

## **Performance Analysis of an Insurance Company: A Case Study on Karnaphuli Insurance Company**

**Alrafa Akter\***

**Mohammad Amzad Hossain\***

### **Abstract**

*Insurance companies are such financial institutions which stand by us at our disastrous moments and try to uphold us by providing a lump sum amount of claim. To accelerate this important role in the economy, insurance companies involve in different investments so that they can earn a good profit. This paper analyzes the performance of a general insurance company named Karnaphuli Insurance Company of Bangladesh. This study identifies the performance of Karnaphuli Insurance Company along with the relationship among different performance indicators. Bankruptcy risk through SPRINGATEz score, business and financial risk are also analyzed. This analysis concludes that this insurance company is closing towards bankruptcy and business risk is gradually increasing as company's net income, policy sales growth, claim ratio are in decreasing trend. So company's performance overall is becoming poor.*

**Keywords:** Insurance, profitability, bankruptcy risk, business risk, financial risk, performance.

### **Introduction**

Insurance is not a new idea or proposition to the people of Bangladesh. About half a century back, during the British regime in the then India, some insurance companies started insurance business, particularly on life, in this part of the world. There were about 49 companies transacting both life and general insurance business. These companies were operating under a free competitive economy. After the emergence of the People's Republic of Bangladesh in 1971, the government, nationalized the insurance industry along with the banks in 1972 by Presidential Order No. 95. At the same time, five insurance corporations were initially established by the Government, JatiyaBima Corporation (National Insurance Corporation), TeestaBima Corporation (Teesta Insurance Corporation), KarnaphuliBima Corporation (Karnaphuli Insurance Corporation), RupsaJibanBima Corporation (Rupsa Life Insurance Corporation), SurmaJibanBima Corporation (Surma Life Insurance Corporation). Karnaphuli Insurance Company Limited is a public limited company listed under the Companies Act, 1994 and involved in general insurance business as per Insurance Act, 2010. It is one of the top Bangladeshi insurance companies in insurance business. The company was integrated in 1986. In this paper, it is tried to assess the performance of this insurance company by analyzing some ratios that represent performance as well as risk.

---

\*Lecturers, Department of Business Administration, Northern University Bangladesh

## Objectives of the Research

The objectives of this study are:

- To analyze the performance of Karnaphuli Insurance Company Limited by ratio analysis.
- To analyze the risk of Karnaphuli Insurance Company Limited.
- To compare the performance of Karnaphuli Insurance Company with another insurance company named United Insurance Company.

## Research Methodology

In order to conduct the research, two companies from non-banking financial sectors of Bangladesh are analyzed. Only secondary data for the year 2010 to 2013 are used. Again, websites of these two companies, various periodicals published by these two companies along with some research articles are used. The collected data have been analyzed through SPRINGATE<sup>Z</sup> score, business and financial risk analysis, ratio analysis, and correlation analysis.

## Literature Review

Theoretically, the level of a firm's profit is influenced by the level of revenue and expenditure. These two factors – revenue and expenditure – are influenced by firm-specific characteristics, industry features and macroeconomic variables (Buyinza et al., 2010; Indranarain, 2009). The firm-specific features which are mostly under the direct control of management are size, sales growth, capital, efficiency and risk management. Demircuc-Kunt and Maksimovic (1998) and Akhavein et al., (1997) have all established a positive correlation between size and profitability. Asimakopoulos et al. (2009) found that the profitability of companies is positively impacted by size, sales growth and investment.

Through a dynamic panel model, Pervan et al (2012) investigated the underlying factors of Bosnia and Herzegovina insurance industry's profitability. Their findings indicated a strong negative influence of claims ratio on profitability. They further showed that age and market shares have significant positive impacts on insurers' financial performance.

Theoretically, a more efficient insurance company should have growth in profits since it is able to maximize its net premiums and net underwriting incomes. For instance, Molyneux and Thornton (1992) identified a strong positive association between efficiency and profitability.

