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Influential Factorial Analysis of Affecting Corporate Insurance Buying in Bangladesh

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Abstract:

The aim of the study is to investigate the influential factorial analysis of affecting corporate insurance buying in Bangladesh. In this study, 23 factors have been used in the study from existing literature for factorial analysis. The study has used Mean Score, Standard Deviation, Weighted Mean score and Ranking applying SPSS23.0 Version. Forty seven (47) Dhaka Stock Exchange (DSE) Listed Insurance Company's top Executives have been chosen for the study. 12 Life insurance companies and 35 Non-Life Insurance companies' top executives responses have collected on Five Point Likert Scale. Ranking has used Kaiser – Meyer - Olkin (KMO) & Bartlett's Test of **Sphericity for testing sampling adequacy. Communalities, Principal Component analysis, Rotated Varimax, Correlation Matrix for Ranking of factors have been also used for sample validity. It is found from the study that following factors are affecting corporate insurance buying in Bangladesh viz: Moral Hazard and Policy Reliability Factor; Factor of Governance and Corporate Risk Financing For Corporate Claims for Damage; Factor of Tailor Made Insurance Products on Severity of Loss and Affordability; Factor of Quality Insurance Products with wide Coverage and Factor of Physical Hazard of Corporate Firms. The findings are useful for Government, policymakers, regulators, insurance authority and academicians. It is also useful for further study.**

Keywords: Factor, Corporate Insurance Buying, Ranking of factors, Bangladesh.

1.0 INTRODUCTION

Insurance and corporate firms in different industries of the economy are interdependent for their business and sustainability. Insurance being a cooperative device is mostly useful to give corporate firms sustainability under the situation of risk & uncertainty. Insurance industry for its growth and sustainability depend on the corporate firms being members of the cooperative mechanism to a largest extent. Corporate firms for financing its corporate risk and investment is assured by insurance industry through different schemes directly & indirectly. Most importantly, Government and its different agencies like Bangladesh Bank & Insurance Development Regulatory Authority (IDRA) have made some regulatory compulsions for the corporate firms to buy or recourse to be insured for financing corporate risk and business-nationally and

internationally. All these require insurance companies to consider different factors while developing different insurance policies & products for corporate risk financing and investment.

The demand for insurance in Bangladesh is huge and immense as the growing manmade and natural disasters in Bangladesh increasing day by day. From the point of view of security feeling of the human society for their assets & property safety always demands for security measures as insurance. Insurance is a mechanism which helps in business, trade, commerce, industry, import-export hassle free operations. An insurance company for a premium gives protection & security to the business owner, property & assets owner. People involved in business, trade & commerce get mental peace due to the protection measures of the insurance companies. As the insurers reinstate the insured in its previous positions by financial remediation. So corporate need for buying insurance in Bangladesh is immense. In view of above analysis, the study has undertaken an effort for identifying factors affecting corporate insurance buying in Bangladesh.

2.0 OBJECTIVES OF THE STUDY

The main objective of the study is to analyze the factors mostly affecting corporate insurance buying in Bangladesh. To perform the main objective, the following specific objectives have been performed

I. Identification of the factors affecting corporate insurance buying in Bangladesh
II. Ranking the issues on the basis of their weighted mean score
III. To put a name of the factors affecting corporate insurance buying mostly in Bangladesh.

3.0 REVIEW OF RELATED LITERATURE

A review of current available literature has been made to identify the research gap or problem and to develop a theoretical framework for developing hypotheses. It is found from the review literatures that there is a number of national and international evidences on the buying role of insurance on corporate perspective of Bangladesh. The study has reviewed existing available literature in the following paragraphs:

Kotecha, M. K. (2002) stated that the role of insurance in asset-backed securities. Capital Markets Assurance Corporation. The investor accepted comprehensively the financial guarantee insurance as an advantageous and expanding credit enhancement technique. It is cheap for various types of financial transactions in a continuous assets backed- security markets The market participants as issuers , investors , brokers , bankers and other players may be gained from a better knowledge of financial guarantee insurance.

From another study ***Hoyt, R. E., & Khang, H. (2000)*** found from their empirical study hypothesis through regression results that insurance purchases play an important a role in reducing expected bankruptcy costs arising out of conflicting interests between managers and shareholders , the underinvestment problem & the real services, tax motivations for corporate property insurance purchases, growth opportunity for corporate firm and also regulated firms appear to buy less insurance than unregulated firms initiating the corporate demand for insurance.

Han, L. M. (1996) conduct a study on the role of insurance assuming rational expectations in determination of the firm value in shaping efficient compensation contracts. The study found that for fixed compensation for mangers, insurance coverage plays an optimal role to remove insolvency. Providing compensation based on the company's liquidating value, full insurance is optimal which ensures for a higher reliance on performance compensation, inducement of higher managerial efforts in both business operations versus risk management ensures a higher value of the firm. Reliance on stock price with compensation, fragmented policy or no policy is rational as the cost arising out of the imperfect impounding effect of the insurance coverage in the stock price.

