

## **Impact of Selected Financial Variables on Share Price of Publicly Listed Firms in the Philippines**

**Placido M. Menaje, Jr.**  
De La Salle University  
Manila, Philippines

### **Abstract**

*Share investing is taking a risk and investors seek those financial measures that have significant impact on share price. Past empirical studies used various financial and economic variables to determine their effect on share price but some of the results were not very conclusive and there were some recent results that seemed to contradict previous studies. This paper aims to determine whether earnings per share (EPS) and return on assets (ROA) have significant influence on share price of publicly listed firms in the Philippines. The study used the 2009 financial reports of 50 publicly listed firms taken from the OSIRIS electronic database. Result of the Spearman Rank order Correlation disclosed strong positive correlation of EPS with share price. ROA disclosed a weak negative correlation with share price. Multiple regression results showed that the chosen model was able to explain 73% of the average change in share price.*

**Keywords:** Share investing; share price, EPS, ROA

### **Introduction**

With few exceptions, investors and market analysts resort to financial statement analysis when it comes to share investing. The information on EPS is presented on the Income Statement while ROA, which is one of the profitability ratios, is computed using relevant numbers from the Income Statement and Balance Sheet. The broad area of financial accounting and reporting offers a number of fundamental measures of a firm's performance for a particular accounting period. One of these financial measures is the *earnings per share* (EPS). Previous studies on EPS as a predictor of share price generated mixed results. Some research works concluded that EPS is a significant predictor when the firm consistently increases its EPS over a longer period of time. Various news releases, particularly of US firms, reported that many firms did not experience any increase in share price despite increases in their quarterly EPS. This seemed to suggest that EPS may not be a good predictor of share price on a short-term basis. ROA, on the other hand, is expected to be significantly correlated with share price since it is a profitability ratio. This study was undertaken to confirm these observations.

### **Literature Review**

A person or entity invests in equity securities (shares) of companies for a host of reasons. It may be for safety cushion, cyclical cash needs, investment for a return, investment for influence, or purchase for control (Skousen et al., 2007). Whatever the reason might be, an investor undertakes thorough financial evaluation of the available options before deciding to invest in stocks of a particular company. This study focused on investment in stocks for a return.

Share investors desire to earn money that is normally higher than the return from a regular bank deposit and the share investor could be any individual or firm who has some excess cash and expects the highest possible rate of return out of the investment. This return could be in the form of dividend income (for long-term investors) or income from trading securities (for short-term investors). Either way, the movement of the share price and its direction is very important to the share investor.

### **Variables of the Study**

A primary objective of financial reporting is to provide information that is useful particularly to external users in making credit and investment decisions.

Investors are interested in gauging how well a company is performing in comparison with other companies over time. When evaluating a company, one may be interested in the pattern of net income—whether it is increasing or decreasing. It is here that GAAP-based accounting information would become the prime concern of both providers and users of the information.

Relevance has been an explicit objective of standard setting bodies like the Financial Accounting Standards Board (FASB) of the USA. Likewise, a major objective of accounting research has been to assess the relevance of accounting information in the market place. The typical format of these studies has been to isolate the impact of specific disclosures as reflected in the earnings figure, for example, on stock price. The information may also be in the form of dividend yield vis-à-vis share price. Lee Chin and Lee Weng Hong (2008) used dividend yield as predictor of stock return. They concluded that dividend yield was able to predict stock return in the Malaysian stock market.

Regardless of the variables used to predict share price or its returns, if the information is relevant, which means that it contains something new, one should be able to observe a reaction in the market. The usual market reaction is a change in stock price in either direction or trading volume as the market incorporates the new information (Bouwman et al., 1995).

This study chose share price as the dependent variable and EPS and ROA as the independent variables.

### **Share Price**

A share price is the price of a single share of a company's stock. Share prices in a publicly traded company are determined by market supply and demand. Share price is volatile because it largely depends upon the expectations of buyers and sellers. For the purpose of this study, the share price refers to the price of the stock at December 31, 2009 (closing price). On a long term perspective, the empirical study conducted by O'Hara (2000) has proven that share price is directly related to the earnings of the firm as well as to the dividends declared by the firm. However, when viewed over short periods, the relationship between share price, earnings, and dividends could be irrational.

### **Earnings Per Share (EPS)**

In an attempt to include income and equity information in the same measurement, a computation known as *Earnings Per Share* (EPS) has been developed. The mention of EPS immediately comes to mind closely related terms like net profit, profitability, and outstanding common shares. A firm's profitability takes on additional meaning when the number of shares outstanding is taken into consideration. Thus EPS, together with its changes from period to period, is an important measure of an entity's profitability. This importance is highlighted by the fact that Philippine Accounting Standard (PAS) 33 *Earnings Per Share* has been formulated and implemented to guide accountants all over the world in the uniform computation and disclosure of EPS on the firm's financial statement.