Deficiencies in the management of credit risk associated with lending result in high premiums outstanding and this can negatively gnaw at the profit maximizing force of an insurer. For example, Miller and Noulas (1997) identified an inverse connection between credit risk and profitability. In studying the impact of financial intermediation on the profitability of the Nigerian insurance industry, Agiobenebo and Ezirim (2002) showed that there is a significant positive relationship between the level of premiums to total assets and insurers' profitability. Chen and Wong (2004) revealed that size, investment and liquidity are significant determinants of the profitability of insurers. However, Ahmed et al., (2011) in a similar study of the Pakistani life insurance industry, claimed that liquidity is not a significant determinant of insurers' profitability.

They posited that, whereas size and risk (loss ratio) are significant and positively related to the profitability of insurance firms, leverage is negative and hence decreases the profitability of insurers significantly.

Still in Pakistan, Malik (2011) delved into the determinants of the financial performance of 35 listed life and non-life companies covering the period of 2005 to 2009. Although his study covers both sectors of the insurance business, much of his findings seem to confirm that of Ahmed et al (2011). Specifically, Malik found that whereas size and capital have strong positive association with insurers' profitability, loss ratio and leverage have strong inverse relationship with profitability.

Specifically, Adams (1996) found that firm-specific factors such as leverage and underwriting risk were positive and significantly related to investment earnings of life insurers. However, the findings of Charumathi (2012) about the Indian life insurance sector contradict that of Adams and Buckle (2003) and Adams (1996). Charumathi claims that the profitability of life insurers is positive and significantly influenced by the size of an insurer as measured by net premiums. He further posited that leverage, premium growth and equity capital have strong inverse relationship with insurers' profitability. The findings of Charumathi (2012) confirms that of Chen et al., (2009) that, insurers' profitability decreases with an increase in equity ratio.

In Poland, a panel study of 25 non-life insurance companies by Kozak (2011) revealed that the value of gross premiums is positive and a significant parameter of the profitability and efficiency of insurance companies.

## Performance Analysis of Karnaphuli Insurance Company

### Bankruptcy Analysis

Springate Z score is used to analyze the bankruptcy risk of this company. The equation is –

$$Z = 1.03A + 3.07B + 0.66C + 0.4D$$

If the value of Z moves under 0.862 then it indicates the company will face bankruptcy risk.

**Table 1: Bankruptcy Analysis through Springate Z score**

	2010	2011	2012	2013
A = Net Income ratio	0.742	0.571	0.368	0.378
B = Return on Equity	0.427	0.118	0.090	0.081
C = Policy sales growth	0.169	0.383	0.726	-0.196
D=ROA	0.1142	0.7322	0.0516	0.0525
<b>Z value</b>	<b>2.23237</b>	<b>1.49605</b>	<b>1.15514</b>	<b>0.52965</b>

According to the model, from 2010 to 2012 the firm's z values were above the benchmark. So the firm was in good position, but in 2013 the firm's z value was under the benchmark. It means the firm's performance was diminishing.

The main reason for these could be inability to manage different component of A,B,C,D in different years. Namely in 2010 firm's net income ratio, ROE and ROA were highest. That's why

their z value was too high in that year. Again in 2013 their policy sales growth was lowest and all other ratios were also low. That's why their z value was lower. So gradually the firm's bankruptcy risk is increasing.

### Business and Financial Risk Analysis

Business risk is measured by analyzing mean, standard deviation and covariance of "interest income" and "earnings before tax (EBT)" or operating profit.

**Table 2: Business Risk**

<b>Business Risk Analysis</b>				
<b>particulars</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
Interest Income	61905585	42766846	61905585	64405382
EBT	123052000	101485000	86949000	92256000
mean I.I	57745849.5			
SD	10055292.43			
CV	0.17			
mean EBT	100935500			
SD	15920609.55			
CV	0.16			

In that point of view, there is a positive covariance for both interest income and EBT. They are respectively .17 and .16. We know lower the value better it is.

### Financial Risk

#### Financial Leverage Index (FLI)

**Table 3: Financial Risk**

<b>Financial Leverage Index</b>				
<b>Particulars</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
ROE	0.427	0.118	0.09	0.081
ROA	0.1142	0.7322	0.0516	0.0525
FLI	<b>3.7391</b>	<b>0.1612</b>	<b>1.7442</b>	<b>1.5429</b>

Financial Leverage Index (FLI) measures how well a company is using its debt. The Financial Leverage Index compares two other financial performance ratios: Return on Equity and a

modified version of Return on Assets. FLI ratio of this company indicates that they donot use their debt very well. Their ROE and ROA were not consistent throughout the year and that's why their ratios were not well enough. It indicates the companyusedtheir debt less effectively and efficiently.

