Analysis of Debt to Equity Ratio and Return on Assets and its Effect to Closing Price of the Mining Industry listed in BEI

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Abstract--The impact of global financial crisis has lowered the financial performance some of mining industries in Indonesia. On the first quarter of 2009, some of them experienced 80% decreased in profit due to the decrease in price and sales of its product. The need for fresh capital to improve the financial performance has led these industries to restructure their sources of capital.

One of the ways to obtain new capital is engaging in stock market. The combination of debt to equity ratio (DER) and return on asset (ROA) reflected on the price of stocks. The research analyzed and investigated the debt to equity ratio, return on asset and the effect of them on stock prices measured by the closing price. The investigations employed the regression method and test the result with the classical assumption test and using purposive sampling method to obtain the data of mining and mining service industries listed in Indonesia Stock Exchange (Bursa Efek Indonesia or BEI) for 2005-2009 period.

The findings showed that the debt to equity ratio, return on assets and stock prices showed fluctuative moves. Both of the debt to equity ratio (DER) and return on asset (ROA) variables simultaneously showed a significant effect to the closing prices of the stocks of mining industries, but individually only return on asset has positive and significant effect to the closing prices of mining industries during the investigation.

Keywords: debt to equity ratio; return on assets; closing price; mining industry

INTRODUCTION

Indonesia is endowed with a wide range of key minerals. It is the world's second largest producer of tin and nickel and the fourth largest copper producer. The country also produces significant quantities of gold, bauxite, phosphates and iron sand, and has the potential for alluvial diamond production. The mining industry accounted for 10.8% of Indonesia's GDP in 2009, with minerals and related products contributing one-fifth of the country's total exports.

Key Players Indonesia's mining sector is dominated by Bumi Resources, which owns Indonesia's largest and fourth largest coal miners Kaltim Prima Coal (KPC) and Arutmin. State-owned PT Timah Tbk is the world's largest integrated tin mining company. It is the tin-rich Bangka region's biggest operator, followed by PT Koba Tin. Timah has a 25% share in Koba Tin while the remaining stake is held by the Malaysian Smelting Corporation. PT Freeport Indonesia and PT Newmont Nusa Tenggara are the only copper mining players in Indonesia, carrying out mining activities at the Grasberg and Batu Hijau copper mines. Freeport and Newmont are also engaged in the production of gold and silver. (*Theindonesiatoday.com*)

Global financial crisis has made its effect to many industries in Indonesia, the biggest hit strikes manufacture Industry, mining industry, and construction industry. The export and import of products all over the world are down because the decreasing of demands. The mining industry also receives big hit, all commodities prices are plunge down such as steel, copper, oil, etc, thus make infeasible economically to explore and exploit mining product. The cost to exploit the mining commodities is more expensive compare with the current market price for the mining commodities

Some of the mining industries in this country experienced decreasing financial performances in first quarter of 2009 due to the decline in price of metal commodities such as nickel, bauxite, and ferronickel and the decrease of its sales. On that period, net profit of PT. Aneka Tambang Tbk as one of Indonesia Mining industries decrease about 80% compare to the same period in 2008. PT. Timah Tbk also experienced the same decline since the report record 97% decreased in net profit compare to the same period in 2008.

These conditions will force the business increase its demand for capital to overcome this financial problem. In order to meet the capital need, business would consider capital resources either from its own resource or from other sources. The Debt to equity ratio (DER) is a financial ratio indicating the relative proportion of shareholders' equity and debt used to finance a company's assets. Closely related to leveraging, the ratio is also known as Risk, Gearing or Leverage. This component is often taken from the firm's balance sheet or statement of financial position (so-called book value), but the ratio may also be calculated using market values for both, if the company's debt and equity are publicly traded, or using a combination of book value for debt and market value for equity financially. The DER ratio reflects the structure of capital of a business. Companies have to decide the best composition of its capital in order to maximize the value of the firm. The need for capital should also consider the profitability criteria as defined in Return on Asset (ROA) and its effect in increasing the value of the firm or business.

Return on Asset (ROA) is Net Income / Total Assets—indicates how effective the company is deploying its assets. A very low ROA usually indicates inefficient management, whereas a high ROA means efficient management. However, this ratio can be distorted by depreciation or any unusual expenses.

PROBLEM IDENTIFICATION

Based on the discussion above this research investigated determinants of stock prices of mining industries in Indonesia. The research investigated the capital structure represented by debt to equity ratio (DER) and profitability ratio represented by Return on Asset (ROA) as variables that determine the stock prices of mining industries in Bursa Efek Indonesia (BEI).

