Statistical Analysis on Impact of Profitability Ratios on Share Prices of Listed Insurance Companies in the Share Market of Bangladesh

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Abstract

This is very much important to identify the factors those affect market share prices as capital market represent the development of the economy of a country. This study investigated whether profitability measures ROA, ROE, ROI and EPS ratio together can explain variations in the market prices per share of publicly traded listed insurance companies in Bangladesh during the period 2000 – 2014. Using panel data analysis, the study found that only the accounting-based profitability measures ROA has positive and significant impact to the market share price movement of insurance companies in Bangladesh at 1% significance level. This indicates that the management of insurance business uses investor's money effectively. The study also observed that the other variables (ROI, ROE, and EPS) have no significant impact on insurance companies share prices in Bangladesh. Findings revealed that share price movement of insurance industry in Bangladesh doesn't reflect all pertinent information of the company and the market is not efficient enough. The study suggests the investors to consider other variables such as economical, political and global situation while taking investment decisions as well as profitability measures ROA. It also suggests management and insurance regulator to incorporate the findings of the study and gives emphasis on appropriate accounting reporting that can make the share market efficient as well as the insurance companies in the upcoming days.

Keywords—Efficient market hypothesis, Return on Assets, Return on Equity, Return on Investment, Earning per share.

Manuscript received on 14 October 2018 and accepted for publication on 30 October 2018.

1 Introduction

INSURANCE enhances the quality of life and ensures the development and survival of all other businesses in gen-eral. The main purpose of insurance apart from its basic function is to enhance national development through effective wealth creation, protection and conservation. The importance of insurance to any nation's economy cannot be undermined. No country can experience a meaningful development without the presence of formidable insurance industry, thereby making insurance business in any nation indispensable irrespective of its quota to the gross domestic product (GDP) or its level of awareness among the populace.Insurance is a form of risk management in which the insured transfers the cost of potential loss to another entity in exchange for monetary compensation known as the premium. Insurance in economic terms is refers to the pooling mechanism for reducing the down-side of risk through resource reallocation from good to stormy states of the world. The extent to which the insurer successfully facilitates coverage (and is able to spread its risk assumptions) is the extent to which the insured can take greater chances and better manage risk exposure. As such, insurance markets are crucial for economic growth and a complementary stimulus to capital market development. Not only in Bangladesh rather throughout the world, insurance industry has evolved as an important sector of the financial system side by side the banking industry.

Economic development of every country depends on the money and capital markets in the economy. Given the importance of mobilizing the savings of the capital market in the economic activity, it is important to identify the variables affecting the stock price.

The most important resource that can give visibility to investors about the company is the financial statements. The financial statements give a decision on the guide. Financial ratios were used by internal and external financial data users for making their economic decisions; including investing, and performance evaluation decisions. Again financial performance of an organization is determined by its earnings, profits and appreciation in value as evidenced by the rise in the entities share price. Efficiency measures are calculated based on published accounting numbers which are publicly known information. Thus, in a stock market with at least certain degree of efficiency, such public information is presumably reflected in the prices. According to the efficient market hypothesis, introduced by Fama (1965), "stock prices at any

time fully reflect all available information"[11}. Profitability ratios are an indicator for the firm's overall efficiency. It's usually used as a measure for earnings generated by the company during a period of time based on its level of sales, assets, capital employed, net worth and earnings per share. Profitability ratios measures earning capacity of the firm, and it is considered as an indicator for its growth, success and control. Creditors are interested in profitability ratios since these ratios indicate the company's capability to meet interest obligations. Shareholders also are interested in profitability as these indicate the progress and the rate of return on their investments.

Insurance sector has huge opportunity and produces the highest income comparing to all other sectors in Bangladesh, but a very few studies have done in this sector.This study tries to examine the impact of profitability ratios on market share price movement of insurance business in Bangladesh. Because of the proven power of the ratio analysis in the practical financial and planning analysis, this study will explore the effect and power for some key ratios (ROA, ROE, ROI, and EPS) together in explaining the market share prices during the period between 2000 and 2014 for insurance sector in Bangladesh.