### Analysis of Ratios regarding Operating Performance

Net income ratio, policy sales growth, percentage of sales growth, claims ratio, and quotas-to-production are all commonly used key performance indicators in the insurance industry.

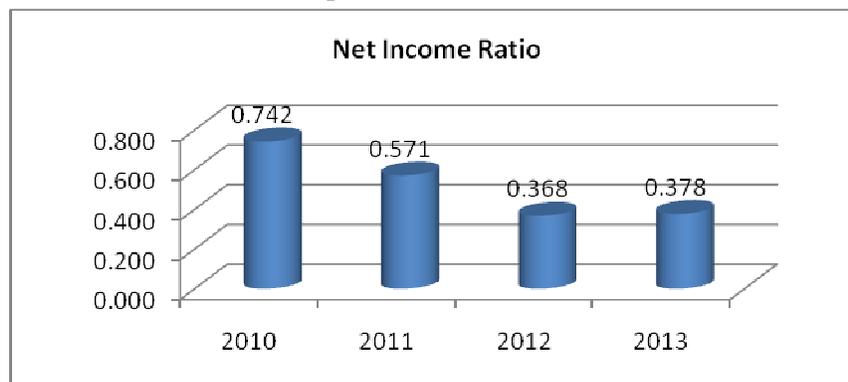
In this part ratios based on operating performance are calculated and analyzed. Return on equity is analyzed for efficiency; net income measures the effectiveness of the company; policy sales growth looks at trends in policy sales over time; the claims ratio in an insurance company measures how well sales are covering the cost of claims. Analysis based on average, standard deviation, minimum and maximum is done here. In the table below average, standard deviation, minimum and maximum at a glance are given-

**Table 4: Analysis of Ratio**

Variable	Obs	Mean	Std. Dev.	Min	Max
netincomer~o	4	.514525	.1783196	.3677	.7424
returnoneq~y	4	.179	.1660823	.081	.427
policysale~h	4	.2705	.386463	-.196	.726
Roa	4	.2375	.3309597	.052	.732
Claimsratio	4	.14675	.0799974	.072	.226
<b>debttoequi~o</b>	<b>4</b>	<b>1.35779</b>	<b>1.483654</b>	<b>3.579384</b>	<b>.5066231</b>

**Net income ratio:** The net income ratio is calculated by dividing net income by the total of earned premiums for a given period.

**Graph 1: Net Income Ratio**

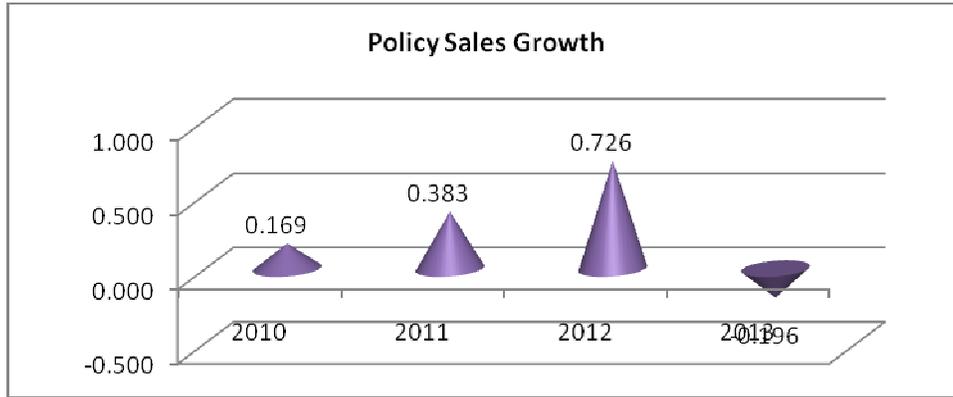


From above table 4, it can be saidthat the average of net income ratio in 4 years is 0.515. Standard deviation is 0.1783. So we can say deviation in net income ratio is not very high. Maximum net income ratio is 0.74 which is earned in 2010 and minimum is 0.368 in 2012.

From graph 1, itis also clearthat net income ratio was decreasing gradually.

