



RELATIONSHIP AMONG THE RATIOS: EVIDENCE FROM INSURANCE INDUSTRY IN BANGLADESH

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ABSTRACT

Insurance industry is an emerging industry in Bangladesh. The incredible and the rapidly growth of this industry indicate that the insurance industry has significant positive influence on the people of this country. This study examined 5 private life insurance companies of Bangladesh. We used mainly secondary data from the financial statements of the insurance companies. We analyzed the company's performance using ratio analysis and the relationship using correlations and regression. There has a great extent of possibility of life insurance companies in Bangladesh as people prefer insurance products in present days to the days before. At the same time, the insurance industry in private sectors is developing day by day. This study found that the size and number of life insurance companies were increasing and these companies played a vital role in revenue generation. There were significant positive correlations with Debt Ratio (DR), Debt to Equity Ratio (DER), Fixed Asset to Net Worth (FANW) and Investment Income (IY). Regression result revealed that IY can be stated through the change of DR, IPPA and NAVPS. The growth rate of total number of life insurance policy of the companies was significant although there was a lot of deficiency of capital and of the inefficient workforce in the insurance industry of Bangladesh.

Key words: Correlation and regression, insurance, insurance industry, life insurance

INTRODUCTION

Future is always uncertain to us. We can predict what will be held in the future days but we cannot make guarantee to that prediction. With the evaluation of insurance it is possible for the people to reduce the future risk by making insurance policies. Simply insurance policy is an arrangement of risk reduction by making periodical payments or premium. Dorfman (2008) described insurance as a contractual link between two parties in which one party, the insurer, is paid a premium by the other party, the insured. In return for the premium, the insurer promises to indemnify the insured in the event of a covered loss. He added that insurance is a money transfer scheme in which those exposed to a loss voluntarily put money into a pool from which losses are paid to those pool members that experience loss. According to Vaughan and Vaughan (2008) the primary function of insurance is the creation of the counter part of risk, which is security. The insurance does not decrease the uncertainty for the individual as to whether the event will occur,

nor does it alter the probability of occurrence, but reduced the probability of financial loss connected with the event. Vaughan and Vaughan (2008) defined life insurance as a risk-pooling plan, an economic device through which the risk of premature death could be transferred from the individual to group. This research was based on ratio analysis. Weygandth, Kieso and Kimmel (2008) defined ratio analysis as the relationship among selected items of financial statement data. Brigham and Houstom (2004) argued that financial ratios are designed to evaluate financial statement and various comparisons are made by ratio analysis. Malik (2011) studied on insurance companies and analyzed different financial ratios to evaluate the profitability of the insurance companies in Pakistan. He found that companies' size and profitability was positively related and leverage ratio was negatively related with profitability. The profitability of life insurers was positively influenced by liquidity, size and negatively related with capital (Bawa and Chattha, 2013). Sambasivam and Ayele (2013) argued that the growth, size and volume of capital were positively related with the profitability of Insurance Company. Chowdhury and Huda (2014) conducted research on some private life insurance companies of Bangladesh and revealed that there was a positive growth rate of premium earned, investment, EPS, total asset etc. in the insurance company which indicated a better future of insurance industry in Bangladesh. Almajali, Alamro and Al-soub (2012) conducted a research study on the financial performance of the insurance industry and concluded that leverage, liquidity, size and management competence index had a positive effect on the financial performance of Jordanian insurance companies and they recommended increasing company asset for better performance. The objectives of the study were (1) to determine the values of studied ratios, (2) to analyze ratios to get relationship and co- linearity and (3) to evaluate the performance of selected life insurance companies in Bangladesh.