The presentation of earnings per share on the face of the income statement is required for enterprises whose ordinary shares or potential ordinary shares are publicly traded and by enterprises that are in the process of issuing shares or potential ordinary shares in the public securities market (Valix and Peralta, 2009). In short, public enterprises are required to present earnings per share. Non-public enterprises are not required to present earnings per share; nevertheless, such enterprises are encouraged to present earnings per share to achieve comparability in financial reporting.

A study involving three financial variables which included EPS was undertaken by O'Hara et al (2000). Their objective was to find some corporate financial measures that would correlate with share price that on average generates returns higher than the S&P500 index over an extended period of time. The researchers concluded, among others, that companies which increased their earnings per share on a consistent basis should see a strong positive correlation between earnings per share and share price.

### **Return on Asset (ROA)**

ROA ranks as one of the most extensively used variables in determining a firm's profitability. Admittedly, it has striking similarity with EPS since the net income figure is used in the formula to compute for both variables.

### **Research Problem and Significance**

The inconclusive results of previous studies regarding the behavior of share price in relation to various predictors have since created, and continue to create, opportunities for more researches on this topic. The extent of those studies ranged from the simple use of correlation to the more extensive research like the one undertaken by O'Hara, et al in 2000. Due to the volatile nature of the share price and complemented by the regular release by firms of their quarterly income statements, practically all the previous studies were conducted using either time series or panel data.

This study attempted to experiment on the unconventional—that of using only the 2009 data for both dependent and independent variable across 50 firms. In other words, the study was very rigid in that it did not allow for short-term fluctuations of the share price that is normally afforded by time-series data. Thus, the problem and objective of this study was to determine if there would still be any impact of EPS and ROA on the share price of publicly listed firms in the Philippines for the year 2009.

Regardless of whether *a priori* information is confirmed or contradicted, the result of this study would benefit not only the investors and financial market analysts but also the professors and students in business and finance courses. This study may then serve as a simple guide for students in starting their undergraduate research papers with the use of statistical software similar to SPSS/PASW.

### **Hypothesis and Methodology**

Using the 0.05 level of significance, the study tested whether or not EPS and ROA have significant impact on the share price of 50 publicly listed firms in the Philippines for the year 2009 with the null hypothesis that EPS and ROA have no significant impact on share price.

As previously mentioned, the study used the financial statements of publicly listed firms in the Philippines obtained from the OSIRIS database. Pre-set scope and limitations finally reduced the number of firms to be used as respondents from 249 down to 50 (Appendix A). The reduction consisted mainly of excluding firms whose data are so polarized. This step would reduce the effect of heterogeneity among the firms since they were taken from different business sectors.

The first step in the analysis was to test if the variables were normally distributed. In case any of the variables failed the test, appropriate data transformation would be applied. The second step consisted of testing the variables for correlation and whether there was multicollinearity among the independent variables. The third and last statistical test was to run the multiple regression with the use of SPSS to determine whether the chosen model below was a good fit for the data.

$$Y(\text{share price}) = \beta_0 + \beta_1(\text{EPS}) + \beta_2(\text{ROA})$$

### **Discussion of the Result**

Share price, EPS, and ROA were not normally distributed based on their positively skewed histograms. It was necessary to apply the natural logarithm transformation. A retest for normality after the transformation gave *p*-values that exceeded the KS critical value of 0.05 (Appendix B, Table 1). All the variables were rendered normal: logSTOCKPRICE = 0.200; logEPS = 0.073; and logROA = 0.065.

The model was further analyzed using multiple regression technique to determine correlations, multicollinearity, beta coefficients, and  $R^2$ .

#### **Correlation**

As expected, EPS came out with a strong positive correlation with stock price at 0.852 while ROA, contrary to expectation, presented a weak negative correlation at -0.263. At 0.05 level of significance, both independent variables had significant correlation with stock price: EPS had *p*-value of 0.000 while ROA had 0.033. Appendix B, Table 2 presents the correlation matrix for the three variables.

EPS was negatively correlated with ROA at -0.166 which means that there was very weak negative correlation between the two independent variables. The collinearity statistics (VIF) were less than 10 which mean that there was no multicollinearity between EPS and ROA.

### Multiple Regression

We ran the multiple regression technique using SPSS. The model summary in Appendix B, Table 3 shows that the independent variables were able to account 73% of the change in the dependent variable (Adjusted R<sup>2</sup> = 0.730). Table 4 shows the computed coefficients for our model below.

$$\log\text{STOCKPRICE} = 1.539 + 1.431\log\text{EPS} - 0.178\log\text{ROA}$$

### Conclusion

Based on the statistical results, we conclude that EPS has a strong positive impact on share price notwithstanding the fact that we did not use time series data. In short, we disregarded the possible effect of short-term changes in share price and EPS itself. If we were to predict share price given the model, we could assume that for every percentage change in EPS, there would be an average increase in share price by about 1.431%. As for ROA, for every percentage increase of the said variable, share price would decrease by an average of 0.178%.