**Policy sales growth:** A policy is the vehicle by which a sale is made. Policies are equivalent to units or volume, and in the world of business, the more units you sell, the higher your net income will be. Policy sales growth looks at trends in policy sales over time. It is calculated by dividing the difference between the current period's sales revenue and the previous period's sales revenue, and then dividing that difference by the previous period's sales revenue.

**Graph 2:Policy Sales Growth**

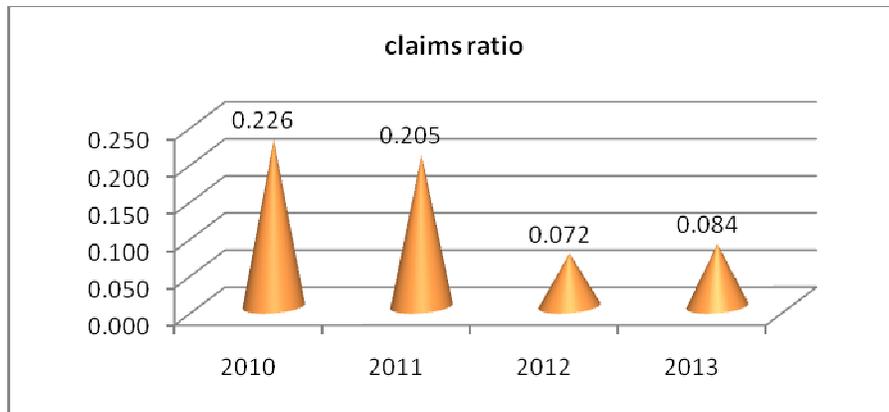


From table 4, it can be said that the average of policy sales growth in 4 years is 0.271. Standard deviation is 0.3864. So we can say deviation in policy sales growth is high. Maximum policy sales growth is which is 0.726 in 2012 and minimum is -0.196 in 2013.

From graph2, it is clear that policy sales growth was increasing rapidly upto 2012 but in 2013 it was decreased sharply.

**Claims Ratio and Time-to-Settle:** The claims ratio measures how well your sales are covering the cost of claims. It is calculated by dividing total claims per period by the total earned premium per period.

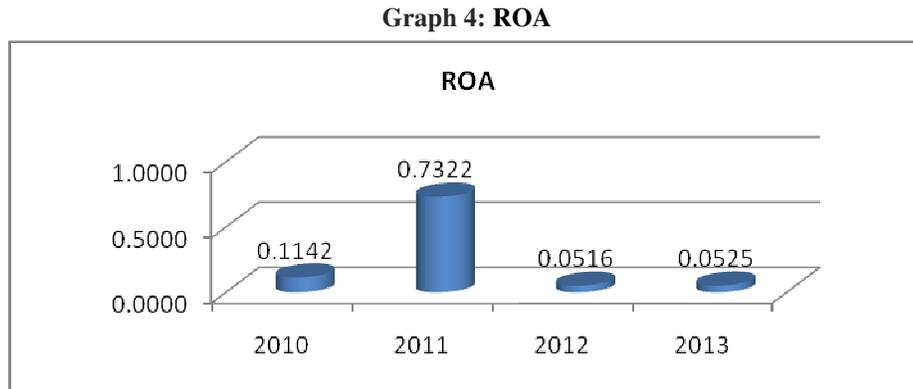
**Graph 3: claims ratio**



From table 4, it can be said the average of claims ratio in 4 years is 0.146. Standard deviation is 0.069. So deviation of ROA is not high. Maximum claims ratio which is 0.226 in 2010 and minimum is 0.072 in 2012.

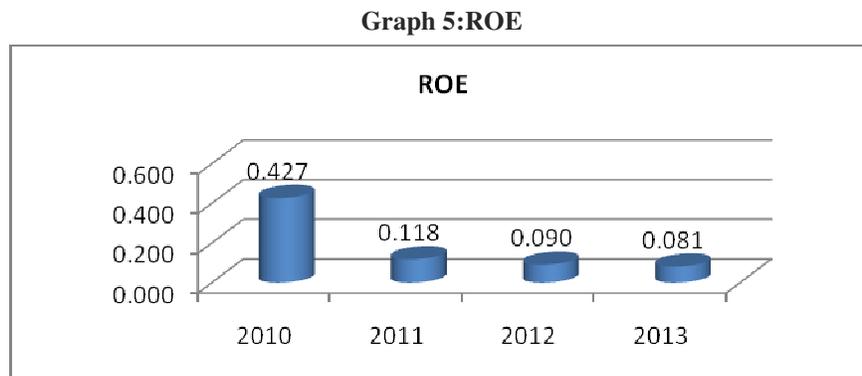
From graph 3 it is clear that claim ratio was decreasing over the years but it was again increasing in 2013. It indicates their sales were covering the cost of claims well till 2012 but after that it was not covering well.