MATERIALS AND METHODS

This study is descriptive in nature. The study had been carried out on the basis of secondary data. 5 Life Insurance Companies were selected for this study since the availability of data of these studied life insurance companies, the researchers found pertinence among the data of the period (2012-2014), choosing convenience sampling approach in collection of secondary data. Secondary data of the study were collected from journals, reports, annual reports (2012-2014) of selected insurance companies and websites. Ratio, correlation and regression analysis were applied in this research study to examine the relationship among the ratios of life insurance industry. We took the help of SPSS 16 software to analyze the data.

$$\text{Net Premium to Gross Premium Ratio (NPGP)} = \frac{\text{Net Premium}}{\text{Gross Premium}} \dots\dots(i)$$

$$\text{Fixed Asset to Total Asset Ratio (FATA)} = \frac{\text{Fixed Asset}}{\text{Total Asset}} \dots\dots(ii)$$

$$\text{Debt Ratio (DR)} = \frac{\text{Total Liability}}{\text{Total Asset}} \dots\dots(iii)$$

$$\text{Debt to Equity Ratio (DER)} = \frac{\text{Total Liability}}{\text{Total Equity}} \dots\dots(iv)$$

$$\text{Fixed Asset to Net Worth (FANW)} = \frac{\text{Fixed Asset}}{\text{Net Worth}} \dots\dots(v)$$

$$\text{Debtors to Creditors Ratio (DC)} = \frac{\text{Total Debtors}}{\text{Total Creditors}} \dots\dots\dots(\text{vi})$$

$$\text{Debtors to Total Asset Ratio (DTA)} = \frac{\text{Total Debtors}}{\text{Total Asset}} \dots\dots\dots(\text{vii})$$

$$\text{Creditors to Total Liabilities Ratio (CTL)} = \frac{\text{Total Creditors}}{\text{Total Liabilities}} \dots\dots\dots(\text{viii})$$

$$\text{Investment Yield (IY)} = \frac{\text{Invetment Income}}{\text{Total Invetment}} \dots\dots\dots(\text{ix})$$

$$\text{Net Asset Value Per Share (NAVPS)} = \frac{\text{Net Asset}}{\text{Issued Common share}} \dots\dots\dots(\text{x})$$

$$\text{Net Operating Cash Flow Per Share (NOCFPS)} = \frac{\text{NCF from operating Activities}}{\text{Total Number of Share}} \dots\dots\dots(\text{xi})$$

$$\text{Insurance Policy Per Agent (IPPA)} = \frac{\text{Total No. of Policies}}{\text{Total Agent}} \dots\dots\dots(\text{xii})$$

$$\text{Commision to Gross Premium (CGP)} = \frac{\text{Commission}}{\text{GrossPremium}} \dots\dots\dots(\text{xiii})$$

$$\text{Marginal Expenses to Gross Premium (MEGP)} = \frac{\text{Marginal Expenses}}{\text{Gross Premium}} \dots\dots\dots(\text{xiv})$$

Equations- state (i) the proportion of net premium and gross premium, (ii) proportion of fixed asset and total asset, (iii) capital structure, excluding equity, (iv) capital structure, excluding asset, (v) ratio of fixed asset over net worth, (vi) percentage of debtors over creditors, (vii) capital structure considering only debtors rather than liabilities and total asset,(viii) percentage of creditor over liabilities, (ix) percentage of investment income over investment, (x) how much asset engaged against one issued share, (xi) value of operating cash flow against one share, (xii) number of effective policies against one agent, (xiii) percentage of commission over gross premium and (xiv) percentage of expenses over gross premium respectively. The researcher trended to measure how much change in independent variables viz DR, IPPA and NAVPS would explain the changes in the dependent variable IY. Therefore, the equation of regression model is identified

$$IY = \beta_0 + DR\beta_1 + IPPA\beta_2 + NAVPS\beta_3 + \varepsilon \dots\dots\dots(\text{xv})$$

Where

β_0 is the intercept.

β_1, β_1 and β_3 represent the coefficients of the regression equation.

ε is the error term.

Hypothesis: The null hypothesis is,

H_0 : There is no relationship among IY, DR, IPPA and NAVPS.

The alternative hypothesis is

H_1 : There is a relationship among IY, DR, IPPA and NAVPS.

