

The Impact of Risk Management on the Financial Performance of the General Insurance Companies in Bangladesh

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ABSTRACT

Objective: Proper risk management abilities are the keys to financial success of any company. The purpose of this study is to explore the relationship between risk management activities and the financial performance of listed general insurance firms in Bangladesh.

Methodology: To investigate the impact, secondary data have been collected from the annual reports of the 42 insurance firms listed in the DSE for a five-year period (2017-2021). ROA, the depended variable has been used as a proxy of the financial performance, while risk management performance of the firms was analyzed using credit risk, market risk, operational risk, liquidity risk, underwriting risk, solvency risk management capacity of the companies separately and aggregately.

Findings: The regression result shows that solvency risk management has significant positive impact on financial performance while credit risk, operational risk and underwriting risk management activities also have positive impact on firm performance. In addition, while the risk management has been considered in a holistic approach considering all the risk management tools in aggregate, the regression analysis reveals that comprehensive risk management initiatives show significantly positive effect on firm performance of insurance firms.

Practical Implications: This study underscores the need for effective risk management strategies within companies to boost their financial results.

Originality/Value: Very few papers in Bangladesh have explored this area in Bangladesh specially in insurance sector. Findings of this study in the context of Bangladesh contribute to the literature gap and help the management to take necessary initiatives to improve performance.

Limitations: Selecting short time period for analysis and using ROA as the only dependent variable for performance measurement are the major limitations of this study.

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1. Introduction

Insurance is a type of risk management initiatives that mitigates the risk of a fortuitous damage. It entails trading on a risk premium to transfer the risk of potential loss from one to others (Wali Ullah et al., 2016). The insurance industry promotes financial stability by helping to transfer and distribute risks, enabling economic agents to participate in different transactions. Everis (2009) asserts that the insurance industry has continuously refined its practices to align with the evolving economic environment and cater to the increasing expectations for security, accountability, and effectiveness from financial markets and the public.

Insurance plays a crucial role in any country that have a limited amount of monetary penetration, as a financial middleman. The insurance market is very important to society since it provides the impetus to advance other industries of the country (Ayele, 2012). In accordance with Beck and Webb (2003), a nation's economic performance is significantly impacted by the health of its insurance industry. In the words of Das et al. (2003), the insurance sector fosters economic growth, allocates resources effectively, lowers transaction costs, creates liquidity, encourages investments, and distributes monetary damages.

Insurance companies offer policies to cover a variety of risks worldwide, including uncommon ones. However, the insurer takes on various risks while performing crucial functions such as pricing, underwriting, claims processing, and reinsurance management. These risks are often inter-connected and can jeopardize the company's sustainability if not properly managed. As a result, risk management is gaining popularity as a means of avoiding insuring every insurable risk (Wani & Dar, 2015). People obtain insurance to manage risks, the purpose of which is to minimize the expenses involved in specific kinds of risk and also to offer enough protection. This entails addressing risks that are natural, leading only to financial loss and occur randomly.

Though insurance is a mechanism to minimize risks, it is imperative for the insurance companies to prioritize risk management if they aim to improve their own financial performance, as highlighted by Okatha (2003). To attain this goal, these firms must adopt different approaches, such as financing of damages, risk administration, and loss alleviation and control. Insurance company should conduct a thorough risk assessment to prevent incurring excessive losses while handling claims, as recommended by Meredith (2004). The insurance sector manages risks through analyzing, alleviating, and eliminating them. It also includes pricing, carrying, and diversifying risk. The majority of insurance companies are excellent at identifying insurance risks, but they struggle to put in place systems to control the risks that their own operations and businesses face. According to Kadi (2003), the majority of insurance companies consent to insure without thoroughly investigating prospective client demands or creating a plan for reducing risks.

The risk management impact on a company's financial achievement has piqued the concern of academics worldwide, prompting researchers to conduct research. Most of the researchers investigated the financial health of the insurance sector while focusing on only a few variables, like credit, liquidity, and operational risk. However, the analysis of the insurance company's performance remains inconclusive due to the unpredictable outcomes. In both develop and developing countries, researches (Oyerogba & Gbolagade, 2023; Kiptoo et al., 2021; Wani & Dar, 2015) have been conducted focusing on the impacts of risk management initiatives on performance of the insurance companies. In Bangladesh, little attention have been given to the performance of insurance. Given the critical role in the country's economy, it is important to conduct more research on risk management of insurance firms. So, this research tried to bridge the lack in research by investigating the relationship between management of risk and performance using six risk proxies, named credit risk, market risk, operational risk, liquidity risk, underwriting risk and solvency risk along with total risk management activities. This study attempts to explore the impact of six proxies of risk management individually on the financial performance as well as the impact of total risk management combining these six risk proxies.