**ROA:** Return on asset of the company is shown below.



From table 4, it can be said the average of ROA in 4 years is 0.2376. Standard deviation is 0.330957. So deviation in ROA is high. Maximum ROA which is 0.732 in 2011 and minimum is 0.052 in 2012. Graph 4 also indicates that ROA is fluctuating over the years.

**Return on Equity:** The return on equity (ROE) is a very common ratio looked at for all types of insurers and is calculated by dividing net income by shareholder equity.

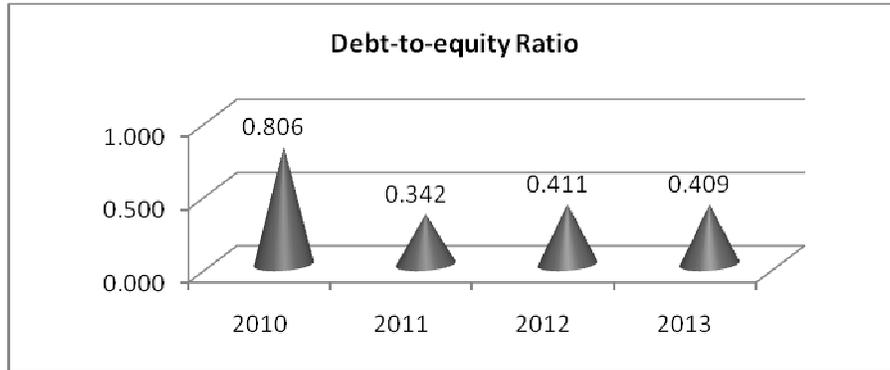


From table 4, it can be said the average of Return on Equity in 4 years is .179. Standard deviation is 16608. So we can say deviation in Return on Equity is not very high. Maximum Return on Equity is .0427 which is earned in 2012 and minimum is 0.081 in 2013. From graph same can be said that ROE was decreasing gradually so that firm's performance is becoming poor.

### Debt to Equity ratio

The debt-to-equity ratio (D/E), also known as the financial leverage ratio, is used by investors to determine the financial standing of a company. This ratio will show if an entity is reliant on debt financing.

**Graph 6: Debt-to-equity Ratio**



From table 6, it can be said the average of debt-to-equity ratio in 4 years is 1.35779. Standard deviation is 1.483654. So deviation in debt-to-equity ratio is very high. Maximum debt-to-equity ratio is .5066231 and minimum is 3.579384. Graph also represents increasing pattern of debt-to-equity ratio in last 3 years.

### Peer company analysis

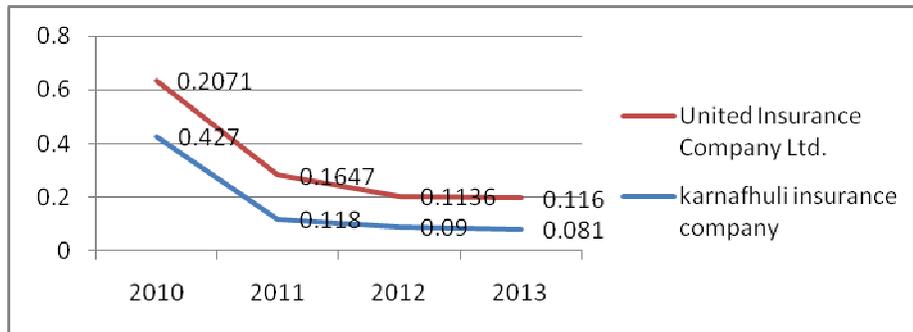
United Insurance Company Ltd (UICL) is a public limited general insurance company (non life) maintaining the traditional values of insurance business since commencement in 1985. The company transacts a wide range of general insurance business in Bangladesh including health plan scheme and has gradually developed goodwill and expertise in the field with sound and stable financial position.