Ashby, S. G., & Diacon, S. R. (1998) have showed the possibility of decisions on corporate purchases of insurance may have a strategic direction, focusing on the ability of insurance to add value to the firm by limiting the impact of risk on risk adverse stakeholders or reducing the cost of such risk. The principle

argument in their research under certain circumstances that the corporate need for buying insurance may be accelerated by the company's strategic decisions on price risk and output. Small numbers of relatively large firms which compete with each other strategically are characterized by most real world markets. Insurance and risk management can even have a strategic consequence focusing on such oligopolistic markets; they reveal that there is interdependency between firms. The risk management and the corporate purchase behavior of insurance of the firm may be influenced strategically in three main ways : firstly, a motivation for risk neutral company controlling risk may be provided by the strategic nature of competition ; secondly the company's risk controlling decisions cannot be isolated but the actions of its rivals may developed , and lastly insurer ,as contrary to other risk controlling technique , may help in facilitating cooperation to coordinate among competing entities for their own benefit.

Gaganis,atel.,(2019) A study has carried out on the seriousness of insurance inside the monetary area is continuously growing. Particularly, after the recent monetary disorder, the field of investigation surveys the features motivating the risk-taking of this business has been suggested. The objective of the current research is to explore the interaction amid national philosophy and risk of assurance companies. The researchers computed the cultural undertones, computing national philosophy seeing the magnitudes drawn by the Hofstede method & risk-taking applying the 'Z-score'. The sample was consisted of 801 life and non-life assurance companies functioning across 42 nations over the period of 9 years (2007–2016). The researchers have found a robust & momentous affiliation among insurance companies' risk-taking & social physiognomies. The characteristics are as individuality, doubt evasion & authority distance. The Outcomes endure strong to a diversity of company & nation-specific controls. There are also substitute events of risk, sample provisions & tests considered to lessen endogeneity.

Asai, Y. (2019) his investigation highlighted some empirical studies tried to find out the demands for insurance for listed companies. But very few researches have been conducted on SMEs demands for insurance due to the scarcity of sufficient data. He conducted research on SME' demand for insurance and found the following three results:(i) SMEs less relation with banks demands more insurance, (ii) SMEs required for large tax incentives may demand or buy excess insurance and (iii) SMEs with larger propensity to bankruptcy may demand less insurance.

Shawar, K., & Siddiqui, D. A.(2019) have focused on the indicators of pecuniary performance of assurance companies of Pakistan using total written premium (GWP), Claim payments (CLM), Reinsurance dependence (Rei), Administration expenditure (MGE), rate of Interest (IR), Size of the company (SIZ), Leverage of the firms (LEV), Real GDP (RGDP) growth taking as factors (independent variables). On the other hand Selling Profitability (SAP), Income of Investment (INP) & Underwriting profit (UWP) were taken as proxy dependent variables of economic performance covering the data covering five 5 assurance firms for the period of 5 years (2013-2017) used the panel regression method. The study found the gross written premium has the important effect on all three measure of profitability a negative impact on sales and investment profit of the company size. On the other hand, the claims payments, reinsurance dependence, GDP growth, rate of interest & organization expenses have an unimportant association with all three dependent variables. Therefore, in order to advance the working and economic performance of the assurance sectors in Pakistan, extra emphasis should be given to issues the rise premium.

Siddiqi, T., & Tangem, S. (2018) have conducted a study on the employee performance of the impact of work environment that has created compensation and motivation of the Insurance sector created in Bangladesh. Firstly, they used a structured questionnaire by using 5 point Likert 5 scale on 150 respondents. The respondents are presently working at various posts of insurance companies operating in Bangladesh. Secondly, by using structural equation model processing the collected data have proved all the factors significantly create influence on the performance of the employee. The study can contribute positively on the recruiters of HRM department of various financial institutions as for insurance ones.

Ullah, M. S., at. ell (2019) have found that the board independence is significantly related with the extent of CSR disclosures indicating independent directors' importance in insurance companies enhancing

organizational legitimacy with influencing management making more CSR disclosures. They also show the female directors importance on insurance boards positively associated with the extent of CSR disclosures which is consistent with the findings of previous research in the context of non-financial companies suggesting females may bring a number of strengths to increase board sensitivity of CSR practices and disclosures (Postet al., 2011;Williams,2003).

Ullah, G. M., at .el. (2016) They study the determinants serving as significant predictors of non-life insurance firms' profitability in Bangladesh with panel data using convenience sampling method of eight different insurance companies (2004-2014) to prove the significant relationship between Profitability (ROA), & independent variables such as Underwriting Risk, Expense Ratio, Solvency Margin, Premium Growth, Asset Growth, and Company Size using (OLS) regression model. They have found negative relationship between Profitability (ROA) & Underwriting Risk, and Size. They also have found positive relationship Profitability (ROA) between Expense Ratio, Solvency Margin, and Growth. This study helps financial managers to understand internal factors to achieve greater profitability maximizing the market value of the respective insurance company.

Another study by Main, B. G. (1983) discovered that the widely held diversified equity holder giant corporation those purchase of property/liability insurance coverage considers huge transactions cost involved supposedly wasteful. Although some respondents of a survey of the *Fortune* 500 found that large companies find insurance purchase lucrative tools of compensating for many types of market imperfections.

MacMinn, R. D. (1987) have proposed a model of competitive financial market economy where exists not only stock and bond markets but also insurance products markets. He has showed in his model the corporate value of the insured firm tantamount that of the uninsured firm having no active role assuming in managing corporate risk, incorporating the costly bankruptcy and agency problems. He also has found that the corporation's purchase of insurance having an incentive which eliminates or reduces the bankruptcy and/or agency costs.

MacMinn, R. D., & Han, L. M. (1990) have created a model of a corporation characterized by a positive probability of insolvency in a financial market setting showing the positive insolvency probability separates the private from the social costs of the firm's operations and purchasing liability insurance will not create value but shift value between claimholders if others things being equal. The insurance may change value as the corporate value does not fully reflect the value of all the stakeholders' claims. The analysis showing management has an incentive to purchase insurance and thus the insurance eradicates the difference between private and social costs.