2 Literature Review

Martikainen (1993) analyzes the relationship between stock returns and financial ratios by regression analysis [1]. The study revealed that none of the single financial ratios possess incremental information about stock returns in Finnish stock market. Another outcome of the study is the weak relationship between betas and financial ratios. The researcher attributes this to the high estimation errors in betas, problems of measuring the true market portfolio and inefficiency of the Finnish stock market. Abu Hasheesh (2003) examined the role of published accounting Information in predicting share prices [2]. The study used a sample of 40 Jordanian public companies listed in Amman Security Exchange for the year 2003. The results showed that there is a positive significant relationship between the market price per share with the ratios of net profits to equity, net profits to total assets, and dividends to net profits as a total. The results showed also a significant negative relationship between the market price per share, with the ratios of fixed assets to total assets, the creditors total to total of cash sources, and the wages ratio to total of expenses ratio. There are also a limited number of studies on insurance market efficiency of Turkey, which is the interest of this study. In one of them, (Ciftci, 2004) analyzes the efficiency of Turkish insurance companies [3]. The study was performed under two separate groups, namely life and non-life insurers by applying the DEA technique. The results reveal that only 11 of 41 non-life insurance companies operate efficiently. With respect to the life insurance companies, only 3 out of 12 find to be efficient.

In another study, (Pasiouras, 2008) investigate the Greek banking efficiency and relates it with the share perfor-mance [4]. Their regression analysis of the stock returns and efficiency changes indicate a positive and statistically significant relationship between technical efficiency changes and stock returns, while the analysis report no impact of changes in scale efficiency on stock returns.

(Abidin, 2011) Test the efficiency performance of non-life insurers in Indonesia during the period of 2005-2007 [5]. Their results gathered from the DEA measurement show that bigger insurance firms appeared to have a higher efficiency score compared to their smaller. Their findings also confirm that, except for net premium margin (NPM); no significant associations are exist between the value of DEA, return on assets (ROA), and return on equity (ROE). This implies that an increase in NPM results in a total efficiency increase.

(Kabajeh, 2012) studied the partial and simultaneous relationship between the Return on Assets (ROA), Return on Equity (ROE) and Return on Investment (ROI)ratios with share prices of Jordanian Insurance Public Companies [6]. And found that there is a significant statistical relationship between the ratios of ROA, ROE and ROI, simultaneously, with the Jordanian insurance public market share prices; no significant statistical relationship between the ROA ratio with market share prices; and low positive significant statistical relationship between the ROI variable and share prices. From regression analysis for the variables separately, the researchers noted that the ROA variable has the highest coefficient value, while the ROI variable has the lowest coefficient value.

(Aydemir, 2012) also employ a panel data analysis in order to find out the relationship between the financial ratios and stock prices of non-financial firms [7]. Their findings provide that liquidity ratios, profitability ratios and leverage ratio, interestingly, have positive impact on stock returns. Nonetheless, operational ratios carry no impact on stock returns. The researchers conclude that financial ratios have a relatively weak role in predicting stock returns.

The analysis of return on assets and earnings per share on the stock market in the banking companies in Indonesia by (Rocky, 2013) pointed out that variable which gives biggest influence on stock price is earnings per share. Using multiple linear regressions, the researcher found out EPS influence contribution level is 56.2% while ROA only has -0.45% [8].

A lot of researches have been conducted on financial performance and markt share price. But there is a lack of research on Insurance compaies in Bangladesh. So the outcome of this study will keep a significant contribution in literature and help the regulators to formulate policy and its implementation.

3 Research Methodology

3.1 Problem Statement

The study attempts to find out the impact of profitability ratio on market share price of insurance business in Bangladesh. Here we consider market share price as the dependent variable and the profitability ratios return on assets (ROA), Return on equity (ROE), return on investment (ROI) and market share price(EPS) as independent variables. Therefore the title "Impact of the profitability Ratios on Market share Prices of Listed Insurance companies in Bangladesh" will fulfill by following hypothesis.

HA1: There is a significant relationship between the market share price and the profitability ratios of return on assets (ROA), return on equity (ROE), return on investment (ROI), and Earning per share (EPS) (together) with public insurance companies in Bangladesh.

The study model: $P = b_0 + b_1 ROA + b_2 ROE + b_3 ROI + b_4 EPS + \epsilon$

Where, P = Market price per share

b_0 = Constant

ROA = Return on assets ratio

ROE = Return on equity ratio

ROI = Return on investments ratio

EPS =Earnings per Share

ϵit = Residual, and b_1, b_2, b_3 and b_4 are coefficients of the variables

3.2 Sources of Data and Sample Size

This study was conducted based on the secondary sources and collected data from audited annual reports of listed public insurance companies in Bangladesh in Dhaka Stock Exchange. There are 46 listed public insurance companies in Bangladesh in Dhaka Stock Exchange. As only 15 listed insurance companies were available at time 2000 so we have collected data from 15 listed public insurance companies in Bangladesh in Dhaka Stock Exchange. Thus the data consists of 15 insurance companies listed in Dhaka Stock Exchange among 46 listed public insurance companies for the period of 15 years from 2000 to 2014 and allowing us to form a panel of 225 observations. We have also collected necessary information from magazines, brochures, journals, newspapers, websites, etc.