**Table 5: ratios for United Insurance Company Ltd**

particulars	2010	2011	2012	2013
claims ratio	0.183	0.158	0.178	0.119
Net Income Ratio	1.3335	0.8553	0.7213	0.6427
Debt-to-equity Ratio	0.1664	0.1829	0.1782	0.1944
ROE	0.2071	0.1647	0.1136	0.116

**Comparison of performance between Karnaphuli Insurance Company and Peer Company ROE**

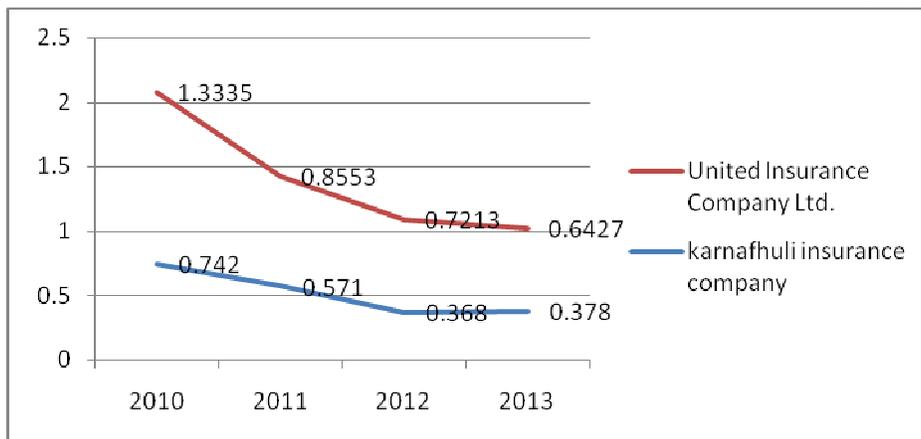
**Graph 7: ROE between Karnaphuli and United Insurance Company**



From the graph it is clear that ROE for both companies are decreased sharply from 2010 to 2011 and then continue to declining slowly. Overall Karnaphuli Insurance Company’s performance is poor compared to United Insurance Company Ltd.

**Net Income ratio**

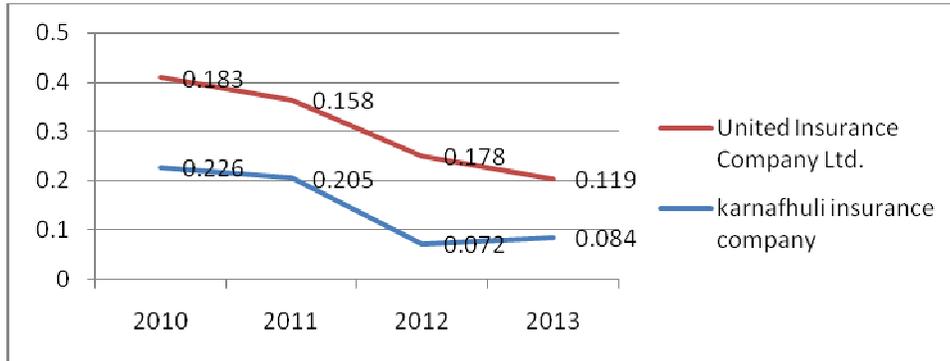
**Graph 8: Net Income ratio between Karnaphuli and United Insurance Company**



From the graph it can be said that both company’s net income ratio are decreasing over the years. Overall Karnaphuli Insurance Company’s performance is poor compare to United Insurance Company ltd.

