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The Impact of Merger and Acquisition, Financial Ratios on Stock Price among the Industrial Firms in the Philippines

Abstract:

With increased industrialization and development in the Philippines, it is essential for industrial companies to gain a positive image in the eyes of the various potential investors. One way of achieving this is by registering positive stock performance.

In line with this, the study explored the possible effects of various financial indicators in the form of financial ratios to the year-on-year change in stock price among the different publicly listed industrial companies during the year 2006 to 2010. The occurrences of business combinations as well as the industry subsectors were also included in the model to determine the possible effects of these factors on the change in stock price. To accomplish this, the researchers made use of panel data regression with mergers and acquisitions, financial ratios and industry subsector as independent variables and the year-on-year change in stock price as dependent variables to highlight the impact of various regressors on stock price.

Results indicated that certain financial ratios, namely the asset turnover, price-earnings and dividend pay-out ratios together with some company specific factors exhibited a significant impact on company's change in stock price. This study would help corporate managers to create more advantageous strategies with the objective of increasing stock price. The study also allows the public to better anticipate changes in stock prices.

Keywords: Merger and Acquisition, Financial Ratios, Stock Price and Industrial Firms

1 Introduction

Globalization, industrialization and economic development helped the Philippines slowly become a more capital-intensive country. Hence, industrial firms are slowly increasing its number while gradually increasing investors both within and outside the country. As such, more and more people are becoming interested in the movements of the stock prices of the publicly listed industrial companies.

In order to obtain and retain a positive image on these investors, company managers perform comprehensive planning and create effective strategies in order to increase the value of the company's stocks. A few of these strategies include mergers and acquisitions as well as improving the various financial ratios used by financial experts in assessing a company's status.

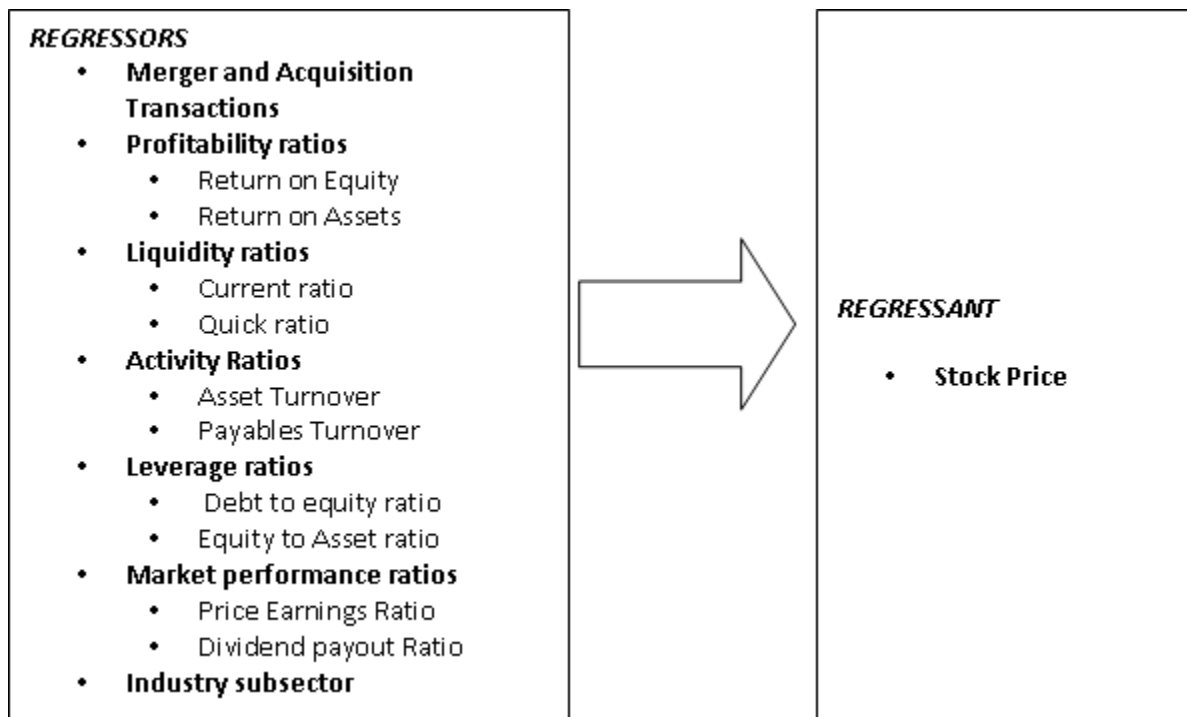
This study explored the effects of mergers and acquisitions, together with liquidity, activity, leverage, profitability, market performance ratios and industry subsectors on the year-on-year change in stock price among the publicly listed industrial companies in the Philippines during the five-year period,