This investigation tries to close the previous research rift. In particular, the study looked into how Bangladeshi general insurance firms' performance was impacted by the risk management initiatives.

This study has been structured into seven sections. After this introduction, Section 2 provides an overview on the insurance industry in Bangladesh. Section 3 presents the review of the literatures and section 4 represents methodology and econometric models of the study. Section 5 presents findings of the study based on analysis of the empirical data. Finally, Section 6 outlines the overall findings from this study and section 7 draws the conclusion and limitations of the study.

2. Insurance Industry in Bangladesh

Nearly a century prior, the insurance industry in Bangladesh began during the British regime. In the time period from 1947 to 1971, there were 49 general and life insurance companies. By Presidential Order No. 95, the People's Republic Government of Bangladesh centralized the banking and insurance sector after the country gained independence in 1972. All insurance providers in Bangladesh used to conduct business in accordance with this nationalization decree. Initially, five insurance companies were established in Bangladesh's public sector later 1972.

Under the 1973 Insurance Corporations Act, a restructure was carried out on May 14. In accordance with the Act, the authority converted five corporations into two: the Sadharan Bima Corporation and the Jiban Bima Corporation. After 1973, the Sadharan Bima Corporation was solely in charge of the general insurance sector. The Jiban Bima Corporation ran a life insurance business. To allow private insurance companies to do insurance business, the government revised the Insurance Act - 1938 and the Insurance Corporation Act -1973 in 1984. Since 1984, when the government allowed insurance businesses to promote in the private sector, the number of insurance firms has rapidly increased. There prevails 46 general insurance companies in Bangladesh, but listed in the Dhaka Stock Exchange are 42.

At present, the activities relating to investments, taxation, reporting, and controlover insurance companies are regulated by the Finance Act, the Insurance Act 2010 and Insurance Development and Regulatory Authority Act 2010. Currently, 81 companies are functioning in Bangladesh. They include 46 general insurance businesses, 1 of which is state-owned, and 35 life insurance companies, 1 of which is foreign and 1 of which is held by the government.

The contribution of the insurance sector is quantified by the penetration ratio which is Total Insurance Premium to Total GDP. Even after having a good number of insurance firms, the penetration rate is very low. The Swiss Re Institute reported that insurance penetration of Bangladesh was only 0.40 per cent (14,392 crore taka) in 2022 which is low compared to other regional peers. The progress can also be measured by the claim settlement ratio. Empirical data reveals that it was only 54% in 1973-1990, rose to around 73% in 1991-08, increased to 78% during 2009-2019. It became 68% in 2021 dramatically dropping from 88% in 2020.

3. Literature Review & Hypothesis Development

3.1 Empirical Literature Review

This section discusses research that examined how risk management and its various elements affected financial performance (FP). According to Bloom and Milkovich (1998), risk is the likelihood that an unwanted incident will take place and the detrimental effects it will have on corporations. However, Bessis (2011) contrasts this by defining a "risk" as an uncertainty that could lead to reduced profitability or even loss. The fundamental tenet of both definitions is that risk has two conceivable outcomes, but adverse one is themost focused. Another approach to define risk by Ciuhureanu (2005) cited in (Baltes & Ciuhureanu, n.d.), is the probability of error that an event will occur or not.

The importance of risk management has grown in the contemporary, competitive economic climate as it minimizes monetary losses. The procedure of dealing with risk in business is typically driven by the desire to avoid obligations under contracts, laws, or regulations that would damage the organization's standing, according to a research underlined by Mars (2000). According to Eric and Amoh (2016), executives of financial organizations supervise risk for a minimum of three different reasons: Potential monetary difficulties have a number of costs, such as a sizable loss of profits that might trigger stakeholders to lose their confidence in the company's commercial processes; a loss of a prominent position in the marketplace within the field; the suspension of a license and insolvency.

For all types of institutions effectively managing risk adds some more benefits. Some benefits can be as a more significant competitive advantage, superior customer service, a strengthened capacity to develop new ideas, enhanced creativity and superior oversight of preservation and contingent operations, reduced scams and waste, increased value for finances, using materials more effectively, intrinsic emphasis on doing the right activities in the appropriate manners is related to this (Alabdullah et al., 2018). Effective risk management will help making informed decisions and understanding potential hazards and their impacts. Neglecting to control risks can harm shareholder value, making a good risk management strategy essential for enhancing it (Alshatti, 2015). To implement efficient risk management, organizations must create a strategy with clearly defined risk management procedures and types, such as strategic, governance, operational, and financial management.