PURPOSE OF THE RESEARCH

The objectives of the research are:
- To investigate the effect of debt to equity ratio (DER) in determining the stocks prices of mining industries listed in BEI
- To investigate the effect of return on asset (ROA) in determining the stocks prices of mining industries listed in BEI

EMPIRICAL FRAMEWORK

The information of financial reports and its effect to stock market behavior is a central issue of research in accounting and finance. How financial information becomes impounded in security prices and affects investments decisions has attracted many researchers to investigate.

Research in finance shows that firm's characteristics (such as growth, company size, efficiency) can predict the future stock price. Johnson and Soenen (2003) analyzed 478 firms in USA during 1982-1998 and concluded that big sized and profitable firms with high level advertising expenditure have better performance in terms of those three measurements.

The investigation about the financial ratios as determinants to the movement in stock prices has been conducted by many researchers in Indonesia.

Roswati (2007) studied the effect of CR, TATO, DER, ROE, EPS, and PBV on stock price of manufacturing industry with five sub-industries including retail, food and beverages, tobacco, automotive, and pharmacy. The result shows that the significant financial ratios in retail industry are ROE, EPS, and PBV; In food and beverages industry are EPS and PBV; In tobacco industry are CR, TATO, DER, EPS, and PBV; In automotive industry are DER, ROE, EPS, and PBV; while in pharmacy industry are CR, EPS, and PBV. In overall five industries, the influential financial ratios are TATO, DER,EPS, and PBV. Furthermore, this research shows that the variety of average stock prices can still be explained properly by financial ratios during 1-3 month period after the issuance of annual financial report

Mais (2005) performed research on the effect of financial ratios, including NPM, ROA, ROE, DER, and EPS, on stock price of companies listed on Jakarta Islamic Index in 2004. The outcome of this research explains that statistically all variables except DER are significant and have positive impact on stock price.

Gede Priana (2009) investigate whether financial ratios which are PBV, DER, EPS, DPR and ROA has a positive relation with stock price. 14 food and beverages companies which registered ini BEI has been used as sample. There are two main variables to be researched: stock price as dependent variable and companies financial ratios as independent variable. The result showed only Earning per Share (EPS) can influence stock price partially, while other financial ratios not. All financial ratios (PBV, DER, EPS, DPR and ROA) simultaneously determine the stock price.

According to Machfoedz (1994), financial ratios are always used in prediction, absolutely or explicitly. One way to evaluate the performance of business is to use financial ratio analysis that represents the financial statement analysis. According to investor's point of view, in using financial statement that relates to the stock analysis is profitability, disposition of earning, and market indicator (Helfred, 1994).

Following Anastasia and Widiastuty (2006) this research also argue that variable ROA represented the business effectively and reflected the performance of the management in creating profit along with the asset and the variable DER represented the risk and return on stock prices.

Based on the explanation above this research investigated the effect of DER and ROA variables in determining the stocks prices of mining industries listed in BEI due to the condition that during the period of investigation many mining industries experienced capital restructuring.

FINANCIAL RATIO

Financial ratios quantify many aspects of a business and are an integral part of the financial statement analysis. Financial ratios are categorized according to the financial aspect of the business which the ratio measures. Liquidity ratios measure the availability of cash to pay debt. Activity ratios measure how quickly a firm converts non-cash assets to cash assets. Debt ratios measure the firm's ability to repay long-term debt. Profitability ratios measure the firm's use of its assets and control of its expenses to generate an acceptable rate of return. Market ratios measure investor response to owning a company's stock and also the cost of issuing stock.

Leverage ratios look at the extent that a company has depended upon borrowing to finance its operations. As a result, these ratios are reviewed closely by bankers and investors. Most leverage ratios compare assets or net worth with liabilities. A high leverage ratio may increase a company's exposure to risk and business downturns, but along with this higher risk also comes the potential for higher returns. This research apply DER ratio as leverage ratio.

DEBT TO EQUITY RATIO (DER)

The debt-to-equity ratio indicates the balance between debt and equity in a company's capital structure. This is perhaps the most widely used measure of a company's leverage. It is defined as follows:

$$Debt - to - Equity\ ratio = \frac{Total\ Debt}{Total\ Equity}$$

DER ratio indicates the relative mix of the company's investor-supplied capital. A company is generally considered safer if it has a low debt to equity ratio—that is, a higher proportion of owner-supplied capital—though a very low ratio can indicate excessive caution. In general, debt should be between 50 and 80 percent of equity. The higher the DER ratio means the business facing higher risk and this tend to decrease the stock prices.

