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#### ABSTRACT

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Profitability is one of the most important goals of every financial institution. This study examined two profitability ratios namely, return on assets (ROA) and return on equity (ROE). Beside this, the article also identified the influences of three non-profitability ratios namely, solvency ratio (SR), risk retention ratio (RRR) and debt ratio (DR) on the ROA and ROE. Five selected private non-life insurance companies of Bangladesh were selected for the study. The secondary sources of financial data of the companies were used for the analysis. Based on the consistency and availability, data were collected only for the period of 2012-2014. The average values of the ratios are 6.34, 10.54, 19.10, 59.73, and 38.23, respectively. Though ROA is highly correlated with ROE (r=0.864) the correlation results show that no evidence of strong relationship of ROA and ROE with SR, RRR, and DR. The regression analyses also support the same evidence that means SR, RRR, and DR have no significant influence on ROA or ROE.

Key words: non-life insurance, profitability, debt, solvency, risk

#### INTRODUCTION

The insurance industry of Bangladesh has profound contribution to the development of financial condition of this country. Both public and private sectors are engaging in this industry. There are two main categories of insurance: life and non-life. The non-life insurance industry of Bangladesh is considered in this study. Non-life or general insurance is a contract between insurers and insured in which insurer take the responsibility of financial loss to the property of the insured in return of premium made by the insured. There are some factors that have influence on the profitability of non-life insurance companies. Afza and Kausar (2010) conducted a study in the non-life insurance industry of Pakistan on the basis of firm size; they found that firm size had positive impact on the technical efficiency or performance of non-life insurance companies. They stated that large size insurers were more efficient in performance than medium and small size insurers. Malik (2011) considered ROA as the profitability indicator of the insurance companies. He also considered the age and size of the company, volume of capital, leverage and cost ratio are the independent variables and argued that the age of the company was not related with profitability, whereas the volume of capital significantly and positively related to the profitability, but the loss ratio and leverage ratio were significantly related with ROA. Mehari and Aemiro (2013) conducted a study on the insurance companies in Ethiopia to determine the impact of the firm size, leverage, tangibility, loss ratio, liquidity and age on the performance of the insurance companies in which ROA was the dependent financial indicator. Their result revealed that company size, tangibility and leverage are significantly and positively related with ROA, whereas loss ratio was significantly and negatively associated with the dependent variable. Mwangi and Iraya (2014) found that growth of premiums, size of underwriters and retention ratio were not significantly related to financial performance of the non-life insurance companies in Kenya. They argued that financial performance of the companies was positively related with earnings asset and investment yield, but negatively related with loss ratio and expense ratio. But, the study of Nawi et al. (2012) articulated that the technical inefficiency effects with the production of total profit by the input of general insurance were very poor.

Mwangi and Murigu (2015) conducted research on the general insurance companies to determine the performance of the companies using multiple linear regressions. They considered return on asset (ROA) as the dependent variable and concluded that the profitability of the selected insurance companies was positively related to equity capital and leverage but negatively related with size and ownership structure. Rau and Venkateswarlu (2014) investigated the private non-life insurance companies in India to determine the efficiency using stochastic frontier analysis and found an increasing trend in the efficiency of non-life insurance companies in India. The similar result was observed in the study of Kweh and Azizan (2015) in Malaysian non-life insurance companies using two-stage approach in data envelopment analysis. Rahman *et al.* (2014) investigated the life and non-life insurance companies in Bangladesh using data envelopment analysis to measure the efficiency of takaful insurance companies and found that the smaller sizes of takaful insurance companies are more efficient in profit making.