3.3 Dependent and Independent Variables

For this study we have used profitability ratios as ROA, ROE, ROI and EPS as independent variables and market share price as dependent variable. Here the ROA represent "Return on Assets" is measured by net income divided by total Assets. ROA indicates how much profit a company generates on its total assets.

ROA=Net Income/ Total Assets

ROE represents "Return on Equity" is measured by net income divided by total shareholder's equity. It shows effectiveness of companies' management in using investor's money.

ROE=Net Income / Total Shareholder's Equity

ROI or "Return on Investments" represents how efficient a firm was in investing capital in profitable invest-ments. It is calculated by dividing Net income into total investments.

ROI=Net Income/ Total Investments

and EPS or Earnings per Share is a measure of current share price relative to it's per share earnings. It indicates how much an investor can expect from company's earnings.

4 Data Analysis

In order to identify the research questions we have adopted pooled ordinary regression analysis and Panel data regression analysis for this study. Panel data was generated using both time series and cross-sectional data from the audited financial statements of the insurance firms. To take decsision about best model between fixed effct model and random effect model further hausman test has been done. Table 1 presented the summary statistics of the dependent and independent variables of 15 listed insurance Companies in Dhaka Stock Exchange among 46 listed public insurance companies for the period of 15 years from 2000 to 2014 and form a panel of 225 observations.

TABLE 1
SUMMARY STATISTICS

	N	Minimum	Maximum	Mean	Std. Deviation
SP	225	07.80	1776.00	83.92	203.36
ROA	225	-16.85	48.55	07.45	04.84
ROE	225	-51.80	208.81	15.46	16.19
ROI	225	-573.58	722.86	67.55	122.33
EPS	225	-96.55	124.68	20.01	23.018
Valid N (list wise)	225				

Table shows the market price per share ranges from a minimum value of TK 7.8 to a maximum value TK 1776.00 and a mean equal to TK 83.92 indicates the highly fluctuated market share price. The return on assets ranges from a minimum value of -16.85 to a maximum value of 48.55 and a mean equal to 7.45.Though the mean ROA indicates a good profit of the industry but the presence of wide range don't represent the mean value . The return on equity ranges from a minimum value of -51.80 to a maximum value of 208.81 and a mean equal to 15.46, do represent industry.The return on investment ranges from a minimum value of -573.58 to a maximum value of 722.86 and a mean equal to 67.55. The mean value of ROI shows good return on ivestment but donot representative due to high deviation.The EPS ranges from a minimum value of -96.55 to a maximum value of 124.68 and a mean equal to 20.01 indicates a good profit but due to high fluctuation donot represent the industry.

4.1 Pearson Correlation Analysis

We have done correlaion analysis to find out the relationship between the independent variables to check the multicollinearity.

TABLE 2
PAIR WISE CORRELATION COEFFICIENT RESULTS

	ROA	ROE	EPS	ROI	PRICE
ROA	1.000				
ROE	0.515	1.000			
EPS	0.2549	0.2500	1.000		
ROI	0.2320	0.2375	0.1879	1.000	
Price	0.2334	0.0625	0.2170	-0.0949	1.0000

Table 2 shows there exixsts no multicolinearity problem between the independent variables as the maximum correlation between two explanatory variables is not larger than 0.515 (Gujarati, 2004). [9]None of the pair wise correlation coefficients of explanatory variables exceeds 0.8 suggesting no multicolinearity among the explanatory variables. Thus we consider that there exists no correlation between the independent variables.

4.2 Regression Analysis

To reveal the impact of profitability on market share price more appropriately, pooled multiple regression analysis applied on the panel data. Here we do not remove the independent variable leverage from the sample.

4.2.1 Results of Pooled Regression Model on Share Prices

Table 3 shows the results of pooled regression model which examined the relationship between market share price and profitability ratios ROA, ROE, ROI and EPS. The results confirm that ROA has positive significant relation with share price at 1% significance level. ROE has negative relations with share price and the relationship is not significant. EPS and ROA have significant positive relation with share price at 1% level and ROI has negative correlation with share price at 1% significant level.