A study by ***Mwangi & Wanjugu (2015)*** have showed that as the providers of long- term funds, the insurers creates a sense of peace to economic development promoting financial stability in the financial markets playing as the risk absorption role covering risk on their capacity to create profit or value for their shareholders .

Nguyen, D. K., & Vol, D. T. (2020) have conducted a research on the examination of the association amid Enterprise Risk Management (ERM) acceptance & solvency for public listed underwriters in the European Union. They found the control for endogeneity problem. They have also shown the ERM acceptance insurers experimented a reduction in their solvency level. That in turn has triggered their pecuniary weakness in the case of unanticipated shocks. Company -specific features of leverage, ROA, combined-ratio and business type are found to be suggestively upsurge the EU insurers' solvency. Whereas the effect of company size & age has found unimportant. Furthermore, the insurers accepted the ERM assume the collective features of advanced achievement, developed leverage, greater size & additional differentiated trades. Lastly, the demand of the market is an significant feature of ERM acceptance & insurers solvency.

4.0 Methodology of the Study

The present study has used primary data from opinion survey. **23** factors have been chosen for investigation in the current study from the review of related available existing literatures. Accordingly, in

the study, the enumerators have collected responses by using close –end questionnaire. The survey instrument has served for conducting direct interview of 47 top executives from 12 Life insurance and 35 Non -Life insurance companies(All insurance Companies are Dhaka Stock Exchange Limited (DSE) Listed . The study has also used SPSS23.0 version for processing data. Researcher has employed 'Varimax Rotated Factor Analysis', mean, standard deviation, maximum and minimum for descriptive interpretations. The study has applied bivariate correlation between variables for interpreting significant associations of variables going for construction of factors on underlying relationship. It is also used principal component analysis for identifying orthogonal factors. And finally has used weighted factor score for ranking the factors in order of their magnitudes. Besides, the study has examined adequacy of data in order to decide whether Varimax Rotated Factory Analysis can be used or not. The study used ***alpha*** for examining the consistency as well as reliability of score derived from the opinions on Five Point Likert Scale. The study has also used **Kaiser-Meyer-Olkin (KMO**) Measure of Sampling Adequacy and Bartlett's Test of Sphericity.

5.0 Analysis and Discussion of the Study

The following sections have been included for Influential Factorial Analysis of affecting Corporate Insurance Buying in Bangladesh.

5.1 Identification of source of Factor Variables that influence the Corporate Insurance Buying in Bangladesh:

At this stage, researcher has made an extensive review of existing available literatures in order to identify factors variables influencing the corporate insurance buying with a view to examine in the context of Bangladesh. The study has identified 23 factor variables as shown in the following table:

Table: 5.1 Identification of Variables Influencing Corporate Insurance Buying in Bangladesh.

SN	Variables Considered	Relevant Sources of Literatures
X_1	Scope of Protection	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017); Core, J. E. (1997).
X_2	Affordability of Premium	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017); Grace, M. F., & Rebello, M. J. (1993).
X_3	Quality of Service	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017); Han, L. M., & MacMinn, R. (2006).
X_4	Easy access to Insurer Operator	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_5	Corporate Governance Status	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_6	Damages to business properties due to fire, lightning, explosion etc.	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_7	Loss of money or business properties & premises due to theft, burglary	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_8	Death, injury or disease of employee during employment	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017) ; Hoyt, R. E., & Khang, H. (2000).
X_9	Damages to machineries/equipment because of mechanical breakdown	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_{10}	Protection from legal liability upon employees'	Mokhtar, H. S. A., Aziz, I. A., & Hilal,

	injury/disease during employment	N. M. (2017) ; Outreville, J. F. (2014).
X_{11}	Loss of money/properties while in transit or being kept on business premises	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_{12}	Compensation for employees' costs of general medical treatment, hospitalization	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017); Outreville, J. F. (2014).
X_{13}	Loss of income due to interruption to business activities	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_{14}	Losses due to fraud committed by employees	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_{15}	Lawsuit arising from wrongful advice by employees	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017); Outreville, J. F. (2014).
X_{16}	Reliance on Group Policy	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_{17}	Default in payment from clients for products & services rendered	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017); Mayers, D., & Smith, C. W. (1982)
X_{18}	Loss of money/properties because of employee fraud	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017); Ashby, S. G., & Diacon, S. R. (1998).
X_{19}	Complexity of Procedures	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017); Hamid, M. A., Osman, J., & Nordin, B. A. A. (2009).
X_{20}	Recommendation from Agent, Broker and Banks	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_{21}	Death/injury to 3rd party or damages to 3rd party's property due to incident that relates to your business	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017); Davidson, W. N., Cross, M. L., & Thornton, J. H. (1992).
X_{22}	Protection from legal liability upon third party injury or damage to third party's property	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).
X_{23}	Additional Monetary Rewards	Mokhtar, H. S. A., Aziz, I. A., & Hilal, N. M. (2017).

Source: From Literature survey.