RESULT AND DISCUSSION

Table 1 summarizes the financial data of the selected insurance companies during 2012-2014. By using these data various ratios were calculated for those insurance companies which are summarized in table 2. Net Premium to Gross Premium (NPGP), Fixed Asset to Total Asset (FATA), Debt Ratio (DR), Debt to Equity Ratio (DER), Fixed Asset to Net Worth (FANW), Net Asset Value Per Share (NAVPS) and Marginal Expenses to Gross Premium (MEGP) of Fareast Islami Life Insurance Company Ltd. were the maximum in 2014 whereas Debtors to Creditors (DC), Debtor to Total Asset Ratio (DTA), Creditors to Total Liabilities (CTL) and Insurance Policy Per Agent (IPPA) were maximum in 2013 and IY, Net Operating Cash Flow Per Share (NOCFPS) and Commission to Gross Premium (CGP) were highest in 2011. Meghna Life insurance Company Ltd. experienced maximum DC, DTA, CTL and NAVPS in 2014 while maximum DR, DER, IY, NOCFPS and CGP were in 2013. On the other hand in 2012 this insurance company had maximum NPGP, FATA, FANW and IPPA. In 2014 Pragati Life Insurance Company Ltd. had the greatest NPGP, CTL and NAVPS. In 2013 it had the greatest NOCFPS and MEGP. This company experienced highest FATA, PR, DER, FANW, DC, DTA, IY, IPPA and CGP in 2012. The maximum DTA, CTL, IY and IPPA of Prime Islami Life Insurance Company Ltd. came in 2014 where as maximum DC, NAVPS and MEGP came in 2013. NPGP, FATA, DR, DER, FANW, NOCFPS and CGP were maximum of this insurance company. Sondhani Life Insurance Company Ltd. experienced highest DC, IY, CGP and MEGP in 2014 and there was a negative NOCFPS in this year. On the other hand, it had maximum DR, DER, DTA and NOCFPS in 2013 and maximum NPGP, FATA, FANW, CTL, NAVPS and CGP in 2012. The correlation matrix of different variables of selected life insurance companies is presented in table 3. Here FATA and FANW were perfectly and positively correlated. DR and DER had significant positive correlation with FATA and DR had significant positive correlation with DER, FANW and IY. DER and FANW had significant positive correlation. FATA and DER were negatively correlated with DC, DTA and CTL whereas DER and FANW was also negatively related with DC, DTA and CTL but these correlations were not significant. There was a significant positive correlation with DC and DTA. NAVPS and NOCFPS were also perfectly and positively correlated. CTL was negatively related with FATA, DR, DER, FANW, IY, NOCFPS and IPPA whereas NOCFPS was negatively related with DC, DTA, CTL and IPPA but these relationships were not significant. Table 4 represents the regression analysis of some variables of life insurance companies. Here R square was found from the model summary and it is 93% which indicates the high prediction probability level and this higher percentage means that 93% changes in IY can be explained through the independent variables – DR, IPPA and NAVPS. So, H_1 is accepted.

CONCLUSION

Insurance industry has been growing tremendously and it can be a promising industry in a developing country like Bangladesh. The insurance industry of Bangladesh experienced growth in a few decades. But there need a lot of development in this industry. The people of this country's are not much aware of being secured by insurance products and most of them thought that Insurance Companies are not trustworthy. But a few insurance companies of Bangladesh are doing good job for their clients as well as playing a vital role in the growth of national economy. The performance of life insurance companies was improving as their net asset value per share, investment yield; company size and capital were increasing. Significant positive correlations with DR, DER, FANW and IY exist and IY responded 71.5% 26.6% and 31.5% by changing DR, DER and FAWN respectively.