The summary of findings by different authors are given in Table 1.

Table 1.
Summary of Findings and Research Gap

Authors	Country	Industry	Focus of the Study	Findings	Research Gap
Tamakloe et al. (2023).	Ghana	Commercial Banks	Assessing risk management relation with the bank performance.	They found TRM to be significant on bank performance, while credit risk has an insignificant, operational risk has a significant effect. But, liquidity risk and market risk show no significant impact.	More risk variables and sample can be introduced.
Oyerogba and Gbolagade (2023).	Nigeria	Listed Insurance	The influence of risk management on the financial performance.	The study wrap up by RM having significance influence, along with credit risk, operational risk, and liquidity risk having positive association with performance	Other financial performance, risk management and control variables can be added.
Abu-Rumman et al. (2021)	Jordan	Banks	This case study measured the risk management on the performance using credit, liquidity, and market risk.	The results revealed a direct and positive relation of managing these risks to the bank performance.	Adding the control variables will generate a more reliable result.
Kiptoo et al. (2021).	Kenya	Insurance	How risk management effect performance.	The conclusion of this study was that management of risk significantly affects the	More dependent and independent variables can be introduced..

				performance. The result further showed that credit risk has significantly negative, whereas, market, operational, and liquidity risk have significantly positive relation	
Fali et al. (2020).	Nigeria	Listed Insurance	Relation of financial risk (with Credit, Liquidity, and Solvency risk as proxy) with the performance was the main objective.	CR and LR negatively and SR positively effects the financial performance.	Other non-listed insurance firms, variables of risk management and control variables can be included.
Ekinci (2016).	Turkey	Bank	The goal of the researcher was to investigate how credit and market risk can affect the stock return volatility.	The research concluded to positively and significantly affecting the performance by credit and market risk. CR and LR negatively and SR positively effects the financial performance.	Further research can focus on more types of risks measures, performance measures and control variables
Wani and Dar (2015).	India	Life Insurance	Association of financial risk with the performance.	The result revealed a negative association of capital management, solvency, and underwriting risk while liquidity risk shows positive relation with FP.	Whole insurance industry can be used
Haque and Wani (2015).	India	Commercial Banks	The researchers established an association of financial risk with bank performance to study its impact. Financial risk used five proxies to determine its effect.	The study found that solvency risk, and capital risk have significantly positive associated with profitability, whereas the interest rate risk, and liquidity risk have insignificantly positive effect. Only credit risk found to be significantly negative.	The time period and sample size can be extended to have a more accurate result.

Source: Compiled by the authors.

3.2 Hypothesis Development

The hypotheses, in this study established based on the empirical literatures and objectives of the study are given below:

3.2.1 Credit Risk Management and Firm Performance

Extended literature indicates that many researchers (Kiptoo et al., 2021; Fali et al., 2020; Haque & Wani, 2015) found credit risk negatively impact performance, whereas others (Oyerogba & Gbolagade, 2023; Ekinci, 2016; Abu-Rumman et al., 2021; Tamakloe et al., 2023) found positive association between these two variables. When the credits are not managed properly by the firms, they suffer from this kind of risk badly. So, the first hypothesis is the following in accordance with the literature.

H1: There is an impact of credit risk management on the financial performance.

3.2.2 Market Risk Management and Firm Performance

According to past studies, it has been found that market risk has a positive effect on a company's performance due to the sound investment decisions (Kiptoo et al., 2021; Ekinci, 2016; Abu-Rumman et al., 2021; Tamakloe et al., 2023). Whereas, some authors (Akotey et al., 2013; Pervan & Pavic', 2010) found market risk is negatively affecting performance as the firms were unable to invest in the efficient investment portfolios. Based on the findings, our next hypothesis is:

H2: There is an impact of market risk management on the financial performance.

3.2.3 Operational Risk Management and Firm Performance

Some research studies (Akotey et al., 2013, Desalegn, 2019) concluded that operational risk negatively affects performance and should be managed properly. On the other hand, Kiptoo et al., (2021); Oyerogba and Gbolagade, (2023); Tamakloe et al., (2023); Ali and Oudat (2020) explained the positive impact of operational risk on firm performance if operations are properly managed leading to lower costs. So, the next hypothesis to test is:

H3: There is an impact of operational risk management on the financial performance.