Return on Assets (ROA) is negatively correlated with share price. At first glance, this might be extraordinary because a high ROA would mean higher profitability of the firm. It is a common notion that if the firm is profitable, its share price would increase. Based on past studies, however, it has been documented that there is a strong negative relationship between asset growth and the firm's stock return (Cooper, et al, 2009). This simply means that the growth in assets will not necessarily lead to increase in net income. And if net income remains unchanged but assets increase, ROA decreases. The other purpose of multiple regression is for prediction of the dependent variable. The result of this study may not be appropriate for prediction because it used one year data only. To make a good prediction on share price, a longer period of time is needed in order to capture fully its volatile nature. What this study had accomplished was to confirm that EPS have significant impact on share price. ROA, if ever used, would be a weak negative predictor and may be replaced with other appropriate financial or economic variables.

### Recommendations

For investors, market analysts and those in the academe (professors and students), we recommend the continued use of EPS as a predictor of share price. Other variables like *solvency ratio*, *liquidity ratio*, *interest rate*, *inflation rate*, *volume of share transactions*, and categorical variables like *firm size* (Martani, et al., 2009), *nature of business*, etc. should be used as well. Any combination of these variables may be made to compete against each other to determine the best-fit model. The *Mosaic Theory* of Behavioral Finance states that investors, on their own, normally seek information in addition to the long-established and widely accepted determinants of share price and use these information to arrive at a good investment decision. For the more experienced investors and market analysts, they may apply the residual income model and Bayesian statistics in predicting stock price (Higgins & Lu, 2009).

In the Philippines, where long-established relationships, loyalties, and sentiments play significant role in almost any endeavor, investors often give more weight to qualitative rather than to quantitative factors. The following additional recommendations are offered.

1. Future researches on this topic should cover a longer period and greater number of respondents if the researcher intends to use panel or pooled data. The respondents may be homogeneous like all publicly listed banks in the Philippines, or heterogeneous, as in the case of selected top 500 corporations in the Philippines ranked accordingly in terms of total assets, total generated revenues, net income, or some other groupings that suits the intention of the researcher. Instead of share price, a researcher may use instead stock return as the dependent variable (Elleuch, 2009). This may prove more beneficial to investors who might be interested to know which direction share price would go and by what percentage. In other words, the focus of the study would be the change in share price rather than share price itself.

2. If financial statements are to be used in the research, the yearly data should be used instead of quarterly or monthly data but for a longer period of time. A ten-year data should prove adequate. One advantage of yearly data is that financial statement errors are very much minimized in annual financial statements because they are subject to audit. This also makes the data less volatile and more reliable.
3. For qualitative variables, dummies may be used to specifically capture unquantifiable factors like those that have already been mentioned earlier in this study.
4. Colleges and universities should provide students and faculty members alike with tools for extensive research endeavors like *Gretl* which is a powerful statistical software that is available in the market today. The good thing about *Gretl* is that it is free for anybody's use.

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## APPENDIX A

DATA ON PUBLICLY LISTED COMPANIES (Source: OSIRIS Database)  
As of December 31, 2009