Previous researchers only got keen interest to measure the expected return and risk against return and their variability. Further, the recent large number of articles on insurance companies has the evidence of profitability measurement and analysis. This study sought to the interactions of different ratios among each other of the selected five Bangladeshi non-life insurance companies namely Central Insurance Company Ltd., Eastern

Insurance Company Ltd., Federal Insurance Company Ltd., Prime Insurance Company Ltd., and Takaful Islami Insurance Ltd. It is also remarkable that research regarding such problem (based on non-life insurance) in the context of Bangladesh has seldom been considered by the scholars. Considering the above issues, the study was conducted with the following two specific objectives:

- i) To measure the profitability of selected five Bangladeshi non-life insurance companies by using two profitability ratios- return on assets (ROA) and return on equity (ROE) techniques; and
- ii) To identify the relationship between profitability ratios and other financial performance ratiossolvency ratio (SR), risk retention ratio (RRR) and debt ratio (DR).

# MATERIALS AND METHODS

Non-life insurance industry of Bangladesh is the population domain of this work. Inconsistency in the period of data of different non-life insurance companies is a major impediment to draw a large sample size. Purposive random sampling, is used for this purpose. In this research five selected non-life insurance companies of Bangladesh namely, Central Insurance Company Limited, Eastern Insurance Company Limited, Federal Insurance Company Limited, Prime Insurance Company Limited, and Takaful Islami Insurance Limited were considered as the sample. The data were collected from secondary sources (i.e. published bulletins, prospectus, annual reports of the non-life insurance companies and books). The consistent data were available for the period of 2012-2014.

Five ratios namely, Return on Asset (ROA), Return on Equity (ROE), Solvency Ratio (SR), Risk Retention Ratio (RRR) and Debt Ratio (DR) (Horne and Wachowicz, 2005) were considered in this research. To measure the profitability of non-life insurance industry this paper used ROA and ROE. The formulas are using for calculating of the above ratios given below:

i) Return on Asset (ROA) = Earnings available to common shareholders

ii) Return on Equity (ROE) = 
$$\frac{\text{Earnings available to common shareholders}}{\text{Average shareholder equity}}$$

Three financial performance ratios were also estimated namely, solvency ratio (SR), risk retention ratio (RRR) and debt ratio (DR) by using the following formulas:

- iii) Solvency Ratio  $(SR) = \frac{Profit after tax + Depreciation}{Total liabilities}$ iv) Risk Retention Ratio  $(RRR) = \frac{Net \text{ premium}}{Gross \text{ premium}}$
- v) Debt Ratio  $(DR) = \frac{\text{Total liabilities}}{\text{Total assets}}$

The descriptive statistics, correlation and regression analysis were used as statistical tools. This study used multiple regression analysis for determining the changes in independent variables (SR, RRR and DR) would explain the changes in the profitability variables (Dependent variables, ROA and ROE). Two regression models can be explained by following equations:

$Y_{(ROA_{average})} = \beta_0 + \beta_1 SR + \beta_2 RRR + \beta_3 DR + \varepsilon_{(ROA_{average})}.$	(i)
$Y_{(\text{ROE}_{average})} = \beta_0 + \beta_1 SR + \beta_2 RRR + \beta_3 DR + \varepsilon_{(\text{ROE}_{average})}$	.(ii)

Where,

 $Y_{(ROA_{average})}$  and  $Y_{(ROE_{average})}$  represent average of ROA and ROE, respectively for insurance

companies;

 $\beta_0$  represents intercept;

 $\beta_1,\beta_2$ , and  $\beta_3$  represent the coefficients of regression relations; and

 $\epsilon$  represents error term

## **RESULTS AND DISCUSSION**

The table 1 presents the summary of the ratios of the five selected non-life insurance companies in Bangladesh during 2012-2014. This table shows that the Central Insurance Company Limited had the increasing trend of ROA, ROE and SR during the period. In the year 2013 this company produced highest RRR among the companies and it had the highest DR in the same year. It is observed that the trend of all ratios of Takaful Islami Insurance was decreasing significantly. The remaining companies entailed almost steady trend with slight

deviations. In the individual cases, table 1 also shows that the Central Insurance Company Limited had the highest ROA, ROE and SR in 2014 but highest RRR and DR in 2013. Eastern Insurance Company Limited produced maximum SR in the year of 2012 but maximum ROA was in 2013 while maximum ROE, RRR and DR were in 2014. On the other hand, Federal Insurance Company Limited experienced highest ROE, RRR and DR in 2012 but highest SR in 2014. Prime Insurance Company Limited made highest RRR and DR in 2012 but highest ROA and ROE in 2013 and the highest SR was in 2014. All the ratios were highest in 2012 of Takaful Islami Insurance Limited.