3.2.4 Liquidity Risk Management and Firm Performance

According to some studies, an insurance company's profitability and liquidity are negatively correlated when they incur more short-term liabilities than assets (Chen & Wong, 2004; Chen et al., 2018). Whereas some authors (Kiptoo et al., 2021; Desalegn, 2019; Oyerogba & Gbolagade, 2023; Wani & Dar, 2015; Abu-Rumman et al., 2021; Tamakloe et al., 2023; Haque & Wani, 2015; Ali and Oudat, 2020) described liquidity risk and performance to have positive association. Based on the findings, our next hypothesis is:

H4: There is an impact of liquidity risk management on the financial performance.

3.2.5 Underwriting Risk Management and Firm Performance

Very few studies used underwriting risk as a risk management measure and found negatively affecting the performance of insurance business as taking too underwriting tasks adds more risk (Wani & Dar, 2015; Wali Ullah et al., 2016). So, the next hypothesis to test is:

H5: There is an impact of underwriting riskmanagement on the financial performance.

3.2.6 Solvency Risk Management and Firm Performance

Solvency risk has been found to be positively associated with performance by maintaining the desired solvency margin (Wali Ullah et al., 2016; Haque & Wani, 2015). At the same time, Wani and Dar (2015) found this risk negatively affecting the financial performance. So, the hypothesis is:

H6: There is an impact of solvency risk management on the financial performance.

3.2.7 Holistic Risk Management and Firm Performance

Lastly, to test the impact of the aggregate risk management activities on performance, a hypothesis developed to test is:

H7: There is an impact of total risk management on the financial performance.

4. Research Methodology

4.1 Research Design

According to Creswell and Zhang (2009), research designs are methods for gathering, analyzing, and describing the data in investigations. The investigation used a descriptive design and a quantitative approach to study the risk management impact on financial performance. The investigation used forty-two (42) general insurance firms in Bangladesh that are listed on the Dhaka Stock Exchange (DSE) as

of July 2023. The required secondary data have been collected from the annual reports for five years period from 2017 to 2021. The first two authors collected the data from the secondary sources, contributed in the analysis part and prepared the 1st draft of this paper. The third author developed the conceptual framework of the paper, verified the secondary data collected by the first two authors and finalized the drafting of this paper.

4.2 Empirical Model Specification

The relationship between risk management and firm performance was evaluated utilizing panel data, where return on assets (ROA) is the dependent variable and the independent variables are the separate six risks and total risk management with three control variables. Measurement of Variables are shown in table 2. The following regression models are used for the research to investigate the relationships among the variables with each other:

Mode 1: Impact of different types of risk management initiatives on the financial performance

This multiple linear model has been utilized to assess the impact of each risk management initiatives on the performance with control variables.

$$ROA = b_0 + b_1 CR_{it} + b_2 MR_{it} + b_3 OR_{it} + b_4 LR_{it} + b_5 UR_{it} + b_6 SR_{it} + b_7 LEV_{it} + b_8 AGE_{it} + b_9 SIZE_{it} + e_{it} \quad (1)$$

Model 2: Impact of total risk management on the financial performance

This multiple linear model has been utilized to investigate total risk management effect on financial performance with control variables.

$$ROA = b_0 + b_1 TRM_{it} + b_2 LEV_{it} + b_3 AGE_{it} + b_4 SIZE_{it} + e_{it} \quad (2)$$

Where,

$$TRM = CR + MR + OR + LR + UR + SR$$

Table 2.

Definition and Measurement of Variables

Variable(s)	Indicator	Type of Variables	Measurement of Variables	Reference(s)
Dependent Variable: Financial Performance	ROA	Return on Assets	$\frac{NetIncome}{Total Assets}$	Elamer & Benyazid (2018)
Independent Variables: Risk Management	CR	Credit Risk	$\frac{Premium Debtors + Due from reinsurance + Other Receivables}{Net Assets}$	Sisay, (2017) and Arif & Showket (2015)
	MR	Market Risk	$\frac{Investment Income}{Average Investments}$	Pervan & Pavic' (2010)
	OR	Operational Risk	$\frac{Net Earned Premiums}{Total Assets}$	Ahmed et al. (2011)
	LR	Liquidity Risk	$\frac{Current Assets}{Current Liabilities}$	Sisay (2017) and Arif & Showket (2015)
	UR	Underwriting Risk	$\frac{Benefits Paid}{Net Premiums}$	Wani & Dar (2015)
	SR	Solvency Risk	$\frac{Net Income}{Total Liabilities}$	Mukino (2018)

