock price is one indicator of the stock market which can trigger investors reaction. This study used fundamental analysis to detect financial variables that have significant role in predicting public banks stock prices in Indonesia. Data were collected from the Indonesian Capital Market Directory, the JSX Watch, Indonesia Stock Exchange and Index Limited Liability Company in Indonesia, for the period 2010-2014. In analyzing the data, regression analysis were used by first seeking the fulfillment of assumptions of the Ordinary Least Square (OLS) regression analysis. On the basis of the application of parsimony principle for the purposes of forecasting public banks stock prices in Indonesia it can be used two independent variables, namely Return on Asset (ROA) and Net Profit Margin (NPM). The independent variables ROA and NPM simultaneously have positive significant effect on public banks stock prices in Indonesia with the ability to explain the variations in public banks stock prices amounted to 60.2%.*

Keywords: *Stock price, Fundamental analysis.*

1. INTRODUCTION

Stock price is one indicator of the stock market which can trigger investors reaction. Stock prices assessment can be performed by technical analysis and/or fundamental analysis. Technical analysis is based on the assumption that stock prices are determined by supply and demand, so that technical analysts predict stock prices by observing changes in stock prices in the past. The application of technical analysis imposes basic assumptions, such as: the stock market value is determined solely by supply and demand, while supply and demand are influenced by several factors, both rational and irrational. By ignoring small fluctuations in the market, stock prices tend to move in a trend that remains for long periods of time.

The fundamental analysts estimate the intrinsic value of a stock that is a reasonable price for these stocks. Basically the investor's decision to invest in an

¹ STIE Wiyatamandala, Department of Management, Indonesia. E-mail: prof.sugiarto@gmail.com

² STIE Wiyatamandala, Department of Management, Indonesia. E-mail: adinoto_n@yahoo.com

asset depends on the expected cash flows from these assets in the future after discounted for risk factors and time. By using fundamental analysis, stock prices assessment can be done using several approaches. In reality, stock prices assessment is not only based on one way, instead some ways be compared, consider that no single approach that can stand on its own which will be able to describe the true value of the company, moreover each approach has different assumptions. Likewise, the received information can be justified when feasible and can be used as an additional consideration, so that it will be obtained a reasonable stock price. Some common stock assessment models used in fundamental analysis are the dividend discount models, models based on price-earnings ratios, analysis based on companies major financial variables from the company's financial statements. This study used fundamental analysis to detect financial variables that have significant role in predicting public banks stock prices in Indonesia.

2. RESEARCH METHODOLOGY

Fundamental analysis is done on the basis of banks major financial variables obtained from the banks' financial statements. As financial firms, banks have financial characteristics which are significantly different from other sectors (Pandey, 2002). In addition, financial firms embrace specific regulations with different characteristics from non-financial corporations. The use of public banks in this study are based on the following considerations:

1. Public banks in Indonesia must obey disclosure regulations required by Bank Indonesia (BI) and the Otoritas Jasa keuangan (OJK) so public banks in Indonesia are considered more transparent than non public banks. This condition makes the objectivity of data becomes higher.
2. Public banks in Indonesia are closely monitored by Bank Indonesia (BI) and the Otoritas Jasa Keuangan (OJK) so that their data quality are more reliable.

Data collected from the Indonesian Capital Market Directory, the JSX Watch, Indonesia Stock Exchange and Index Limited Liability Company in Indonesia, on the basis of the following criteria:

1. Public banks already listed as public banks in the Indonesia Stock Exchange since 2010 or earlier.
2. Public Banks have the required financial statement data for the period 2010-2014.
3. Public banks reported variables analyzed in this study as follows:
 - (a) VOL = VOLUME
 - (b) DIVIDEND = DIVIDEND

- (c) DAR = DEBT ASSET RATIO
- (d) DER = DEBT EQUITY RATIO
- (e) ROA = RETURN ON ASSET
- (f) ROE = RETURN ON EQUITY
- (g) OPM = OPERATION PROFIT MARGIN
- (h) NPM = NET PROFIT MARGIN
- (i) PRICE = PRICE

In this study Dividend variable represent a corporate action in respect to banks' dividend policy. As the dependent variable in this study is public banks stock price in Indonesia. In connection with the time span of the data used in this study (2010-2014), there were 15 public banks eligible for analysis. In analyzing the data, simple and multiple regression analysis were used by first seeking the fulfillment of assumptions of The Ordinary Least Squares (OLS) regression analysis.