2006 to 2010. To accomplish this, the researchers made use of panel data regression with the business combination, financial ratios and industry subsectors as the independent variables and the change in stock price as the dependent variable.

Several theories, namely the efficient market theory, the discounted cash flows model, the Gordon Growth model and the Price-earnings valuation model, were used as guiding principles for this study. Studies conducted by Leong, Ward, and Gan(1996), Harjito and Sulong(2006); Bouwman, Fuller and Nain(2003) Kallunki, Lampsa and Laamanen(2008); as well as Mazzucato and Semmler(1999) also provided the researchers with valuable insights that helped in the conduct of this study.

2 Statement of the Problem

The study wanted to investigate about the possible effects of merger and acquisition on the change in stock prices of companies under business combinations. Furthermore, the research wanted to determine which among the financial indicators, represented by financial ratios under the five categories namely profitability, liquidity, activity, leverage, and market performance ratios would significantly impact the year-on-year change in stock price. In addition, the researchers would want to know whether the industry subsectors under the industrial sector of the Philippine stock exchange has a particular effect on the change in stock price.



3 Review of Related Literature

Merger and Acquisition

A business combination, as defined by IFRS 3, is a transaction or event in which an acquirer obtains control of one or more businesses. A business is then defined as an integrated set of activities and assets that is capable of being conducted and managed for the purpose of providing a return directly to investors or other owners, members or participants. [IFRS 3.Appendix A].

According to Moeller (2009), reasons for mergers and acquisitions fall into three broad categories. These are grouped to strategic, financial, and organizational. In strategic intent, the company wants to strengthen the combined companies' market position. This is achieved by increasing the market share or reduction in competition in the market or both. The financial reasons is largely due to the money involved in the deal (Moeller, 2009). The business combination activity may be for the short-term or long-term financial goals. The last, which is the organizational intent, is when the acquiring company obtains a target company because of the target company's key management personnel or because of stock liquidity. According to the study of Massa and Xu (2011), the stock liquidity of the target company would affect the likelihood of a business combination occurring. Therefore, stock performance is one of the possible reasons for business combination.

Ravenschaft and Scherer (1987) stated that efficiency was expected to rise as a result of increased capital, shared expertise, reduced redundancy in production and realized economies of scale. This is one of the benefits of a successful M&A, however, according to Hughes (1989), this is not always the case, as M&A if not well planned can lead to even increased inefficiencies in the firm.

Financial Ratios

At present, one major concern of most firms is on how to measure and assess the degree of the success of M&As. Firms need to measure before and after effects of M&A in order for them to evaluate whether the M&A has been beneficial as planned. According to Smart and Megginson (2009), one way to measure a firm's condition is through the use of financial ratios. Financial ratios are suitable tools in analyzing a firm's financial statements to assess performance over a period. Moreover, a variety of financial ratios are existing to analyze a firm's liquidity, activity, debt, profitability and market value. After firms have measured its financial condition, they should be ready to evaluate it. Gitman (1999) discussed the use of ratio analysis, as a method of measuring and evaluating financial ratios to assess a firm's performance. For Gitman (1999), there are basically two methods of ratio assessment. One way is the use of cross-sectional analysis and the other way is the use time-series analysis. Cross-sectional analysis engages the comparison of different financial ratios that took place in the same period. Through this kind of analysis, a firm can determine how well it has performed in relation to other firms, also called as benchmarking and in relation to the industry as a whole. The other way of ratio assessment is known as the time-series analysis. In this kind of analysis, a firm compares its own performance over a period of time. This can tell whether the firm has progressed according to its plans.