Control Variables: Firm Characteristics	LEV	Leverage	$\frac{\text{Total Liabilities}}{\text{Total Assets}}$	Fali et al. (2020)
	AGE	Age of the firm	$\frac{\ln \text{Target Year}}{\text{Year of Incorporation}}$	Hunjra et al. (2022)
	SIZE	Size of the firm	$\frac{\ln \text{Total Assets}}{\text{Total Assets}}$	Wani & Dar (2015)

Source: Authors Compilation

5. Findings

This section discusses the results of the descriptive, correlation and regression analysis of the association of risk management and the performance of general insurance companies in Bangladesh during 2017-2021.

5.1 Descriptive Analysis

Table 3 provides a synopsis of the descriptive statistics of the variables derived from the data where mean, standard deviation, minimum, and maximum are shown.

Table 3.

Descriptive Statistics

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
ROA	210	0.0552	0.0187	0.0080	0.1011
CR	210	0.4494	0.2584	0.0580	1.1415
MR	210	0.1611	0.1439	0.0017	0.5581
OR	210	0.2276	0.0892	0.0542	0.4704
LR	210	1.7818	0.5829	0.2315	3.0331
UR	210	0.2181	0.1244	0.0048	0.5519
SR	210	0.1533	0.0725	0.0104	0.3424
LEV	210	0.3945	0.0939	0.1586	0.6370
AGE	210	3.1855	0.2438	2.8332	3.5835
SIZE	210	21.0895	0.4647	19.9881	22.3982
TRM	210	3.0082	0.7363	1.2733	4.8020

Source: Calculated by the authors.

The mean of credit risk of 0.4494 falls between the extremes of 0.0580 and 1.1415 with the standard deviation of 0.2584. The mean of liquidity risk is 1.7818 with the minimum and maximum values of 0.2315 and 3.0331 respectively. Liquidity risk has a standard deviation of 0.5829. The mean of solvency risk of 0.1533 lies within the maximum and minimum of 0.3424 and 0.0104 values respectively. The standard deviation of this risk is 0.0725. The maximum and minimum values of the total risk management in the series are 4.8020 and 1.2733, respectively, which displays a mean value of 3.0082 with standard deviation of 0.7363.

5.2 Correlation Analysis

The correlation coefficient, r represents the linear association of a group of independent variables. The correlation outcomes from Table 4 indicate that the correlation of ROA and credit risk found to be significantly negative. It can also be concluded that, market risk, operational risk, liquidity risk, underwriting risk, solvency risk, and total risk management, all are positively and significantly correlated with ROA at 5% level of significance. As none of the variables have value more than 0.80 according to correlation matrix, no multi-collinearity problem exists.

Table 4.*Pearson Correlation Matrix*

	ROA	CR	MR	OR	LR	UR	SR	LEV	AGE	SIZE	TRM
ROA	1.0000										
CR	-0.2170*	1.0000									
	0.0016										
MR	0.1377*	-0.0652	1.0000								
	0.0463	0.3572									
OR	0.2291*	0.0340	-0.0224	1.0000							
	0.0008	0.6241	0.7466								
LR	0.2420*	0.0310	0.1030	0.2075*	1.0000						
	0.0004	0.6551	0.1367	0.0025							
UR	0.1447*	-0.2016*	0.0369	0.1057	0.1791*	1.0000					
	0.0362	0.0033	0.5950	0.1267	0.0093						
SR	0.7660*	-0.3409*	0.1140	0.0855	0.2639*	0.0850	1.0000				
	0.0000	0.0000	0.0993	0.2172	0.0001	0.2202					
LEV	-0.2663*	0.3335	0.0199*	0.0863	-0.1501*	0.0218	-0.5563*	1.0000			
	0.0001	0.0000	0.7743	0.2129	0.0297	0.7539	0.0000				
AGE	-0.2007*	-0.0232	-0.0500	-0.4967*	-0.2599*	-0.0633	-0.0509	-0.2768*	1.0000		
	0.0035	0.7379	0.4713	0.0000	0.0001	0.3611	0.4631	0.0000			
SIZE	-0.0374	-0.1088	-0.1593*	-0.3380*	-0.0766	-0.1280	-0.0056	-0.2508*	0.5195*	1.0000	
	0.5896	0.1161	0.0209	0.0000	0.2692	0.0641	0.9358	0.0002	0.0000		
TRM	0.2681*	0.3041*	0.2793*	0.3273*	0.8986*	0.2899*	0.2289*	-0.0249	-0.3152*	-0.2152*	1.0000
	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0008	0.7195	0.0000	0.0017	

*Statistically significant at 5% level.