3. RESULTS AND DISCUSSION

On the basis of a simple regression analysis (as listed in Table 1), all independent variables in this study unless Volume have significant effect on public banks stock prices. DAR and DER variables negatively affect the public banks stock prices, while other variables influence public banks stock prices positively.

Table 1
Results of Simple Linear Regression Analysis

<i>Independent variable</i>	<i>Pearson Correlation</i>	<i>sign</i>	<i>R Square coefficient</i>	<i>Unstandardized coefficient</i>	<i>Standardized</i>	<i>t</i>	<i>sign</i>
VOL	.199	.044	.040	.001	.199	1.733	.087
Dividend	.402	.000	.162	2681.207	.402	3.754	.000
DAR	-.336	.002	.113	-39897.747	-.336	-3.049	.003
DER	-.387	.000	.150	-615.039	-.387	-3.584	.001
ROA	.740	.000	.548	3207.232	.740	9.405	.000
ROE	.623	.000	.388	338.153	.623	6.807	.000
OPM	.728	.000	.530	219.145	.728	9.069	.000
NPM	.728	.000	.529	262.759	.728	9.061	.000

Results from simple linear regression analysis showed that ROA is a variable that has the greatest ability in predicting public banks stock prices. The coefficient of determination of ROA on stock prices reached 54.8%. ROA influence significant positive on public banks stock prices. Thus the higher the ROA will be the higher stock prices. OPM is variable that have the second greatest capacity in predicting public banks stock prices. The coefficient of determination of the OPM to the public banks stock prices reaches 53.0%. OPM influence significant positive on public

banks stock prices. Thus the higher the OPM will be the higher stock prices. NPM is a variable that has the third largest capability in predicting public banks stock prices. The coefficient of determination of NPM to public banks stock prices reaches 52.9%. NPM influence significant positive on public banks stock prices in Indonesia. Thus the higher the NPM will be the higher stock prices. Coefficient of determination of ROA, OPM, and NPM, had exceeds 50% of the stock price.

Results of multiple regression analysis with various combinations of the model are summarized in Table 2.

Tabel 2
Summary of Output

<i>Model</i>	<i>Predictors</i>	<i>R Square</i>
Full Model	(Constant), NPM, Volume, DAR, Dividend, ROE, DER, ROA, OPM	.626
Combination 1	(Constant), OPM*, VOLUME, DER, DIVIDEND, ROA*	.614
Combination 1A	(Constant), NPM*, VOLUME, DER, DIVIDEND, ROA*	.619
Combination 2	(Constant), OPM*, VOLUME, DAR, DIVIDEND, ROA*	.611
Combination 3	(Constant), OPM*, DAR, DIVIDEND, ROA*	.611
Combination 4	(Constant), OPM*, DIVIDEND, ROA*	.611
Combination 5	(Constant), ROA*, OPM*	.600
Combination 6	(Constant), ROA*, DAR, OPM*	.600
Combination 7	(Constant), DAR*, ROE*, OPM*	.583
Combination 8	(Constant), OPM*, DER*, ROE*	.592
Combination 9	(Constant), ROE*, DER*, NPM*	.593
Combination 10	(Constant), ROA*, NPM, OPM	.602
Stepwise	(Constant), ROA*, NPM*	.602

* Significant variables for each model

Full model for involving all the independent variables obtained coefficient of determination of 62.6% as shown in Table 2. However, from Table 3 it is known that the Full Model indicates multicollinearity between independent variables. VIF values of DER, ROA, ROE, OPM and NPM are greater than 10 that indicate strong phenomenon of multicollinearity between independent variables included in the model.

Indication of the multicollinearity problems also shown by ROE and OPM. Simple linear regression analysis showed a significant positive effect of ROE and also OPM on stock prices, but by using a multiple linear regression model it was found reversal effect of the partial regression coefficient of ROE and OPM to become negative and not significant effect on public banks stock prices.