5.2 Ranking of Factors Variables on Adjusted Mean Score.

The very objective this section is to classify the factor variables influencing corporate demand for insurance in Bangladesh on the basis of adjusted mean score as follows:

Table: 5.2 Showing the Ranking of Factor Variables on Adjusted Mean Score

Sl. No.	Factor Variables	Mean Score $\bar{x}$	Standard Deviation σ	Adjusted Mean Score $\frac{\bar{x}}{\sigma}$	Ranking
X_6	Damages to business properties due to fire, lightning, explosion etc.	4.6809	0.81043	5.77575	I
X_1	Scope of Protection	4.3617	0.96517	4.51912	II
X_2	Affordability of Premium	4.2979	1.08176	3.97302	III
X_3	Quality of Service	4.3404	1.16613	3.72209	IV

X_{10}	Protection from legal liability upon employees' injury/disease during employment	3.617	1.13354	3.1909	IX
X_7	Loss of money or business properties & premises due to theft, burglary	3.9574	1.10252	3.58947	V
X_9	Damages to machineries/equipment because of mechanical breakdown	4.1064	1.20206	3.41611	VI
X_{12}	Compensation for employees' costs of general medical treatment, hospitalization	3.8511	1.14168	3.37317	VII
X_{16}	Reliance on Group Policy	3.7174	1.10881	3.35258	VIII
X_{20}	Recommendation from Agent, Broker and Banks	3.6809	1.25293	2.93779	VIII
X_5	Corporate Governance Status	3.7447	1.24181	3.0155	X
X_{23}	Additional Monetary Rewards	3.4255	1.13721	3.01222	XI
X_4	Easy access to Insurer Operator	3.8298	1.2738	3.00658	XII
X_{22}	Protection from legal liability upon third party injury or damage to third party's property	3.3191	1.1441	2.90109	XIV
X_{14}	Losses due to fraud committed by employees	2.9787	1.35918	2.19156	XIX
X_{11}	Loss of money/properties while in transit or being kept on business premises	3.6809	1.27017	2.89793	XV
X_{21}	Death/injury to 3rd party or damages to 3rd party's property due to incident that relates to your business	3.7447	1.34274	2.78883	XVI
X_{13}	Loss of income due to interruption to business activities	3.5106	1.31665	2.66633	XVII
X_8	Death, injury or disease of employee during employment	3.5745	1.39478	2.56274	XVIII
X_{17}	Default in payment from clients for products & services rendered	3.2128	1.55949	2.06014	XX
X_{18}	Loss of money/properties because of employee fraud	3.1277	1.58275	1.9761	XXI
X_{19}	Complexity of Procedures	3	1.53226	1.95789	XXII
X_{15}	Lawsuit arising from wrongful advice by employees	2.9574	1.61457	1.83172	XXIII

Source: Survey Instruments
Notes: Data have been compiled by researcher by SPSS23.0 Version.

The study has ranked the factor variables on the basis of adjusted mean score of opinions of sample respondents. It has been found from the analysis of table 5.2 that variable X6: Damages to business properties due to fire, lightning, explosion etc. and X_1: Scope of Protection with factor scores 4 & above have been ranked I and II. This implies that insurance companies give most importance to these factor variables while making policy for determining corporate demand for insurance in Bangladesh. It has also been found that factor variables X_2, X_3, X_{10}, X_7, X_9,, X_{12}, X_{16}, X_{20}, X_5, X_{23}, and X_4 with factor scores of 3.00 to 4.00 have been ranked from III to XII on the basis of adjusted factor variable score. These variables are categorized as second important factor variables influencing insurance companies while determining corporate demand for insurance in Bangladesh. The remaining 10 factor variables with mean score of less than 3.00 have been ranked from XIII to XXIII in order of their magnitudes. It can therefore, be inferred from this descriptive analysis that the study has found three categorical factor variables on the basis of adjusted factor score as well as simple mean score of factor variable variables. The rankings of factor

variables on adjusted factor score and categorization of them on simple mean score imply the weight given by insurance companies while determining demand for corporate insurance in Bangladesh.

5.3 Ranking of Factors Influencing the Corporate Insurance Buying in Bangladesh on Weighted Factor Score

This study has undergone factor analysis of opinions of 47 respondents articulated on five point Likert Scale. In this case, researcher has analyzed and interpreted the output measures derived from factor analysis in the following paragraphs:

First of all, researcher has examined sampling adequacy on KMO technique and tested the usefulness of factor analysis as an appropriate technique on the basis of Bartlett's Test of Sphericity. The output measures are as follows:

Table: 5.3 Showing Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy& Bartlett's Test of Sphericity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy.		.694
Bartlett's Test of Sphericity	Approx. Chi-Square	953.919
	df	253
	Sig.	.000

Source Survey Instruments

Notes: Data have been compiled by the researcher using SPSS23.0 Version

The above table shows the results of **Kaiser – Meyer - Olkin (KMO) & Bartlett's Test** of factors influencing corporate buying of insurance. The general wisdom of KMO is that high values (between 0.50 and 1.00) indicate that factor analysis is appropriate. Values below 0.50 imply that factor analysis may not be appropriate. **KMO** measures the Sphericity of sampling adequacy as an index used to examine the appropriateness of factor analysis. In this case, **KMO** reveals the sampling adequacy indicating (Value of .0.50 < KMO < 1.00) i.e. .694 for Factor-1, Factor-2, Factor-3, Factor -4 and Factor -5 respectively i.e. appropriate for the same. **Bartlett's Test of sphericity** is a test of statistics used to test the hypothesis that the variables are uncorrelated in the population. The population correlation matrix is an identity matrix, each variable correlates perfectly with itself (r=1) but has no correlation with the other variables (r= 0).**Bartlett's Test of Sphericity** indicates that the approximate chi-squire values is 953.919 for Factor-1, Factor-2, Factor-3, Factor -4 and Factor -respectively with 253 (df) for at 0.05 levels of significance. Hence, the factor analysis is considered as an appropriate technique.