Reaction of Stock Prices

Gugler and Yurtoglu (2008) discussed that one way of determining the effect of the merger is through the examination of the stock market value of the acquiring and the acquired firm. Gopalaswamy, Acharya and Malik (2008) examined the Indian market and tested stock price reaction of both the target and the acquiring companies which may have been caused by information related to a merger activity using a traditional event-study residual analysis. Their study indicated that there were abnormal returns which are stimulated by activities that are concerned with business combinations. The result was supported by Wong and Cheung (2009) wherein it was concluded that the acquiring companies would experience positive effects on stock price. Other studies that helped the researchers in this paper were Leong, Ward and Gan (1996) and Pilloff and Santomero (1996). Harjito and Sulong (2006), on the

other hand, indicated that there would business combinations would have no significant impact on stock prices.

Stock Prices in Relation to Financial Ratios

Aono and Iwaisoko (2010) suggested that financial ratios have a low level of relationship with the stock price as evidenced by their study involving Japanese firms. Turk and Chapman (2006); Indriani and Sugiharto (2010) as well as Lewellen (2004), on the other hand, showed that financial ratios does not have any significant impact on the change in stock price. Martani, Mulyono and Khairurizka (2009); Hao and Zhang (2007); Cai and Zhang(2010) as well as Shams, Zamanian, Kahreh, and Kahreh (2011) indicated that financial ratios would have a significant impact on the year-on-year in stock price. Their studies provided evidence that different financial ratios can affect the stock price in different stock exchanges.

Stock Price in Relation to Industries

Kallunki, Lampsala and Laamanen (2008) examined the possible effects of industry by looking at the effects of the acquisition of firms under the technology sector. They concluded that such acquisition would affect stock price valuation in a significant manner. Moreover, Mazzucato and Semmler (1999) explored whether there exist a relationship between stock price volatility and market share instability in connection with industry specific factors using the US automobile industry. The empirical results showed that the degree of stock price volatility is indeed partly affected by industry specific factors.

4 Methodology

The research used a causal/explanatory approach. In this type, the researchers wanted to study the impact of business combinations, financial ratios and industry subsectors on the change in stock prices of the industrial companies affected. In order for the group to proceed with the research, the researchers gathered data from the website of the Philippines Stock Exchange particularly the annual reports and stock prices of all the listed service companies from 2006-2010. In order to identify the companies with business combination, the group made use of the information found in the OSIRIS database. The researchers then extracted two particular ratios under the profitability, market performance, liquidity, capital structure, and turnover measures of a company which are used to represent the financial ratios. The occurrence of mergers and acquisitions would be captured by the use of a dummy variable. Upon gathering the data, the group used the panel data regression analysis to analyze the impact of the ratios on change in stock prices.

The study encompassed all companies that were listed in the industrial sector of the Philippine Stock Exchange (PSE). The research used the financial reports and the market information provided for in the PSE website and in the OSIRIS database. These sources of information were readily available and were easy to obtain.

The industrial sector includes companies that are engaged in the distribution of utilities such as electricity and water, the manufacturing of beverage, tobacco and food, construction, allied services and infrastructure, in addition to diversified industrials. The total scope of the study would include seventy firms publicly listed in the industrial sector of the Philippine Stock Exchange.