**Claims ratio**

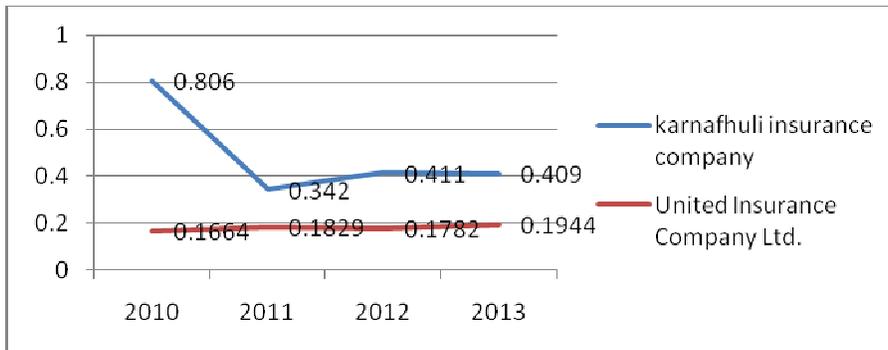
**Graph 9: Claims ratio between Karnaphuli and United Insurance Company**



From the graph it can be said that both company’s claims ratio is fluctuating over the years. Overall Karnaphuli Insurance Company’s ratios are fluctuated more compared to United Insurance Company Ltd.

**Debt-to-equity Ratio**

**Graph 10: Debt-to-equity ratio between Karnaphuli and United Insurance Company**



From the graph it is clear that peer company’s debt to equity ratio fell sharply in 2011 after that they were fluctuated. Both companies’ debt-to-equity ratio are fluctuating over the years. Overall ratios of United Insurance Company Ltd. are fluctuated more compared to Karnaphuli Insurance Company.

### Correlation among different variables

Correlation shows the linear relationship between two variables.

**Correlation Matrix**

	netinc~o	return~y	policy~h	Roa	claims~o	debtto~o
netinc~o	1.0000					
return~y	0.8959	1.0000				
policy~h	-0.0957	-0.1395	1.0000			
Roa	0.2948	-0.1583	0.1830	1.0000		
claims~o	0.9556	0.7251	-0.0676	0.5606	1.0000	
debtto~o	0.1568	-0.2950	0.2259	0.9897	0.4370	1.0000

From above correlation matrix table, the following findings can be drawn.

- ROE is strongly positively correlated with net income and the value is 0.8959.
- Policy sales growth is negatively correlated with ROE and net income and the values are respectively -.1395 and -.0957.
- ROA is positively correlated with policy sales growth, negatively correlated with ROE and positively correlated with net income. The associations are very weak.
- Claim ratio is positively related with ROA,ROE,net income and negatively related with policy sales growth,.Values are respectively .5606,7251 .9556 and -.0676.
- Debt to equity ratio is positively related with claim ratio,ROA,net income, policy sales growth,andnegatively related with ROE.The values are respectively.4370, .9897, .2259, .1568 and -.2950.

### Findings, recommendation and conclusion

#### Findings

1. Firm's bankruptcy risk is increasing over the years.
2. The firm is facing financial risk, since it does not use their debt very well.
3. Net income ratios are decreasing gradually, so that firm's performance is becoming poor.
4. Policy sales growth shows increasing trend up to year 2012 except year 2013. This year sales growth has reduced sharply.
5. There is a downward pattern in claim ratio except year 2013. It indicates that their sales were covering the cost of claims till 2012 but after that they were not covering those in a befitting manner.
6. The values of ROA are fluctuating over the years.
7. The values of ROE are decreasing gradually.
8. Debt-to-equity ratios are increasing in last 3 years.
9. From correlation matrix it can be said that debt equity ratio is positively correlated with claim ratio meaning, if debt equity ratio increases claim ratio also increases. Again debt equity ratio is positively correlated with ROA in a significant manner. At the same, time

debt equity ratio is negatively correlated with ROE. Again, there is a weak correlation of ROA with net income, ROE and policy sales growth.

### **Conclusion**

Currently, 62 insurance companies are operating in Bangladesh of which 44 are general and 18 are life. Of 35 insurance companies listed in share market, 9 are life and 26 are general. Among those, Karnaphuli Insurance Company Limited started its journey with paid up capital of 30.00 million in 1986. After analyzing four years data of Karnaphuli Insurance Company it can be concluded that, the company has lots of opportunities to improve its position. In the earlier year, company's performance was good, at the same time its bankruptcy risk was also low, but over the years company's performance is declining as they use more debt financing. So the company should work in a way by which they can turn their weakness into strength and meet the threats using its opportunities. From the comparison, it can be concluded that, United Insurance Company's performance is better than Karnaphuli Insurance Company. Therefore, Karnaphuli Insurance Company should follow some unique policy, so that the company can enjoy more advantage than the others.