For the forecasting purposes of public banks stock prices, the greater the value of the coefficient of determination will be better considering the coefficient of

Tabel 3
Regression Coefficients of Full Model

<i>Model</i>	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>		<i>Multicollinearity Statistics</i>		
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>	<i>Tolerance</i>	<i>VIF</i>
1 (Constant)	-21021.404	20072.639		-1.047	.299		
Volume	.000	.001	-.022	-.261	.795	.804	1.244
Dividend	1123.002	643.539	.168	1.745	.086	.608	1.643
DAR	23521.354	24286.209	.198	.969	.336	.136	7.379
DER	-279.244	405.973	-.176	-.688	.494	.087	11.494
ROA	2721.187	1976.109	.628	1.377	.173	.027	36.662
ROE	-109.243	224.360	-.201	-.487	.628	.033	30.130
OPM	-48.373	142.539	-.161	-.339	.735	.025	39.509
NPM	167.954	168.788	.465	.995	.323	.026	38.501

a. Dependent Variable: Price

determination is a measure of accuracy for the regression line for goodness of fit test, so that multicollinearity which occurs in Full Model is not an serious issue. However, if the model is also aimed to estimate the partial regression coefficient in order to estimate quantitatively the influence of each independent variable on the stock price, then the multicollinearity effect be very serious and forecasts became increasingly uncertain.

With consideration of the model established also useful for estimating the partial regression coefficient in order to estimate quantitatively the influence of each independent variable on the public banks stock prices, in addition to the Full Model also tested eleven other combination models (from model 1 to Stepwise Combination). All the models tested have coefficient of determination of more than 55% so that the models are formed valuable for reference in determining the investment decisions of investors.

On the basis of multiple regression analysis in respect to eleven other combination models (from model 1 to Stepwise Combination) that are free from the multicollinearity problems, it was found that the multiple regression model with combination of 1 A has the highest explanatory ability of the public banks stock prices, with a coefficient of determination reached 61.9%. However, the regression model in combination 1A only has two significant variables, those are ROA and NPM. These findings are similar to results obtained from simple linear regression analysis.

Multiple regression model with combination 1 has the second highest explanatory ability to the public banks stock prices, with a coefficient of determination reached 61.4%. However, the regression model in combination 1 has

Table 4
Regression Coefficients of Combination 1A

<i>Model</i>	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>		<i>Multicollinearity Statistics</i>		
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>	<i>Tolerance</i>	<i>VIF</i>
(Constant)	-1516.293	1565.686		-.968	.336		
Volume	-7.847E-5	.001	-.012	-.142	.888	.829	1.206
ROA	1716.285	557.354	.396	3.079	.003	.333	3.000
Dividend	926.646	582.024	.139	1.592	.116	.723	1.383
DER	-134.547	135.424	-.085	-.994	.324	.760	1.315
NPM	119.064	45.826	.330	2.598	.011	.343	2.919

a Dependent Variable: Price

only two significant variables, those are ROA and OPM. This finding is also in line with the results obtained from simple linear regression analysis.

Table 5
Multiple Regression of Combination 1

<i>Model</i>	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>		<i>Multicollinearity Statistics</i>		
	<i>B</i>	<i>Std. Error</i>	<i>Beta</i>	<i>t</i>	<i>Sig.</i>	<i>Tolerance</i>	<i>VIF</i>
1 (Constant)	-2018.161	1621.980		-1.244	.218		
Volume	-6.246E-5	.001	-.009	-.112	.911	.830	1.206
ROA	1815.538	555.425	.419	3.269	.002	.341	2.937
Dividend	877.439	592.879	.132	1.480	.143	.707	1.414
DER	-98.033	137.644	-.062	-.712	.479	.746	1.340
OPM	94.639	39.731	.314	2.382	.020	.321	3.112

a. Dependent Variable: Price

OPM and NPM together with ROA showed multicollinearity problem and was unable to raise the capability of explanatory models as stated in the combination 10 multiple regression equation (with explanatory ability 60.2%) compared to the model obtained on the basis of Stepwise which only involves ROA and NPM but also has the capability descriptors 60.2%.