TABLE 3
RESULTS OF POOLED REGRESSION MODEL ON SHARE PRICES

Price	Coefficient	t	P>|t|
ROA	3.912	3.51	0.001
ROE	-0.3689	-1.10	0.270
EPS	0.6315	3.30	0.003
ROI	-0.1024	-2.62	0.009
Cons	30.8711	3.56	0.000
F(4, 221) = 7.24 ,		Prob> chi2 = 0.000	
R^2 = 0.11			
Number of obs = 225			

4.2.2 Results of Fixed and Random Effect Model on Share Prices

Then we have been used panel regression like fixed effect regression and random effects regression model susequently over pooled ordinary least square (OLS) model due to the limitations of the OLS model i.e. Failure to control over the time invariant firm specific heterogeneity. To select the appropriate model we convey further examination among the two models, we have done Hausman test. The Hausman test statistics were reject the null hypothesis, which implies that fixed effect model is appropriate for the regression analysis. Here we have presented all the results of fixed effect and random effect regression analysis. But the analysis of the study suggested that fixed effect model is more appropriate to measure the impact of profitability on market share price of the insurance companies in Bangladesh.

Table 4 shows the regression results of fixed effect model which examined the relationship of share price and profitability ratios ROA, ROE, ROI and EPS. The result of F test indicates that the model as a whole is (all the cofficients are taken jointly) significant at 1% level. The results also confirm that only ROA has positive and significant relation with market share price at 1% significance level. ROE, ROI and EPS has negative relation with share price and the relationship is not significant and not relavent to the expected sign.

TABLE 4
RESULTS OF FIXED EFFECT MODEL ON SHARE PRICES

PRICE	Coefficient	t	P>|t|
ROA	5.180	04.38	0.000
ROE	-0.1800	-0.58	0.566
EPS	0.0767	3.34	0.731
ROI	-0.0692	-1.44	0.153
Cons	30.4800	3.53	0.001
F (14,206) = 5.33,		Prob> F = 0.000	
Number of obs = 225			

TABLE 5
RESULTS OF RANDOM EFFECT MODEL ON SHARE PRICE

PRICE	Coefficient	z	P>|z|
ROA	4.750	4.22	0.000
ROE	-0.280	-0.89	0.376
EPS	0.244	1.16	0.246
ROI	-0.090	-2.13	0.034
Cons	30.079	2.98	0.003
Wald chi2(4) = 22.09,		Prob > chi2 = 0.000	
Number of obs = 225			

Table 5 shows the regression results of random effect model which examined the impact of profitability ratios ROA, ROE, ROI and EPS on share price. Results of Wald chi-square test indicates that the model as whole is significant at 1% level. The results confirm that ROA has positive impact on share price at 1% significant level. ROE has negative relation with share price and the result is not significant. EPS has positive but insignificant relationship with share price. But ROI has negative and significant relationship at 1% level of significance which is not relavent with the expected sign.

5 Conclusion

The study also conducted Huasman test to select appropriate model between fixed effect and random effect model. The test result shown in Table 6 and indicates that the null hypothesis is rejected and significant at 1% level, which confirms that fixed effect model is more appropriate for the analysis. So we choose fixed effect model as our appropriate model to find the impact of profitability ratios on m share prices and consider the results of fixed effect model as our final result. This study examined the relationship between the ROA, ROE, ROI and EPS ratios together with Bangladeshi insurance public companies share prices during the period (2000-2014). Based on the results of the study, we have found that the accounting based profitability measures ROA has only significant contribution to the market share price change of insurance companies in Bangladesh. These results imply that the other profitability measures have no significant relationship with the market share price. This study gives an indication to the investors about the effectiveness of the performance of profitability ratios on share price movement in insurance business. ROA has only positive relationship with share price which indicates that the management has efficiency on earning profits on investing in assets. The results imply that insurance companies should focus on core businesses instead of following conglomeration strategies.

TABLE 6
Result of Hausman test

Ho: difference in coefficients of fixed effect model and random effect model is not systematic	
chi2(4)	**Prob>chi2**
48.53	0.000

According to the findings of fixed effect regression model we have found that the share price movement of insurance industry gives an indication about the unstable, unpredictable and vulnerable share market in Bangladesh where the share price doesnot reflect the financial performances of the company and thus the market is not an efficient enough. The findings suggests important implications for investors that they must take account other variables such as economical, political global situation while taking investment decisions as well as profitability measures ROA. Management as well as the insurance regulator gives emphasis on appropriate accounting reporting so that performance might be reflecting by the market share price of insurance companies quoted on the stock exchange. Results of the study are expected to help insurance firms to take necessary operational steps towards improving efficiency as well as to provide investors with useful insights in making investment decisions.

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