Table 1. Summary of financial data of life insurance companies (Figures in millions where applicable)

Name of the Insurance Company	Year	Equity (Tk.)	Investment (Tk.)	Investment Income (Tk.)	Fixed Asset (Tk.)	Total Asset (Tk.)	Total Liabilities (Tk.)	Net cash from Operations (Tk.)	Gross Premium (Tk.)	Net Premium (Tk.)	Commission Expense (Tk.)	Managerial Expense (Tk.)	Total Share	Total Insurance Policy	Total Agents
Fareast Islami Life Insurance Company Ltd.	2012	24635.84	1825.40	1722.03	6139.86	28222.25	3586.42	4258.29	7074.58	7060.02	1161.19	1062.43	49237650	2395902	169314
	2013	29156.56	2515.90	2149.03	6195.23	32264.17	3107.61	1497.64	7101.78	7084.55	1130.85	1162.37	56623297	2526437	175490
	2014	32774.85	2518.09	1756.48	9024.89	38704.48	5888.63	3867.48	7671.31	7660.64	1192.78	1399.92	56623297	2658895	187374
Meghna Life Insurance Company Ltd.	2012	10701.76	4216.43	768.18	214.50	11633.34	931.58	1407.32	4004.09	3998.78	730.16	888.41	23034368	132192	18081
	2013	12314.93	4925.01	967.31	214.31	13488.34	1173.40	1556.88	4253.07	4244.01	841.04	900.19	23034368	145692	51088
	2014	13660.06	5420.31	989.79	231.80	14703.03	1042.97	644.21	4513.43	4502.91	823.46	861.87	25337804	169834	31541
Pragati Life Insurance Company Ltd.	2012	264.97	1229.53	224.66	161.67	3181.32	264.97	75.97	1870.58	1813.30	427.51	439.73	9408000	44675	1809
	2013	194.11	1707.61	268.37	119.09	3512.81	194.11	203.44	1429.41	1392.08	165.37	405.36	9878400	24015	1244
	2014	182.13	2092.53	336.07	108.27	3794.23	182.13	94.97	1655.52	1621.55	270.51	417.80	9878400	41255	6279
Prime Islami Life Insurance Company Ltd.	2012	5547.72	2410.41	382.80	267.21	6067.40	519.68	726.94	2107.82	2103.33	360.52	480.81	19980675	70552	12216
	2013	6447.54	2034.90	419.60	243.58	7025.99	578.45	38.50	2051.49	2046.34	290.24	519.87	22977776	55119	9868
	2014	7384.63	2132.65	500.10	222.43	7985.23	600.60	232.05	2273.08	2266.80	277.43	530.62	26424442	61864	9262
Sandhani Life Insurance Company Ltd.	2012	9179.26	4173.44	732.21	1369.52	10139.11	359.84	173.57	2249.25	2246.86	511.46	510.95	30618351	80479	4939
	2013	9943.68	4382.05	809.87	1366.96	11082.06	1138.38	626.60	2369.55	2365.19	516.75	479.88	39803857	68629	7157
	2014	10236.95	4663.11	922.29	1356.29	11190.22	953.28	(33.72)	2226.29	2220.67	534.24	459.91	49953840	72598	8010

Source: Annual Report's data from 2012-2014 of Fareast Islami Life Insurance Company Ltd., Meghna Life Insurance Company Ltd., Pragati Life Insurance Company Ltd., Prime Islami Life Insurance Company Ltd., Sandhani Life Insurance Company Ltd.