Source: Calculated by the authors.

5.3 Multivariate Analysis

The Lagrangian multiplier test by Breusch and Pagan has been used to ascertain the most appropriate model for this study among pooled OLS, random-effects, or fixed-effects models. The result shown in table 5 suggests that a random-effects or fixed-effects model should be acceptable.

To ascertain between the random or fixed-effects model, the Hausman (1978) test is employed. The findings in Table 6 indicates that the fixed effects model is a better fit. So, fixed effects model has been used in the study to determine the impact of risk management.

Table 5.*Breusch and Pagan Lagrangian Multiplier Test Result*

chibar2 (01) =	8.28
Prob > chibar2 =	0.0020

Source: Calculated by the authors.

Table 6.*Hausman Test Result*

Variables	Fixed	Random	Difference
CR	.0098618	.0059973	.0038645
MR	-.0109153	.0076094	-.0185246
OR	.0227749	.0285798	-.0058049
LR	-.0005184	-.0016446	.0011261
UR	.0005718	.0086125	-.0080407

SR	.2388428	.2139075	.0249353
LEV	-.0617445	.0155742	-.0773187
AGE	.0138023	-.0094717	.0232740
SIZE	.0073114	.0064475	.0008639
chibar2(01) =		8.28	
Prob > chibar2 =		0.0020	

Source: Calculated by the authors.

The outcomes from the statistical analysis of the regression model 1 are included in the table 7. This table contains the results of Pooled OLS regression, Panel Fixed effect and random effect model along with the results of fixed and random effect with robust standard errors analysis.

The results show that Credit risk, Operational risk, Solvency risk and Underwriting risk have positive relation with the performance of the firms. Among these four variables, Solvency risk has significant positive effect on the financial performance. On the other hand, Market risk and Liquidity risk have negative relationship with the performance of the firms. Among the control variables, Age and Size variable have positive and Leverage has negative relationship with firm performance. The results suggests that some the variables have positive and some the variables have negative relationship when the risk management factors are measured on silo basis. The result of the impacts of aggregate risk management on firm performance has been shown in the Table-8.

Table 7.

Regression Results of the Relationship Between Different Risks With Financial Performance

VARIABLES	Pooled OLS	FE Model	RE Model	FE with Robust SE Model	RE with Robust SE Model
CR	0.00305 (0.00341)	0.00986 (0.00700)	0.00600 (0.00402)	0.00986 (0.00802)	0.00600 (0.00420)
MR	0.00745 (0.00556)	-0.0109 (0.0109)	0.00761 (0.00657)	-0.0109 (0.0113)	0.00761 (0.00742)
OR	0.0268*** (0.0102)	0.0228 (0.0157)	0.0286** (0.0115)	0.0228* (0.0133)	0.0286** (0.0122)
LR	-0.000732 (0.00149)	-0.000518 (0.00278)	-0.00164 (0.00174)	-0.000518 (0.00396)	-0.00164 (0.00222)
UR	0.0113* (0.00661)	0.000572 (0.00839)	0.00861 (0.00713)	0.000572 (0.0106)	0.00861 (0.00804)
SR	0.222*** (0.0139)	0.239*** (0.0187)	0.214*** (0.0148)	0.239*** (0.0439)	0.214*** (0.0307)
Lev	0.0368*** (0.0111)	-0.0617*** (0.0170)	0.0156 (0.0119)	-0.0617*** (0.0157)	0.0156 (0.0188)
Age	-0.00849* (0.00435)	0.0138 (0.0114)	-0.00947* (0.00519)	0.0138 (0.0101)	-0.00947 (0.00658)
Size	0.00547*** (0.00204)	0.00731* (0.00421)	0.00645*** (0.00243)	0.00731 (0.00601)	0.00645** (0.00294)
Constant	-0.0915** (0.0422)	-0.162** (0.0819)	-0.0989** (0.0496)	-0.162 (0.114)	-0.0989* (0.0508)
Observations		210	210	210	210
Number of firms	210	42	42	42	42
R-squared	0.660	0.540		0.540	

Source: Calculated by the authors.

The regression result of second model is presented in table 8 where the impact of total risk management on financial performance is assessed. The result shows that comprehensive risk management initiatives have significant positive impact on firm performance. That means, the companies which followed holistic risk management approach, found positive impact on their firm performance.