The study has then measured bivariate correlations for exploring the variables leading to the formation of different clusters, principle component matrix for identifying number of orthogonal factors on Eigen Value and standardized rotated factor matrix for determining character of independent factors derived as output from SPSS Software. Finally, the study has determined weighted factor scores for ranking the factors in order of their magnitudes. These have been discussed in the following sub-sections:

5.3.1 Analysis of Zero-Order Correlation Matrix:

The zero order correlation matrix of 23 variables has been shown in ***Appendix-6.1*** From the analysis of zero order correlation matrix of **23** variables, it has been found that most of the variables are found not significantly correlated. Besides, 23 variables are found to be making independent clusters of their own on the basis of their underlying relationship. In first instance, variable 23 is found to have significantly correlated with variables X_2, X_7, X_{11}, X_{15}, X_6, X_{17}, X_{18}, X_{20}, X_{21} and X_{22} at 1 percent level. This is going to

form a major cluster. Variable X_2 has been found to have significantly associated with variables X_3, X_4, X_6, X_{11}, X_{21}, and X_{23} at 1 percent level. This is going to form another cluster of variables. Variable X_{14}(Losses due to fraud committed by employees) has been found significantly associated with variables- X_1, X_5, X_8, X_9 and X_{12} at 1 percent level. Variable X_{13} has been found significantly correlated with the variables X_8, X_{11}, X_{12}, X_{19}, and X_{21} at 1 percent level. The significant association between variables at 1 percent level and underlying relationship between variables are going to form independent group of variables influencing insurance companies while determining corporate demand for insurance in Bangladesh.

5.3.2 Analysis of Principal Component Matrix of 23 Variables

The Principal Component Matrix of 23 variables has been shown in ***Appendix: 6.2.*** From the analysis of the principal component matrix, it has been found that five factors can be selected on the basis of Eigen Value Criterion of 1 or above. These five factors are orthogonal implying the existence of zero correlation between factors. Besides, total variance explained by these five factors is found to be 75.69%. This implies that the study has considered most of the relevant variables influencing insurance companies while determining corporate demand for insurance in Bangladesh. It has also been evident from the analysis of communalities that all the values of communalities of 23 variables are above 3.00. This indicates that all the variables understudy have explained a very good exposure to other variables and have shared very high variance with other variables being considered in the present study.

5.3.3 Identification of Factors on Principal Component Analysis

The study has formed factors of variables with factor loadings of 0.50 and above. The study has examined reliability of factor construct as well as of opinion collected from conducting interview of sample respondents on five point likert scale through Cronbach's Alpha ***(See Appendix6.3)*** Any factor construct or variable with Cronbach's Alpha of 0.70 and above is considered to be reliable. In the present study, Cronbach's Alpha of all five factors is found ranging from 0.700 to 0,891 and average alpha stands is 0.8384. All these indicate that error variance is low and reliability of all factors derived from data collected on five point likert scale is very high. It can therefore, be said that the factor constructs as well as information collect on five point likert scale is reliable and consistent. It has analyzed and interpreted all the five factors logically in the following paragraphs:

Table 5.4: Factor 1, Moral Hazard and Policy Reliability Factor

Variable Symbol	Factor Variables	Factor Loadings
X_{15}	Lawsuit arising from wrongful advice by employees	.766
X_{16}	Reliance on Group Policy	.775
X_{17}	Default in payment from clients for products & services rendered	.896
X_{18}	Loss of money/properties because of employee fraud	.829
X_{23}	Additional Monetary Rewards	0.682
Variance Explained		42.728%

Source: Source Survey Instruments

Notes: Data have been compiled by the researcher using SPSS23.0 Version

It has been found from the analysis of Factor 1 that five variables with factor loadings ranging from high to very high have constituted a most important factor. In this factor, all the variables are found positively correlated with lowest error variance. Besides, all the variables constituting the factor have accounted for 42.728% of the total variations, indicating a major cluster. It can therefore, be concluded that insurance companies understudy have considered most important variables like default on payment by the client, loss of money, liability from potential lawsuit for claim and reliability of insurance policy with utmost

importance while determining the corporate demand for insurance in Bangladesh. Therefore, these have led to the formation an important dimension 'Moral Hazard and Policy Reliability Factor' in the study.

Table 5.5: Factor 2, Factor of Governance and Corporate Risk Financing For Corporate Claims for Damage

Variable Symbol	Factor Variables	Factor Loadings
X_1	Scope of Protection	.785
X_5	Corporate Governance Status	.709
X_8	Death, injury or disease of employee during employment	.667
X_9	Damages to machineries/equipment because of mechanical breakdown	.737
X_{10}	Protection from legal liability upon employees' injury/disease during employment	.833
X_{13}	Loss of income due to interruption to business activities	.739
X_{14}	Losses due to fraud committed by employees	.827
Variance Explained		11.982%

Source: Source Survey Instruments
Notes: Data have been compiled by the researcher using SPSS23.0 Version

It has been observed from the analysis of Factor 2 that (7) seven variables with factor loadings ranging from moderately high to very high have constituted a second most important factor. In this factor, all the variables are found positively correlated with minimum error variance. Besides, all the variables consist of the factor have accounted for 11.982% of the total variations, highlighting a moderate cluster. It can therefore, be concluded that insurance companies understudy have considered moderately important variables such as Scope of Protection, Corporate Governance Status, Death, injury or disease of employee during employment, Damages to machineries/equipment because of mechanical breakdown, Protection from legal liability upon employees' injury/disease during employment, Loss of income due to interruption to business activities and Losses due to fraud committed by employees. Therefore, these have led to the formation a moderately important dimension 'Factor of Governance and Corporate Risk Financing for Corporate Claims for Damage 'in the study.