In order for a research to proceed, research procedures were performed with specific relevance to the subject being researched. As the research needed the use of annual reports, the first step to this research was data gathering. The researchers primarily made use of secondary data obtained from the website of PSE, the OSIRIS database and the Bloomberg website. In order to determine the occurrence of business combinations, the group used the merger and acquisition information found in the OSIRIS database. After identifying companies with business combination, the researchers recorded the occurrence through the use of indicator variables.

In addition, the group extracted two ratios for each measure namely the liquidity, profitability, activity, capital structure, and market performance. For the liquidity measure, the current and quick ratios were considered while the return on assets and return on equity ratios were for the profitability measure. The activity measure included the asset turnover and the payables turnover ratios while the market performance measure was represented by the price-earnings and dividend payout ratios. The leverage aspect included the debt-to-equity and equity-to- assets ratios. Moreover, the industry subsector in which the company is operating in is also taken into account using dummy variables.

The use of various statistical tools and software aided the conduct of this study. Specifically, the variance inflation factor, the Naïve Panel Data Regression, Space-varying Fixed Effects Panel Data Regression, Time-Varying Fixed Effects Panel Data Regression, Fixed- and Time-varying Fixed Effects Panel Data Analysis, Random Effects Panel Data Regression, Pearson correlation coefficient test were used to analyze the data and the corresponding result. Additionally, different ways of summarizing data such as means and standard deviation was used in the paper. Tests of robustness after obtaining the final regression model were performed to assure the researchers that there were no violations in the regression assumptions.

5 Descriptive Statistics

In order to have a preliminary view of the possible impact of certain financial ratios, under liquidity, profitability, leverage, activity and market performance, industry and merger and acquisitions on stock price, the researchers employed the use of descriptive statistics. Using the descriptive statistics, the researchers extracted the average, standard deviation, observations, minimum and maximum values for each variable to be used in the study.

Variable	Obs	Mean	Std. Dev.	Min	Max
stockprice	181	0.461375	1.221749	-0.95472	9.455564
current	300	0.589829	6.236913	-1	106.8
quick	300	0.627706	6.237573	-1	106.8
returnoneq~y	305	-2.84422	49.85565	-860.837	63.68008
returnonas~t	305	-0.48443	8.922375	-92.3455	53.91667
assetsturn~r	283	0.120384	2.016099	-1	33.36185
payablestu~r	282	3.994319	56.81978	-1	942.8732

debttoequity	303	0.086202	1.276322	-5.49163	12.43488
equityratio	305	0.05965	2.235405	-22.208	23.21875
priceearn~s	182	0.506154	4.382524	-27.3789	25.29712
dividendpa~t	110	0.752211	3.673606	-5.32507	18.58667
ma	305	0.147541	0.355227	0	1
ind_code	345	5.391304	2.38221	2	8

Based on the mean and standard deviation of the various variables used in the study, it was unexpected to observe that the change in stock price would have the smallest standard deviation. This would indicate that the changes in the stock price were generally less volatile compared to the other variables such as the various financial ratios. The result would also indicate that approximately 68% of all the changes in the stock prices for publicly listed industrial companies during the years 2006 to 2010 would fall within the range of -0.76% to 1.68%. The average change in stock price for the publicly listed industrial companies in the Philippine Stock Exchange from the five-year period 2006 to 2010 was 0.46%. The greatest stock price drop resulted in a -0.95% decrease in stock price while the highest stock price increase resulted in a 9.46% increase in stock price. The low standard deviation was unpredicted because stock prices were said to be extremely unstable which caused the researchers to expect a high variance for the said variable. Using the range of the values of the change in stock price, which is 10.41%, the researchers saw that such range of values is also much smaller than the financial ratios used in the study.