Table 2. Summary of ratios of life insurance companies

Name of the Insurance Company	Year	NPGP (%)	FATA (%)	DR (%)	DER (%)	FANW (%)	DC (%)	DTA (%)	CTL (%)	IY (%)	NAVPS (Tk.)	NOCFPS (Tk.)	IPPA	CGP (%)	MEGP (%)
Fareast Islami Life Insurance Company Ltd.	2012	99.79	21.76	12.71	14.56	24.92	1.44	0.05	28.10	94.34	500.35	86.48	14.15	16.41	15.02
	2013	99.76	19.20	9.63	10.66	21.25	3.14	0.14	46.75	85.42	514.92	26.45	14.40	15.92	16.37
	2014	99.86	23.32	15.32	18.09	27.54	1.71	0.08	31.45	69.75	578.82	68.30	14.19	15.55	18.25
Meghna Life Insurance Company Ltd.	2012	99.87	1.84	8.01	8.71	2.00	6.52	0.30	58.13	18.22	464.60	61.10	7.31	18.24	22.19
	2013	99.79	1.59	8.70	9.53	1.74	5.10	0.29	64.62	19.64	534.63	67.59	2.86	19.78	21.17
	2014	99.77	1.58	7.09	7.64	1.17	10.78	0.52	68.30	18.26	539.11	25.42	5.38	18.25	19.10
Pragati Life Insurance Company Ltd.	2012	96.94	5.08	8.33	8.16	5.54	150.06	4.93	39.48	24.70	309.99	8.08	24.70	22.86	23.51
	2013	97.39	3.39	5.53	5.29	3.59	117.79	3.37	51.79	19.30	335.95	20.59	19.30	11.16	28.36
	2014	97.95	2.85	4.80	4.57	3.00	137.66	4.70	71.06	6.57	365.66	9.61	6.57	16.34	25.24
Prime Islami Life Insurance Company Ltd.	2012	99.79	4.40	8.57	9.37	4.82	0.54	0.02	42.98	15.88	277.65	36.38	5.78	17.10	22.81
	2013	99.75	3.47	8.23	8.97	3.78	14.44	0.51	43.10	20.62	280.60	0.17	5.82	14.15	25.34
	2014	99.72	2.79	7.52	8.13	3.48	13.46	0.53	51.98	23.45	241.62	8.78	6.68	12.21	23.34
Sandhani Life Insurance Company Ltd.	2012	99.89	13.51	9.47	10.46	14.92	46.53	2.22	50.38	17.55	299.80	5.67	16.29	22.74	22.74
	2013	99.82	12.34	10.27	11.45	13.75	58.57	2.92	48.52	18.48	249.82	15.74	9.59	21.81	21.81
	2014	99.75	12.12	8.52	9.31	13.25	58.96	1.77	35.19	19.78	204.92	- 0.003	9.06	23.92	23.92

Table 3. Correlation of Ratios of All Life Insurance Companies

	FATA	DR	DER	FANW	DC	DTA	CTL	IY	NAVPS	NOCFPS	IPPA
FATA	1	.922*	.902*	1.000**	-.270	-.245	-.854	.859	.286	.375	.480
DR	.922*	1	.999**	.925*	-.619	-.600	-.769	.888*	.444	.586	.124
DER	.902*	.999**	1	.906*	-.656	-.636	-.753	.874	.446	.595	.075
FANW	1.000**	.925*	.906*	1	-.279	-.257	-.858	.868	.295	.385	.475
DC	-.270	-.619	-.656	-.279	1	.992**	.230	-.426	-.416	-.607	.686
DTA	-.245	-.600	-.636	-.257	.992**	1	.219	-.461	-.470	-.654	.669
CTL	-.854	-.769	-.753	-.858	.230	.219	1	-.710	.100	-.043	-.407
IY	.859	.888*	.874	.868	-.426	-.461	-.710	1	.873	.946	.496
NAVPS	.286	.444	.446	.295	-.416	-.470	.100	.627	1	.972**	-.022
NOCFPS	.375	.586	.595	.385	-.607	-.654	-.043	.708	.972**	1	-.138
IPPA	.480	.124	.075	.475	.686	.669	-.407	.348	-.022	-.138	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4. Regression Analysis of Ratios of All Life Insurance Companies

Model	Coefficients ^a						Collinearity Statistics	
	Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Tolerance	VIF
	B	Std. Error	Beta					
(Constant)	-88.152	35.270			-2.499	.242		
DR	8.746	3.790	.715		2.307	.260	.785	1.274
IPPA	1.517	1.581	.266		.959	.513	.977	1.023
NAVPS	.068	.066	.315		1.025	.492	.797	1.255
R					0.962			
R Square					0.925			
Adjusted R Square					0.699			

a. Dependent Variable: IY

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