Table 5.6: Factor 3, Factor of Tailor Made Insurance Products on Severity of Loss and Affordability

Variable Symbol	Factor Variables	Factor Loadings
X_2	Affordability of Premium	.856
X_4	Easy access to Insurer Operator	.911
X_6	Damages to business properties due to fire, lightning, explosion etc.	.822
X_{21}	Death/injury to 3rd party or damages to 3rd party's property due to incident that relates to your business	.734
Variance Explained		9.085%

Source: Source Survey Instruments
Notes: Data have been compiled by the researcher using SPSS23.0 Version

It has been observed from the analysis of Factor 3 that (4) four variables with factor loadings ranging from moderately low to high have constituted a third most important factor. In this factor, all the variables are found positively correlated with moderate error variance. Besides, all the variables consist of the factor have accounted for 9.085% of the total variations, focusing a low to moderate cluster. It can therefore, be

concluded that insurance companies understudy have considered low moderate important variables such as Affordability of Premium, Easy access to Insurer Operator, Damages to business properties due to fire, lightning, explosion etc. and Death/injury to 3rd party or damages to 3rd party's property due to incident that relates to your business .Therefore, these have tend to the formation a low to moderate important dimension 'Factor of Physical Hazard of Corporate Firms' in the study.

Table 5.7: Factor 4, Factor of Quality Insurance Products with wide Coverage

Variable Symbol	Factor Variables	Factor Loadings
X_3	Quality of Service	.901
X_{12}	Compensation for employees' costs of general medical treatment, hospitalization	.734
X_{19}	Complexity of Procedures	.767
X_{22}	Protection from legal liability upon third party injury or damage to third party's property	.756
Variance Explained		7.145%

Source: Source Survey Instruments
Notes: Data have been compiled by the researcher using SPSS23.0 Version

It has been observed from the analysis of Factor 4 that (4) four variables with factor loadings ranging from low to high have constituted a fourth most important factor. In this factor, all the variables are found positively correlated with moderate to high error variance. Besides, all the variables consist of the factor have accounted for 7.145% of the total variations, focusing a low to moderate cluster. It can therefore, be concluded that insurance companies understudy have considered low to moderate important variables such as Quality of Service, Compensation for employees' costs of general medical treatment, hospitalization, Complexity of Procedures & Protection from legal liability upon third party injury or damage to third party's property .Therefore, these have tend to the formation a low to moderate important dimension 'Factor of Tailor Made Insurance Products on Severity of Loss and Affordability ' in the study.

Table: 5.8 Factors 5, Factor of Physical Hazard of Corporate Firms

Variable Symbol	**Factor Variables**	**Factor Loadings**
X_7	Loss of money or business properties & premises due to theft, burglary	.675
X_{11}	Loss of money/properties while in transit or being kept on business premises	.605
X_{20}	Recommendation from Agent, Broker and Banks	.834
Variance Explained		4.75%

Source: Source Survey Instruments
Notes: Data have been compiled by the researcher using SPSS23.0 Version

It has been observed from the analysis of Factor 5 that (3) three variables with factor loadings ranging from lowest to high have constituted a fifth most important factor. In this factor, all the variables are found positively correlated with moderately to high error variance. Besides, all the variables consist of the factor have accounted for 4.75% of the total variations, focusing a low to moderate cluster. It can therefore, be concluded that insurance companies understudy have considered lowest to moderate important variables such as Loss of money or business properties & premises due to theft, burglary, Loss of money/properties while in transit or being kept on business premises and Recommendation from Agent, Broker and Banks.

Therefore, these have tend to the formation a low to moderate important dimension 'Factor of Physical Hazard of Corporate Firms' in the study.

5.3.3: Analysis of Ranking of Factors Influencing the Corporate Insurance Buying on the Weighted Mean scores

Table-6.9: Ranking of Factors Influencing the Corporate Demand for Insurance

Factor No	Factor	Mean Score	Ranking
1	Moral Hazard and Policy Reliability Factor	4.115	I
2	Factor of Governance and Corporate Risk Financing For Corporate Claims for Damage	3.924	II
3	Factor of Tailor Made Insurance Products on Severity of Loss and Afford	3.291	IV
4	Factor of Quality Insurance Products with wide Coverage	3.255	V
5	Factor of Physical Hazard of Corporate Firms	3.496	III

Source: Source Survey Instruments
Notes: Data have been compiled by the researcher using SPSS23.0 Version