With respect to the liquidity of publicly listed companies, the mean average of percentage change for current ratio was 0.59 while quick ratio yielded 0.63. We can observe that the difference in the mean between the two ratios is minimal; this can be due to the fact that these ratios are similar, and the only difference would lie on the exclusion of inventory in computing for quick ratio. The similarity between current and quick ratio was also manifested in standard deviation. Both have a standard deviation of 6.24% when rounded off to the nearest thousandths. With regard to the range of changes in current ratio and quick ratio, 68% of changes in current ratio and quick ratio would fall on the range of -5.65% to 6.83% and -5.61% to 6.87% respectively. Likeness between the two ratios was further revealed relative to their maximum percentage increase and minimum percentage decrease. Both ratios experienced a highest drop of one percent. Both ratios also reached their maximum increase of 106.8%.

On the matters concerning publicly listed companies' profitability, the mean average for profitability indicators in the variables of return on asset and return on equity would be -2.84 and -0.48 correspondingly. Based on the averages, it can be observed that most industrial companies experienced net losses over the five-year period. However, the net loss is minimal relative to the total assets and shareholders' equity. The degree of variability or standard deviation would show 49.86 for return on asset and 8.92 for return on equity. The standard deviation for return on asset was higher compared to the standard deviation of the return on equity variable. This may be because assets were more volatile compared to shareholders' equity for industrial companies. On ranges of changes, 68% of changes in return on assets would lie on the range between -52.70% and 47.01% while the same 68% of changes

in return would be positioned between the ranges of -9.41% to 8.44% for equity. The maximum and minimum percentage changes would also differ between return on assets and return on equity. Return on assets would show greatest increase of 63.68 and utmost drop of -860.84 whereas return on equity would experienced furthestmost boost of 53.92 and largest decline up to -92.35.

In relation to publicly listed companies activity measures, mean average of percentage change for asset turnover was 12.04 along with mean average of percentage change for payables turnover which was 3.99. Accounts payable turnover would show higher variability having a standard deviation of 56.82 as compared to the standard deviation for asset turnover which was 2.02. Higher variability of payables turnover than assets turnover was also exposed in range of changes. Both activity measures' largest drop would be as low as 1% percent where the maximum increase will be much higher in payables turnover having 942.87% than asset turnover's 33.36% largest increase.

On the other hand, for leverage ratios, debt to equity ratio would have the higher mean of 0.09, meanwhile; equity ratio would give an average of 0.06. Standard deviation of the debt to equity ratio variable was 1.28% compared to the 2.24% standard deviation of the equity ratio. Based on the results above, it can be seen that 68% of the changes in debt to equity ratio would be within the range of -1.19% to 1.36%. The range wherein 68% of all of the changes in the equity ratio was from -2.18% to 2.30%.

Under the market performance of publicly listed companies, price earnings ratio would yield a mean average of 0.51 and on one hand, dividend payout ratio would give an average of 0.75. These two variables have significantly less observations in comparison with other variables. The standard deviation for price earnings ratio would be higher, having 4.38, than dividend payout ratio which was 3.67. Price earnings would fall to as low as -27.38% and increase to as high as 25.30% while dividend payout ratio furthestmost decrease would be -5.33% and would soar to as large as 18.59%.

6 Panel Data Regression

The final model for this study is the random effects generalized least squares regression model shown below. The model, being a generalized least square regression, the model would have no heterogeneity and autocorrelation. The overall model was statistically significant at 1% because the p-value of the overall model was 0.000. Based on the results shown by the regression output, the equity ratio, price-earnings ratio and the dividend pay-out ratio were the financial indicators that had significant impact on the change in stock price.

The overall results of the final regression model supported the results of Harjito and Sulong(2006) which showed that there exists a positive relationship between the change in stock price and the different financial ratios. On the other hand, the apriori expectation that business combinations would have an impact on the stock price was based on the research conducted by Leong, Ward, and Gan(1996) was not met. The result of the final model indicated however, that there was no statistical evidence that business combinations had any impact on the year-on-year change in stock price.

Based on the testing performed, merger and acquisition activities did not have any significant impact on the year-on-year change in stock price. This may be because the event window used for this research was too wide. Other researches regarding the effects of business combinations on the change in stock

price made use of event windows of only several days wide. However, this research would indicate that mergers and acquisitions did not have any long-term impact on the stock prices even if there would be a significant impact on the short-term stock price changes.