Name of Insurance company	Year	ROA	ROE	SR	RRR	DR
Control Ingunonaa	2012	4.84	7.99	12.79	69.48	39.39
Company Ltd	2013	5.59	9.55	14.08	74.25	41.44
Company Ltd.	2014	5.85	9.66	15.89	67.31	39.51
Eastern Insurance	2012	5.25	6.52	27.55	55.40	19.45
Company Ltd	2013	5.55	7.07	26.26	55.37	21.53
Company Ltd.	2014	5.48	7.14	24.69	56.99	23.15
Es dans l'Insurance	2012	5.02	10.04	11.86	67.08	50.02
Company Ltd	2013	5.02	9.90	11.80	59.73	49.26
Company Ltd.	2014	4.72	9.02	12.97	57.42	47.71
D.'	2012	7.87	15.14	17.41	60.52	48.02
Company Ltd	2013	8.29	15.31	19.86	45.83	45.82
Company Ltd.	2014	8.25	14.83	20.30	54.55	44.36
T-1-C-1L-1'	2012	9.16	14.42	26.27	60.75	36.48
Takatut Islami	2013	8.44	13.05	25.22	55.06	35.32
msurance Llu.	2014	5.76	8.47	19.52	56.15	31.98

Table 1. Summary of the ratios of non-life insurance companies

Source: Annual Reports (2012-2014) of Central Insurance Company Ltd., Eastern Insurance Company Ltd., Federal Insurance Company Ltd., Prime Insurance Company Ltd., Takaful Islami Insurance Company Ltd.

The descriptive statistics of the ratios were summarized in table 2. The mean of ROA was 6.34% with a standard deviation of 1.50. The mean of ROE and SR were 10.54% and 19.10% respectively. RRR had a mean of 59.73% and its variance is 43.26 whereas 38.23% is the mean value of debt ratio.

Table 2. Descriptive statistics the ratios of non-life insurance companies

Ratios	Mean	Median	Standard Deviation	Variance
ROA	6.34	5.43	1.50	2.25
ROE	10.54	9.65	3.12	9.74
SR	19.10	19.19	5.95	35.45
RRR	59.73	57.32	6.58	43.26
DR	38.23	40.11	10.93	119.54

Source: Authors' estimation

The correlations of all the selected ratios of non-life insurance companies are incorporated in the table 3. From this table ROA has strong relationship with ROE (r=0.864). Moreover, ROA has very poor relations with SR (r=0.407) and DR (r=0.110) where little relationship exists with RRR (r=-0.584). The table also shows that ROE has no solid relationship with RRR (r=-0.421) and with SR (r=-0.073) where week robust relationship exists with DR (r=0.581). It is also observed that SR ismoderately related with RRR (r=-0.648) and strongly correlated with DR (r=-0.838). Finally, RRR has no strong evidence of correlation with DR (r=0.220).