It has been evident from the analysis of all the factor variables and factors presented at Table 5.3 that five factors have been ranked on the basis of weighted mean scores. The first and most important factor is 'Moral Hazard and Policy Reliability Factor' with weighted mean score of 4.115. This has been ranked I for its highest magnitudes and highest variation accounted for. This factor is composed of variables: Lawsuit arising from wrongful advice by employees, Reliance on Group Policy, Default in payment from clients for products & services rendered, Loss of money/properties because of employee fraud and Additional Monetary Rewards. This is found to be at par with the real life scenario and practices of insurance companies operating in Bangladesh. The second most important factor is 'Factor of Governance and Corporate Risk Financing for Corporate Claims for Damage' with weighted mean score of 3.924. This factor is composed of variables with higher factor loadings: Scope of Protection, Corporate Governance Status, Death, injury or disease of employee during employment, Damages to machineries/equipment because of mechanical breakdown, Protection from legal liability upon employees' injury/disease during employment, Loss of income due to interruption to business activities, and Losses due to fraud committed by employees. This factor has been found to be more important to the insurance companies understudy and also found at par with the real insurance practice for developing policy in line with the corporate demand for insurance. The third most important factor is 'Factor of Physical Hazard of Corporate Firms' with weighted mean score of 3.496. This factor is composed of variables with moderately higher factor loadings: Affordability of Premium, Easy access to Insurer Operator, Damages to business properties due to fire, lightning, explosion etc. and Death/injury to 3rd party or damages to 3rd party's property due to incident that relates to your business and This factor has been found to be moderately important to the insurance companies understudy and also found at par with the real life insurance adoption in imitating guidelines in line with the corporate demand for insurance in Bangladesh . It also has been evident from the analysis of the factor variables and factors shown in the Table 5.3 that five factors have given ranked on the basis of weighted average scores. The fourth important factor is 'Factor of Tailor Made Insurance Products on Severity of Loss and Afford' with weighted mean score o3.291. This has been ranked IV for its low to moderate magnitudes of variation accounted for. This factor is composed of variables: Quality of Service, Compensation for employees' costs of general medical treatment, hospitalization, Complexity of Procedures and Protection from legal liability upon third party injury or damage to third party's property. This is found to be at par with the practical exercise scenario and application of carrying out of insurance business found in Bangladesh for corporate demand for insurance. The Last & final most significant factor

is 'Factor of Quality Insurance Products with wide Coverage' with weighted mean score of 3.255. This factor is composed of variables with low factor loadings: Loss of money or business properties & premises due to theft, burglary, Loss of money/properties while in transit or being kept on business premises and Protection from legal liability upon third party injury or damage to third party's property. This factor has been found to be significantly low to the insurance companies understudy and also found at par with the real life adoption of insurance for developing strategy & policy in line with the corporate demand for insurance.

6.0 SUMMARY OF THE FINDINGS

In fine from the above study it is observed that from the 23 variables used in this study found from previous literature review used for factors influencing corporate demand for insurance in Bangladesh and in this study it is used Factor analysis of dimension reduction method. Here from the study only (5) five factors are found which significantly influences the corporate demand for insurance in Bangladesh. The dimension reduction factors found are Moral Hazard and Policy Reliability Factor, Factor of Governance and Corporate Risk Financing for Corporate Claims for Damage, Factor of Physical Hazard of Corporate Firms, Factor of Tailor Made Insurance Products on Severity of Loss and Afford and Factor of Quality Insurance Products with wide Coverage with mean score of 4.115, 3.496, 3.924, 3.291 and 3.255 respectively which significantly influences corporate demand for insurance in Bangladesh.

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Appendixes

Appendix: 6.1 Analysis of Association between the variables influencing Corporate Insurance Buying in Bangladesh. Researcher has interpreted the association between variables and tested their significance as follows:

Correlations

		X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}	X_{14}	X_{15}	X_{16}	X_{17}	X_{18}	X_{19}	X_{20}	X_{21}	X_{22}	X_{23}
X_1	r	1																						
	P- Value																							
X_2	r	-.002	1																					
	P- Value	.990																						
X_3	r	.007	.586**	1																				
	P- Value	.964	.000																					
X_4	r	.026	.684**	.313*	1																			
	P- Value	.862	.000	.032																				
X_5	r	.426**	.080	.261	.247	1																		
	P- Value	.003	.591	.076	.095																			
X_6	r	-.012	.662**	.467**	.658**	.289*	1																	
	P- Value	.936	.000	.001	.000	.048																		
X_7	r	.192	.046	.342*	-.076	.252	.105	1																
	P- Value	.196	.758	.018	.613	.088	.481																	
X_8	r	.315*	.013	.507**	-.091	.318*	.221	.281	1															
	P- Value	.031	.931	.000	.544	.029	.135	.056																
X_9	r	.511**	.001	-.086	-.043	.008	.058	.110	.211	1														
	P- Value	.000	.996	.566	.776	.957	.700	.462	.154															
X_{10}	r	.323*	.119	.230	.163	.292*	.215	.401**	.342*	.550**	1													
	P- Value	.027	.424	.120	.274	.047	.148	.005	.018	.000														
X_{11}	r	.246	.422**	.409**	.274	.309*	.198	.387**	.415**	.024	.331*	1												
	P- Value	.096	.003	.004	.062	.034	.183	.007	.004	.875	.023													
X_{12}	r	-.246	.447**	.565**	.438**	.327*	.504**	.284	.384**	-.233	.106	.536**	1											
	P- Value	.095	.002	.000	.002	.025	.000	.053	.008	.114	.478	.000												
X_{13}	r	.357*	.170	.251	.241	.391**	.316*	.403**	.242	.470**	.429**	.305*	.284	1										
	P- Value	.014	.254	.088	.102	.007	.030	.005	.102	.001	.003	.037	.053											
X_{14}	r	.504**	.039	.342*	-.015	.465**	.236	.436**	.490**	.427**	.567**	.248	.121	.405**	1									
	P- Value	.000	.793	.019	.922	.001	.110	.002	.000	.003	.000	.093	.419	.005										
X_{15}	r	.196	.398**	.322*	.131	-.013	.280	.203	-.116	.067	-.057	-.042	-.064	.096	.119	1								
	P- Value	.186	.006	.028	.380	.931	.057	.171	.439	.652	.703	.780	.668	.520	.424									
X_{16}	r	.302*	.055	.114	.015	.021	.185	-.064	.287	.285	.226	.089	-.191	.001	.119	.384**	1							
	P- Value	.039	.714	.444	.920	.890	.213	.670	.051	.052	.126	.550	.199	.995	.424	.008								
X_{17}	r	.295*	.194	.197	-.058	-.032	-.047	.075	-.142	.354*	.106	-.195	-.31*	.221	.042	.596**	.395**	1						