## References

- Karnaphuli Insurance Co. (2012). [Online] Available from: <http://www.kiclb.com/> [Accessed: 19<sup>th</sup> June 2014]
- Fowzia, R., Debnath, N.C (2008), “Performance analysis of Insurance Companies in Bangladesh: A Focus on Credit Rating”, *DIU Journal of Business and Economics*. [Online], p. 1-12. Available From: <http://dspace.daffodilvarsity.edu.bd> [Accessed: 22<sup>th</sup> October 2014].
- Hossain, A., Zeheen, A. & Islam, A. (2013), “Socio-Economic Background and Performance of the Students at Presidency University in Bangladesh”, *Journal of Presidency University*., Available from: [http://www.wbiconpro.com/238-VC\\_Hossain.pdf](http://www.wbiconpro.com/238-VC_Hossain.pdf) [Accessed: 22<sup>th</sup> October 2014].
- Chron. (2015). *What Are the Key Performance Indicators for Insurance Companies?* Available from: <http://smallbusiness.chron.com/key-performance-indicators-insurance-companies-71236.html> [Accessed: 19<sup>th</sup> June 2014]
- Azcentral a Gannet Company.(2015). *What Are the Key Performance Indicators for Insurance Companies?* Available from: <http://yourbusiness.azcentral.com/key-performance-indicators-insurance-companies-28382.html> [Accessed: 18<sup>th</sup> June 2014]
- United Insurance Co. Ltd. Bangladesh (2006). Available from: <http://www.unitedinsurance.com.bd/Financial.html> [Accessed: 17<sup>th</sup> July 2014]
- Assignment Point (2015) [Online] Available from: <http://www.assignmentpoint.com/business/finance/report-on-problem-and-prospect-of-general-insurance.html> [Accessed: 17<sup>th</sup> July 2014]
- Pervan, M., Curak, M. & Marijanovik, I. (2010), “Dynamic Panel Analysis of B&H Insurance Companies’ Profitability”, *Recent Researches in Business and Economics*, p.1-6. Available From: <http://www.wseas.us/e-library/conferences/2012/Porto/AEBD/AEBD-24.pdf> [Accessed: 22<sup>th</sup> October 2014].
- Agiobenebo and Ezirim (2002) ‘Financial Management Imperatives of Intermediation Function Of Financial Institutions: Empirical Evidence from Nigeria’ Available from: [http://businessperspectives.org/journals\\_free/bbs/2006/BBS\\_en\\_2006\\_03\\_Ezirim.pdf](http://businessperspectives.org/journals_free/bbs/2006/BBS_en_2006_03_Ezirim.pdf) [Accessed: 2006]
- Adams and Buckle (2003) ‘Effective factors in corporate demand for insurance: empirical evidence from Iran’. Available from: [http://businessperspectives.org/journals\\_free/imc/2011/IMC\\_2011\\_3\\_Sehhat.pdf](http://businessperspectives.org/journals_free/imc/2011/IMC_2011_3_Sehhat.pdf) [Accessed: 15<sup>th</sup> February 2015]

## Appendix

### Financial Highlights at a Glance TAKA IN MILLION (Except SL No 10 & 14)

SL No.	Particulars	2009	2010	2011	2012	2013
1	Authorized Capital	300.00	600.00	600.00	600.00	600.00
2	Paid up Capital	133.47	307.66	369.20	369.20	369.20
3	Net Premium Income Less Re-Insurance	112.77	146.53	137.11	156.69	165.99
4	Net Claim Less Re-Insurance	36.28	33.04	28.05	11.21	13.95
5	Underwriting Profit	17.90	20.93	28.95	49.96	40.18
6	Investment	259.47	620.92	727.79	747.98	790.89
7	Net Profit before Tax	62.51	123.05	101.48	86.95	92.26
8	Net Profit after Tax	54.29	108.79	78.22	57.62	62.66
9	Dividend Amount	40.13	61.53	55.38	46.15	46.15
10	Rate of Dividend	%15	%20	%15		
11	Premium Deposit	23.64	25.36	38.20	37.71	36.39
12	Total Reserve	128.51	188.91	210.34	263.79	245.99
13	Total Assets	539.51	952.27	1068.16	1117.27	1194.63
14	Earning Per Share	4.47	3.98	2.35	1.56	1.70