	Company	Share Price	EPS	ROA	log SPRICE	log EPS	log ROA
1	Banco de Oro Unibank, Inc.	40.00	3.65	1.71	3.69	1.29	0.54
2	Metropolitan Bank & Trust Company	46.00	4.76	1.80	3.83	1.56	0.59
3	Bank of the Philippine Islands	49.00	3.67	2.20	3.89	1.30	0.79
4	Rizal Commercial Banking Corporation	18.25	4.46	2.16	2.90	1.50	0.77
5	JG Summit Holdings, Inc.	7.60	2.26	4.08	2.03	0.82	1.41
6	Union Bank of the Philippines, Inc.	38.00	7.87	2.73	3.64	2.06	1.00
7	Security Bank Corporation	55.00	10.30	3.09	4.01	2.33	1.13
8	Aboitiz Equity Ventures, Inc.	10.00	2.49	6.80	2.30	0.91	1.92
9	Aboitiz Power Corporation	9.60	1.77	6.08	2.26	0.57	1.81
10	Ayala Land, Inc.	12.25	1.31	4.68	2.51	0.27	1.54
11	SM Prime Holdings, Inc.	10.80	1.53	8.18	2.38	0.43	2.10
12	Philippine Savings Bank	58.50	6.16	2.33	4.07	1.82	0.85
13	Megaworld Corporation	2.48	1.20	5.76	0.91	0.18	1.75
14	Energy Development (EDC) Corporation	5.70	1.22	4.92	1.74	0.20	1.59
15	Universal Robina Corporation	17.25	2.81	7.38	2.85	1.03	2.00
16	Filinvest Land, Inc.	1.90	1.08	4.43	0.64	0.08	1.49
17	DMCI Holdings, Inc.	10.70	3.08	9.12	2.37	1.12	2.21
18	Robinsons Land Corporation	14.00	2.19	7.34	2.64	0.78	1.99
19	Manila Water Company, Inc.	16.75	2.33	7.08	2.82	0.85	1.96
20	ABS-CBN Corporation	29.50	3.18	5.89	3.38	1.16	1.77
21	PLDT Communications & Energy Ventures, Inc.	9.40	2.52	54.31	2.24	0.92	3.99
22	Jollibee Foods Corporation	56.00	3.61	9.96	4.03	1.28	2.30
23	Holcim Philippines, Inc.	5.80	1.48	13.48	1.76	0.39	2.60
24	Chinatrust (Phils.) Commercial Bank Corporation	26.00	2.34	2.38	3.26	0.85	0.87
25	Semirara Mining Corporation	55.41	7.45	8.59	4.01	2.01	2.15
26	SM Development Corporation	4.95	1.63	9.91	1.60	0.49	2.29
27	House of Investments, Inc.	3.16	1.86	4.18	1.15	0.62	1.43
28	Ginebra San Miguel, Inc.	22.75	3.32	5.37	3.12	1.20	1.68
29	Alsons Consolidated Resources, Inc.	2.22	1.04	2.92	0.80	0.04	1.07
30	Phinma Corporation	10.90	3.20	5.96	2.39	1.16	1.79
31	RFM Corporation	1.56	1.07	5.08	0.44	0.07	1.63
32	Asian Terminals, Inc.	5.00	1.58	15.51	1.61	0.46	2.74
33	Alaska Milk Corporation	8.10	2.57	20.41	2.09	0.94	3.02
34	ATR Kim Eng Financial Corporation	4.52	1.24	4.09	1.51	0.22	1.39
35	ISM Communications Corporation	7.50	1.12	1.11	2.01	0.01	0.10
36	SPC Power Corporation	4.30	1.25	9.70	1.46	0.22	2.27
37	Anchor Land Holdings, Inc.	9.30	2.08	9.77	2.23	0.73	2.28
38	Vivant Corporation	6.90	1.23	6.50	1.93	0.21	1.87
39	Splash Corporation	4.40	1.03	1.58	1.48	0.03	0.46
40	Chemrez Technologies, Inc.	3.40	1.80	13.05	1.22	0.59	2.57
41	Centro Escolar University	9.60	1.77	9.81	2.26	0.57	2.28
42	Philippine Seven Corporation	8.00	1.54	6.75	2.08	0.43	1.91
43	Phoenix Petroleum Philippines, Inc.	8.00	1.54	6.75	2.08	0.43	1.91
44	I-Remit, Inc.	7.10	1.25	6.48	1.96	0.22	1.87
45	Leisure & Resorts World Corporation	2.44	1.26	9.90	0.89	0.23	2.29
46	Cebu Property Ventures & Development Corp.	2.82	1.20	9.30	1.04	0.18	2.23
47	Citiseconline.com, Inc.	12.00	1.25	8.69	2.48	0.22	2.16
48	International Container Terminal Services, Inc.	23.50	2.33	5.33	3.16	0.85	1.67
49	Jollville Holdings Corporation	2.86	1.15	5.78	1.05	0.14	1.75
50	Manila Broadcasting Company	2.00	1.05	6.85	0.69	0.05	1.92

**APPENDIX B**

**Table 1 – Test of Normality of the Transformed Variables**

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
logSTOCKPRICE	0.088	50	0.200	0.962	50	0.109
logEPS	0.119	50	0.073	0.914	50	0.001
logROA	0.121	50	0.065	.963	50	0.123

**Table 2 – Correlation Matrix of the Variables**

		logSTOCKPRICE	logEPS	logROA
Pearson Correlation	logSTOCKPRICE	1.000	0.852	-0.263
	logEPS	0.852	1.000	-0.166
	logROA	-0.263	-0.166	1.000
Sig. (1-tailed)	logSTOCKPRICE	.	0.000	0.033
	logEPS	0.000	.	0.125
	logROA	0.033	0.125	.

**Table 3 – Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.861	0.741	0.730	0.52415	1.445

**Table 4 - Coefficients**

Model 1	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.	Collinearity Statistics	
	B	Standard Error	Beta			Tolerance	VIF
Constant	1.539	0.235		6.535	0		
logEPS	1.431	0.13	0.831	11.04	0	0.973	1.028
logROA	-0.178	0.107	-0.125	-1.66	0.103	0.973	1.028