	P- Value	.044	.192	.184	.700	.832	.753	.618	.341	.015	.479	.188	.034	.136	.778	.000	.006							
X_{18}	r	.199	.169	.301*	-.070	-.056	.134	.284	.276	.466**	.245	.094	-.043	.316*	.111	.406**	.587**	.647**	1					
	P- Value	.179	.257	.040	.638	.707	.369	.053	.060	.001	.097	.529	.775	.031	.457	.005	.000	.000						
X_{19}	r	-.056	.388**	.631**	.147	.076	.232	.147	.188	-.049	.095	.275	.435**	.183	.031	.268	.020	.108	.258	1				
	P- Value	.708	.007	.000	.324	.610	.116	.324	.205	.746	.524	.062	.002	.217	.837	.068	.894	.471	.080					
X_{20}	r	-.005	.482**	.222	.157	.193	.345*	.250	-.027	-.018	.029	.272	.248	.145	.277	.512**	.139	.257	.194	.145	1			
	P- Value	.971	.001	.134	.291	.193	.018	.091	.856	.903	.849	.064	.093	.330	.059	.000	.352	.081	.191	.331				
X_{21}	r	.233	.611**	.451**	.505**	.479**	.642**	.147	.201	.143	.217	.266	.352*	.243	.241	.559**	.444**	.337*	.323*	.172	.619**	1		
	P- Value	.119	.000	.002	.000	.001	.000	.331	.181	.342	.148	.074	.016	.103	.107	.000	.002	.022	.028	.253	.000			
X_{22}	r	-.098	.314*	.711**	.024	.155	.321*	.580**	.421**	-.016	.117	.255	.389**	.195	.278	.443**	.240	.283	.520**	.316*	.391**	.466**	1	
	P- Value	.512	.031	.000	.872	.300	.028	.000	.003	.915	.433	.084	.007	.189	.059	.002	.104	.054	.000	.031	.007	.001		
X_{23}	r	.346*	.401**	.294*	.084	.011	.168	.378**	.157	.239	.073	.399**	.007	.157	.209	.484**	.475**	.374**	.502**	.098	.460**	.446**	.469**	1
	P- Value	.017	.005	.045	.577	.944	.260	.009	.292	.106	.625	.005	.963	.292	.159	.001	.001	.010	.000	.514	.001	.002	.001	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Source: Survey Instruments
Notes: Data have been compiled by researcher using SPSS23.0 Version.

Appendix--- :6.2: **Principal Component Matrix (Total Variance Explained)**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]	Communalities
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	
1	9.827	42.728	42.728	9.827	42.728	42.728	5.379	0.812
2	2.756	11.982	54.710	2.756	11.982	54.710	6.429	0.656
3	2.089	9.085	63.794	2.089	9.085	63.794	4.726	0.809
4	1.643	7.145	70.940	1.643	7.145	70.940	5.190	0.830
5	1.092	4.750	75.689	1.092	4.750	75.689	6.127	0.708
6	.943	4.098	79.788					0.793
7	.827	3.596	83.383					0.666
8	.720	3.130	86.514					0.678
9	.575	2.500	89.013					0.821
10	.461	2.003	91.017					0.717
11	.405	1.760	92.777					0.594
12	.367	1.595	94.372					0.749
13	.257	1.117	95.490					0.847
14	.229	.994	96.484					0.851
15	.183	.796	97.280					0.721
16	.160	.697	97.976					0.840
17	.130	.566	98.542					0.861
18	.115	.499	99.041					0.828
19	.078	.338	99.379					0.678
20	.062	.271	99.650					0.846
21	.035	.153	99.803					0.703
22	.031	.133	99.935					0.613
23	.015	.065	100.000					0.790

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added b. to obtain a total variance.

Source: Source Survey Instruments

Notes: Data have been compiled by the researcher using SPSS23.0 Version

Appendix: 6.3: Factors on Principal Component Analysis

Rotated Factor Matrix						Cronbach's Alpha
	Component					
	1	2	3	4	5	
X_{15}	.766					.891
X_{16}	.775					
X_{17}	.896					
X_{18}	.829					
X_{23}	.682					
X_1		.785				0.876
X_5		.709				
X_8		.667				
X_9		.737				
X_{10}		.833				
X_{13}		.739				
X_{14}		.827				
X_2			.856			0.886
X_4			.911			
X_6			.822			
X_{21}			.734			
X_3				.901		0.839
X_{12}				.734		
X_{19}				.767		
X_{22}				.756		
X_7					.675	0.700
X_{11}					.605	
X_{20}					.834	
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.						

Source: Source Survey Instruments

Notes: Data have been compiled by the researcher using SPSS230 Version