Table 8.

Regression Results of the Relationship Between Total Risk Management With Financial Performance

VARIABLES	Pooled OLS	FE Model	RE Model	FE with Robust SE Model	RE with Robust SE Model
TRM	0.00487*** (0.00171)	0.00396** (0.00231)	0.00495 (0.00328)	0.00396** (0.00321)	0.00495 (0.00463)
Lev	-0.0636*** (0.0133)	-0.0348 (0.0233)	-0.0506*** (0.0173)	-0.0348 (0.0264)	-0.0506*** (0.0174)
Age	-0.0199*** (0.00598)	0.0370** (0.0156)	-0.00596 (0.00891)	0.0370* (0.0206)	-0.00596 (0.00859)
Size	0.00235 (0.00301)	0.000321 (0.00572)	0.00290 (0.00407)	0.000321 (0.00701)	0.00290 (0.00469)
Constant	0.0796 (0.0602)	-0.0676 (0.110)	0.0181 (0.0806)	-0.0676 (0.121)	0.0181 (0.0965)
Observations		210	210	210	210
Number of firms	210	42	42	42	42
R-squared	.186	0.069		0.069	

Source: Calculated by the authors.

5.4 Additional Analysis

5.4.1 Multicollinearity Test

To be sure if there is multicollinearity or not, the test of variance inflation factor (VIF) is also conducted.

Table 9.

Variance Inflation Factors

Variable	VIF	1/VIF
CR	1.30	0.768919
MR	1.07	0.935114
OR	1.38	0.724761
LR	1.27	0.787589
UR	1.13	0.886330
SR	1.69	0.590969
LEV	1.83	0.546034
AGE	1.88	0.531220
SIZE	1.51	0.663883
Mean VIF	1.45	

Source: Calculated by the authors.

The VIF values shown in the table 9 indicates that all variables fall inside limit. Therefore, the conclusion that multicollinearity among the variables taken into account in this study is not a concern.

5.4.2 Normality Test

The purpose of normality test is to determine if error terms of observations follow a normal distribution. Shapiro-Wilk test is utilized for normality test with the null hypothesis being normal distribution while the alternative hypothesis being non-normal distribution. It is clear from table 10 that residuals are normally distributed because the prob > z value exceeds the cutoff point that allows the null hypothesis of normal distribution to be accepted.

Table 10.

Shapiro-Wilk W Test for Normal Data

Variable	Obs	W	V	z	Prob>z
er	210	0.99097	1.406	0.786	0.21591

Source: Calculated by the authors.

5.4.3 Heteroskedasticity Tests

To check the heteroskedasticity issues of the database, Breusch_Pagan test has been conducted. The result shows the issue of heteroskedasticity in the database. To resolve the issue, robust regression has been performed shown in table 8.

Table 11.

Breusch-Pagan Test for Heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of ROA

chi2(1) = 49.14

Prob > chi2 = 0.0000

Source: Calculated by the authors.

6. Discussion of Findings

The objective of this investigation is to know the extent risk management can have impact on financial performance. In order to examine the effects of risk management some relevant hypotheses were set.

The first hypothesis to investigate was the impact of credit risk on the performance. The findings showed that credit risk management has a positive impact on financial performance which is aligned with the previous studies (Abu-Rumman et al., 2021; Ekinci, 2016). The result means that if the credits are not utilized properly, it can cause trouble for the companies. To guarantee receivables will be collected on schedule, the general insurance companies have used credit administration procedures which ultimately impact on firm performance.

According to the analysis, operational risk management has a significant positive impact on the performance. Many studies have already found a significantly positive effect of operational risk management (Kiptoo et al., 2021; Oyerogba & Gbolagade, 2023; Tamakloe et al., 2023; Ali and Oudat, 2020) and this study's result affirms the previous literature.

A proper amount of underwriting risk highlights how effectively insurers can conduct their underwriting activities. Underwriting can be considered an important activity to carry on insurance business. According to the result, underwriting risk indicates a positive impact on firm performance which is opposite of the empirical findings (Wani & Dar, 2015; Wali Ullah et al., 2016). The beta coefficient imply that proper management of underwriting risk will increase the financial performance. Insurance firms should be vigilant about the premiums earned against claim settlements. Solvency is the ability to fulfill the long-term commitments a company takes on. Solvency risk shows a perfect result having positively significant impact on financial performance. Wali Ullah et al. (2016) and

Haque and Wani (2015) found the same result. The result suggests that insurance firms are in good position in managing their solvency margins.