Table 3. Correlation among the ratios of non-life insurance companies

	•		-		
Ratios	ROA	ROE	SR	RRR	DR
ROA	1	0.864	0.407	-0.584	0.110
ROE	0.864	1	-0.073	-0.421	0.581
SR	0.407	-0.073	1	-0.648	-0.838
RRR	-0.584	-0.421	-0.648	1	0.220
DR	0.110	0.581	-0.838	0.220	1

Source: Authors' estimation

Analysis of regression models is summarized in the table 4 and 5. From both tables the values of R square are 97.7% and 95.9% for ROA and ROE, which are explained by explanatory variables, respectively. According to the model (i) and (ii), independent variables SR, RRR, and DR are regressed on the dependent variables of ROA and ROE, respectively. In both models the results show that the influences of independent variables on

dependent variables are insignificant at 5% level of significance (i.e. all p-values are greater than 0.05) which refers that the null hypotheses could not be rejected. Both tables also denote that the values of variance inflation factor (VIF) of RRR and DR (4.392 and 8.577, respectively) are less than 10 (generally different published articles referred that 10 is the maximum acceptable value of VIF (e.g. Marquardt 1970)) in both models. On the other hand, the VIF value of SR (14.074) is greater than 10. So, solvency ratio has high collinearity with other independent variables of RRR and DR.

Model	Unstandardized Coefficients		Standardized Coefficients	t-statistics	Sig.	<b>Collinearity Statistics</b>	
	В	Std. Error	Beta	_	_	Tolerance	VIF
(Constant)	-29.829	8.919		-3.344	0.185		
SR	0.718	0.143	2.849	5.025	0.125	0.071	14.074
RRR	0.171	0.072	0.749	2.366	0.255	0.228	4.392
DR	0.320	0.061	2.334	5.273	0.119	0.117	8.577
R Square	0.977						
Adjusted R Square	0.909						

Table 4. Regression analysis with ROA as the dependent financial indicator

Adjusted R Square Source: Authors' estimation

Table 5. Regression analysis with ROE as the dependent financial indicator

Model	Unstandardized Coefficients		Standardized Coefficients	t-statistics	Sig.	Collinearity Statistics	
	В	Std. Error	Beta	_	_	Tolerance	VIF
(Constant)	-46.714	24.862		-1.879	0.311		
SR	1.086	0.398	2.072	2.726	0.224	0.071	14.074
RRR	0.205	0.201	0.433	1.020	0.494	0.228	4.392
DR	0.634	0.169	2.223	3.746	0.166	0.117	8.577
R Square	0.95	9					
Adjusted R Square	0.83	6					

Source: Authors' estimation

## CONCLUSION

Insurance industry has remarkable contribution to the development of the economic solvency of a developing country like Bangladesh. The non-life insurance industry is continuously providing risk bearing services to the individuals and firms to encourage investment and financial transactions which leads to financial elevation of the economy. This study investigated the profitability of the non-life insurance companies in Bangladesh based on average return on assets and average return on equity ratios. The result showed that the average ratios of ROA and ROE are 6.34 and 10.54, respectively. The other financial performance indicators' ratios SR, RRR and DR got the mean values 19.10, 59.73, and 38.23, respectively. The correlation results do not give the strong evidence of relationship between ROA and SR, RRR, and DR. Similar results were found for ROE and SR as well as RRR, and DR. The regression models produce the same evidence with correlation results which comply that the null hypotheses could not be rejected that means SR, RRR and DR have no significant influences on ROA or ROE. However, in both models the VIF test shows that the DR has high collinearity with SR and RRR which should be removed. So, further study extended with data period and other variables is suggested by the researchers. Finally, as the companies have indicators, it is concluded that the non-life insurance industry is contributing to the national economy positively and it has the potential to expand its business throughout the country.

This article may contribute the knowledge of profitability measurement to the management of the non-life (general) insurance companies as well as other insurance companies at home and in abroad. Specially, the management or policy makers of selected companies should make the policies and formulate the strategies to increase their earnings available to common shareholders' against the average total assets and average shareholders' equity. Moreover, to strengthen the position of insurance companies the management must strive to increase the profit after tax and enhance the efforts to reduce the volatile (avoidable) liabilities and costs. In addition, maintenance of risk retention ratio is also the most sought to ensure the sustainable level of profit and growth of the insurance industry.

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