RETURN ON ASSET (ROA)

Return on total assets (ROA). This ratio measures the profit earned on the employment of assets. It is defined as follows:

$$Return\ on\ Total\ Asset =$$

$$\frac{Net\ Income\ Available\ to\ Common\ Stockholders}{Total\ Asset}$$

Net income is the profit after preferred dividends (those set by contract) have been paid. Total assets include both current and noncurrent assets.

High ROA ratio means the business are more effective in using fixed asset in creating net profit. This condition tends to attract more investor to invest in the business and the expected return tends to increase so then increasing the stock price.

This research employ the DER ratio and ROA ratio as variables determined the stock prices of mining industries listed in BEI.

STOCK PRICE

Stock price in security market basically is determined by bid ask level of share in stock exchange, so stock market will change (increase or decrease) every time depending on which higher bid or ask level is.

According to Gart's (1998) empirical studies, three factors influencing individual stock price are:

1. Market level in all aspects
2. Behavior of a group market
3. Individual (internal) company performance

Investor perception in valuing stock price can also be influenced by economic situation (external factors) that happens or will be happened and company policy (internal factors). Recession economic situation can cause decreasing of stock price, and policy of the company can cause changes of stock price.

RESEARCH METHOD

The research applied the descriptive statistic and employed the simple regression to determine the relation between DER ratio and ROA ratio as independent variables to the dependent variable which is the closing prices of the mining industries listed in BEI from 2005 to 2009 period.

The model of estimation is:

$$CP = \alpha + \beta DER + \gamma ROA + \varepsilon$$

Following is the description of the variables in the investigation:

Table 1. Description of the variables in the investigation

Variable	Description	Indicator	Measure	Scale
Debt to Equity Ratio (DER)	Capital structure*: "The combination of debt and equity financing used."* **Shapiro & Balbire (2000:464)**	DER= $\frac{Total\ Debt}{Total\ Equity}$ x 100%	%	Ratio
Return on Assets (ROA)	"Measure effectivity of business in manage its asset" **Gitman (2006:67)**	ROA = $\frac{EBIT}{Total\ Assets}$ x 100%	%	Ratio
closing price (CP)	"The value of stocks due to trading in secondary market" **Sutrino (2001:355)**	*Closing Price*	Rupiah	Ratio

The hypotheses are:
- DER have significant effect to the Closing Price (CP) of mining & mining services companies listed in BEI from 2005-2009 period.
- ROA have significant effect to the (*Closing Price*) (Y) of mining & mining services companies listed in BEI from 2005-2009 period.

The investigation apply the regression analysis and test the result with significance test such as the F test and t test and the determination. The test for the classical assumption such as normality test, autocorrelation test, multicollinearity test and heteroscedasticity test using *ZPRED* dan *studentized residual (SRESID)* are also employed to have a robust estimation.

The object on this investigation are the *Mining* and *Mining Service* companies listed in Bursa Efek Indonesia (BEI) for the 2005 – 2009 period. The sample is determined using the purposive sampling with the criteria: (1) Mining & Mining Services companies listed in BEI, (2) Mining & Mining Services companies continuously issue its annual financial report, (3) Mining & Mining Services companies that audited its financial report by independent auditor. (4) Mining & Mining Services companies with active stocks between 2005-2009. Based on the above criteria we have eleven companies

as the object of the investigation: six *mining* companies, one oil company, three *coal mining* companies, and one *tin mining* companies. The eleven companies describe in the following table.

Table 2. The object of investigation

No	Company Name	Business
1	PT. Aneka Tambang Tbk	Mining (Nickel, Bauxite, Iron Sand, Gold, & Silver)
2	PT. ATPK Resources Tbk	Coal Mining
3	PT. Bumi Resources Tbk	Oil and Gas Industry
4	PT. Cita Mineral Investindo Tbk	Mining (Metal and Mineral Mining)
5	PT. Citatah Industri Marmer Tbk	Mining
6	PT. Energi Mega Persada Tbk	Mining (Crude Petroleum and Natural Gas Production)
7	PT. International Nickel Indonesia Tbk	Mining
8	PT. Medco Energi International Tbk	Mining
9	PT. Tambang Batubara Bukit Asam Tbk	Coal Mining
10	PT. Petrosea Tbk	Coal Mining
11	PT. Timah Tbk	Tin Mining

Source: **www.idx.co.id**

EMPIRICAL FINDINGS

The regression result has passed all the classic assumption test such as the normality test autocorrelation test, multicollinearity test and heteroscedasticity test.