One of the principles of scientific research states that a scientific study should be able to explain the phenomenon or elaborate on the problems studied in a simple but clear (parsimony). On the basis of the application of the principle of parsimony, taking into account the explanatory ability of the stock price by using the Full Model amounted to 62.6% (by involving eight independent variables), while the results of the use of descriptors Stepwise generating capability of 60.2% (using only two independent variables, namely ROA and NPM), differences in the two

models is only 2.4%, then for the purposes of forecasting stock prices can be used only two independent variables, namely ROA and NPM.

In this case though simple regression analysis findings demonstrate the ability of the explanatory variables OPM slightly higher than NPM but by using multiple regression analysis it was found that a combination of ROA with NPM with a coefficient of determination 60.2%, has a higher explanatory capability to stock price compared with the combination ROA and OPM (with a coefficient of determination of 60%). Model of forecasting public banks stock prices obtained on the basis of multiple regression analysis involving ROA and NPM is shown below:

$$\hat{Y}_1 = -2870.777 + 1906.212ROA + 137.026NPM \quad \dots(1)$$

Standardized Regression Coefficients of ROA is 0.440 and for the NPM is 0.379. In this case ROA has more significant effect on stock prices than NPM. The obtained results confirms that variables that most significantly to publicbanks stock prices is ROA, and the second one is NPM. Significance of ROA indicates that investors pay attention to the prospects of the company accordingto the banks's ability to empower the assets. ROA indicate the level of enterprise management capabilities to manage the entire company property or funds entrusted to them. The findings of this study reinforce the findings of Sugiarto and Nursiana (2014) which uses financial data from 2010 up to 2013, which states that the ROA is the most significant variable affecting the price of public banks stocks. Although the study found slightly different from the findings of research SugiartoandNursiana (2014) which states that the OPM is the variable with the second highest capability in explaining stock price. However, it can be concluded that the variable profit margin is an important variable in explaining public banks stock prices.

4. CONCLUSION

On the basis of the application of the principle of parsimony for the purposes of forecasting banks stock prices can be used only two independent variables, namely ROA and NPM. The independent variables ROA and NPM simultaneously have positive significant effect on the public banks stock price in Indonesia with the ability to explain the variations in stock prices of public banks amounted to 60.2%.

References

- Berger, A.N. and DeYoung, R (1997), "Problem loans and cost efficiency in commercial banks". *Journal of Banks and Finance* 21, 849-870.
- Dhillon, Upinder, Sand Johnson, Herb (1994), "The effect of dividend changes on stock and bond prices". *The Journal of Finance*, 281-289.

- Hayati, Kemala (2011), "Analisis Faktor-Faktor yang Mempengaruhi Perubahan Harga Saham dalam Keputusan Berinvestasi". Fakultas Ekonomi and Manajemen Institut Pertanian Bogor. Bogor.
- Hussain, Q. and Wihlborg, C (1999), "Corporate insolvency procedures and bank behaviour: A study of selected Asian economies". *IMF Working Paper*, 1-44.
- Pandey, I.M (2002), "Capital structure and market power interaction: evidence from Malaysia", in Zamri Ahmad, Ruhani Ali, Subramaniam Pillay. 2002. *Proceedings for the fourth annual Malaysian Finance Association Symposium*. 31st May-1st June. Penang. Malaysia.
- Shruti S Jamsandekar and R.R Mudholkar (2013), "Performance Evaluation by Fuzzy Inference Technique". *International Journal of Soft Computing and Engineering (IJSCE)* ISSN: 2231-2307, Volume 3, Issue 2, May 2013.
- Sugiarto and Nursiana, Adinoto (2014), "Peramalan Harga Saham Perusahaan Perbankan Tbk Atas Dasar Variabel-variabel Keuangan Utama Perusahaan". *Jurnal Bina Manajemen*. ISSN: 2303-0283. Volume II. Nomor 2. Maret 2014.
- Woolridge, J. Randall (1983), "Dividend changes and security prices". *The Journal of Finance*, 1607-1615.