Random-effects GLS regression	Number of obs	=	94
Group variable: comp	Number of groups	=	27
R-sq: within = 0.4159	Obs per group: min =		1
between = 0.4028	avg =		3.5
overall = 0.3987	max =		5
Random effects u_i ~ Gaussian	wald chi2(14)	=	54.78
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.0000

stockprice	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
current	.0926402	.277158	0.33	0.738	-.4505794	.6358599
quick	.2253216	.3151659	0.71	0.475	-.3923921	.8430353
returnoneq~y	.0756938	.0574989	1.32	0.188	-.0370019	.1883895
assetsturn~r	-.4192004	.2873157	-1.46	0.145	-.9823288	.143928
payablesturn~r	.0057098	.0049202	1.16	0.246	-.0039336	.0153533
debttoequity	.5827226	.3234366	1.80	0.072	-.0512015	1.216647
equityratio	3.681199	1.242272	2.96	0.003	1.24639	6.116007
priceearnings	.1482471	.0486882	3.04	0.002	.05282	.2436742
dividendpay~t	-.0958719	.0363892	-2.63	0.008	-.1671935	-.0245503
ma	.0482491	.2095688	0.23	0.818	-.3624981	.4589963
ind_2	-.0352802	.3885632	-0.09	0.928	-.7968501	.7262897
ind_3	.2935464	.3325484	0.88	0.377	-.3582365	.9453293
ind_4	-.4734543	.3902155	-1.21	0.225	-1.238263	.291354
ind_7	.1198371	.2404707	0.50	0.618	-.3514768	.591151
ind_8	(omitted)					
_cons	.2203553	.1738073	1.27	0.205	-.1203008	.5610114
sigma_u	.35234472					
sigma_e	.69730476					
rho	.2033924	(fraction of variance due to u_i)				

All three significant ratios posted test statistics that were significant at a Type I error rate of 1% with price-earnings ratio registering a p-value of 0.002, the dividend pay-out ratio registering a 0.008 p-value while the equity ratio registered 0.003 p-value. Both price-earnings ratio and the equity ratio positively affected stock price by 0.15% and 3.68% respectively. Dividend pay-out, on the other hand, negatively affected year-on-year change in stock price by -0.10% per 1% change.

The result of the price-earnings ratio was consistent with the theoretical framework used for this model, which is the Price-Earnings valuation model. However, the result for the dividend pay-out ratio was a bit surprising. Declaring higher dividends relative to earnings would negatively affect the stock price of industrial companies in the Philippines. This may be caused by the capital intensiveness of the operations used by the industrial companies. Earnings accumulated over the past periods should be better off invested in additional assets. This would be supported by the result of the equity ratio

wherein reinvesting accumulated earnings into operations instead of opting to use debt financing would help increase stock prices.

None of the industrial subsectors posted a significant test statistic indicating that these subsectors did not significantly affect the year-on-year change in stock price.

7 Conclusions

Based on the results above, only three financial ratios significantly affected the explained variable. These ratios were the asset turnover, price-earnings ratio and the dividends pay-out ratio. The price-earnings ratio was the only financial ratio that significantly affected the change in stock price in a positive manner. Therefore, keeping a conservative income relative to assets and investing accumulated profits into the business would help companies increase their stock prices. This indicates that employing more conservative strategies would be more effective for industrial companies that aim to increase stock market performance.

Company specific attributes also significantly affected the dependent variable. Therefore, managers and those charged with governance should carefully analyze stock movements and determine the company's performance in the stock market relative to other companies to determine if their company has a competitive advantage or disadvantage that significantly affects stock price. Careful investigation should be performed to pinpoint those advantages and disadvantages so that the company can leverage further on the strengths that help improve stock prices while minimize or remove key weaknesses that hinder stock price growth.

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