The relation of DER and ROA to the closing prices of mining indutries for 2005-2009 period are shown in the following table:

Table 3. Regression result

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1 (Constant)	2798.155	1139.142		2.456	.018		
DER	-340.439	267.059	-.157	-1.275	.208	.925	1.081
ROA	165.397	41.764	.486	3.960	.000	.925	1.081

The result of the regression showed that there is positive and significant effect of return on asset (ROA) to the closing prices of the mining industries from 2005 to 2009. This finding means that the performance of business in managing its asset to produce profit is significant to the price of the stocks. The debt to equity ratio (DER) showed negative effect to the closing price of mining industry but this relation is not significant. DER represents firm's capital structure. A high DER suggests that the firm uses debt financing aggressively. The fund can be used to support long term growth for the firm so it can earn profit. This suggests that the firm's debt level has not yet effect the price of stocks.

The coefficient determination is shown in the following table

Table 4. The R^2 value of the regression

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.550[a]	.303	.275	5373.037	1.921

a. Predictors: (Constant), ROA, DER

b. Dependent Variable: HargaSaham

The result showed that DER and ROA determined the movement in closing price of the eleven mining industries by only about 30.3% and the rest about 69,7% determined by other variables. The investigation understands that macroeconomic condition, political situation, government industrial policy, and technical aspects within firms are factors other than financial performance that can affect the changes in stock price (Purnomo, 1998). Hadi and Azmi (2005) also argued that other factors such as interest rate, inflation rate, and exchange rate can influence changes

On the other hand the F statistic showed significant value with F-Stats probability 0.000. This result suggests that with significance level of 95%, the simultaneously tested independent variables (DER and ROA) have significant effect on dependent variable (closing prices of the stocks of mining industries).

The F statistics is shown in the table below:

ANOVA[b]

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	6.267E8	2	3.133E8	10.853	.000[a]
Residual	1.443E9	50	2.887E7		
Total	2.070E9	52			

a. Predictors: (Constant), ROA, DER

b. Dependent Variable: HargaSaham

CONCLUSION

The investigation result found that both debt to equity ratio (DER) and return to asset (ROA) simultaneously determined the movement in the closing price of eleven mining industries from 2005 to 2009. Partially only return to asset (ROA) has significant and positive effect to the closing price.

It can be concluded that the performance of business in managing its asset to produce profit is significant in explaining the movement of price of the stocks of the eleven mining industries during the period of investigation.

REFERENCES

Gede priana dwipratama, Dr. m. abdul mukhyi, SE., MM, The Effect OF PBV, DER, EPS, ROA DPR to share price (empirical study on food and beverage company listed in BEI 2003-2007, Gunadarma University, 2009 (empirical study on food and beverage company listed in bei 2003-2007, Gunadarma University, 2009.

Mais, Rimi Gusliana. (2005, July-September). Pengaruh rasio-rasio keuangan utama perusahaan terhadap harga saham perusahaan yang terdaftar di jakarta islamic index tahun 2004. Jurnal Ekonomi STEI, 14(3), 30.

Meythi. (2006, August, 23-26). Pengaruh arus kas operasi terhadap harga saham dengan persistensi laba sebagai variabel intervening.Padang: Simposium Nasional Akuntansi.

Natarsyah, Syahib. 2000. Analisis Pengaruh Beberapa Faktor Fundamental dan Risiko Sistematik terhadap Saham. Jurnal Ekonomi dan Bisnis Indonesia,Vol. 15: 294-312.

Nugroho, Bambang Hadi. 2003. Pengaruh Beta, Size, Book Value to Market Equity, dan Earning Yields Terhadap Return Saham, Perspektif, Volume 8, Nomor 2

Purnomo, Yogo (1998). Keterkaitan Kinerja Keuangan dengan Harga Saham (Studi Kasus 5 Rasio Keuangan 30 Emiten di BEJ Pengamatan 1992- 1996). Usahawan,No 12 Tahun XXVII.

Rosyadi, Imron, 2002, Keterkaitan Kinerja Keuangan dengan Harga Saham (Study pada 25 Emiten, Empat Rasio Keuangan di BEJ), Jurnal Akuntansi dan Keuangan, Vol 1 No 1, April, Halaman 24-48

Ryan huldah a., the use of financial ratios as measures of risk in the determination of the bid-ask spread, journal of financial and strategic decisions,volume 9 number 2 summer 1996

Sudarto; Hindrata Gunawan; dan Muh. Havid (2003), Faktor-Faktor Fundamental dan Teknikal serta Hubungan dengan Harga Saham pada Perusahaan Rokok, Makanan dan Minuman di BEJ. JEBA, Vol.5: 197- 209.

Suharli, Michell. 2005. Meprediksi Tingkat Pengembalian Investasi pada Equity Securities Melalui Rasio Profitabilitas, Likuiditas, dan Hutang pada Perusahaan Public di Jakarta. SNA. Vol 8.