Market risk and Liquidity risk have negative relationship with the performance. Liquidity risk is the risk which showed negative impact on business performance pursuant to research by Chen and Wong (2004) and Chen et al. (2018). The in-depth analysis of the result implies that the companies failed to maintain standard current ratio and consecutively failed to perform in better way.

To know the overall risk management impact on insurance firms' performance, the outcomes of the regression analysis exhibit a positive and significant association of the total risk management with Firm Performance. It indicates that if a general insurance firm can handle all the risks altogether, there will have a positive impact on the return on asset.

7. Conclusion

In this study, 42 general insurance firms in Bangladesh were examined to determine how risk management affected their financial performance over a period of five years. Credit risk, market risk, operation risk, liquidity risk, underwriting risk, and solvency risk were the risk management factors, and ROA was adopted to gauge financial performance. In order to ascertain the correlation between the variables, regression analysis and Pearson correlation matrix were performed. In addition, multicollinearity, normality, the Hausman test and the Breusch-Pagan Lagrangian Multiplier test were utilized for the model specification in this paper.

The outcomes concluded that credit risk management has a positive effect on financial performance. Companies should effectively manage their credit operations and recover receivables in order to improve performance. Therefore, in order to prevent non-performing receivables and improve performance, insurance companies should put policies in place to make sure the receivables are collected within the allotted time.

Additionally, the results show that operational risk and solvency risk management have significant positive impact on financial performance. According to the findings, effective management of a firm's operations decreases operating expenses, which raises the proportion of net premiums to total assets and improves a firm's performance. Positive relationship between solvency risk and financial performance exhibits the ideal outcome with a positively significant effect on financial performance. The outcome also shows that underwriting risk has a positive impact on firm performance.

In this study, it has been found that market risk and liquidity risk management have a negative but insignificant impact on performance. The results suggest that poor market and liquidity management will deteriorate a firm's performance. It is important to have enough liquidity for businesses to pay bills on time and improve performance.

The results show a strong and positive correlation between general insurance firms' financial success and overall risk management in Bangladesh. In order to ensure that enterprises adopt suitable risk management methods and improve performance, regulators and policymakers are advised to develop policies and regulations. To improve performance, directors and managers should implement effective risk management techniques for credit, liquidity, operations, market, underwriting, and solvency risks.

This study has some limitations while establishing and investigating the relationship of risk and financial management. Depending on the availability of data, the study's scope could be extended both ahead and backward in time. This study only employed return on assets as financial performance proxy for the dependent variable, other performance variables can be added for further research.

The investigation could be broadened to take into account how external variables like macroeconomic indicators, alterations in legal requirements, and technology breakthroughs, among others, affect the performance of insurance organizations. Studies considering different nations might also be taken into consideration. Incorporating qualitative data, maybe through surveys or interviews with regulators and insurance industry professionals, could offer another level of depth to the study by supplying context and practical information that quantitative data alone would miss.

References

- Ayele, G. A. (2012). *Factors Affecting Profitability of Insurance Companies in Ethiopia: Panel Evidence*. Doctoral dissertation, Addis Ababa University.
- Abu-Rumman, A., Al-Shra'ahb, A. E. M., Alfalahc, T., & Al-Madid, F. (2021). The Impact of Risk Management on Financial Performance of Banks: The Case of Jordan. *Turkish Journal of Computer and Mathematics Education*, 12(3), 488-498.
- Ahmed, N., Ahmed, Z., & Usman, A. (2011). Determinants of Performance: A case of Life Insurance Sector of Pakistan. *International Research Journal of Finance and Economics*, 61(1), 123-128.
- Akotey, J. O., Sackey, F. G., Amoah, L., & Manso, R. F. (2013). The Financial Performance of Life Insurance Companies in Ghana. *The Journal of Risk Finance*, 14(3), 286-302.
- Alabdullah, T. T. Y., Ahmed, E.R., & Nor, M.I. (2018). New Ideas from Management, Finance and Accounting Perspective: The Research for A New Link Between A Company's Outcome and Risk Management. *5th International Conference on New Ideas in Management, Economics and Accounting*, 30-43.
- Ali, B. J. A. & Oudat, M. S. (2020). Financial Risk and the Financial Performance in listed Commercial and Investment Banks in Bahrain Bourse. *International Journal of Innovation, Creativity and Change*, 13(2), 160-180.
- Alshatti, A. S. (2015). The Effect of Credit Risk Management on the Financial Performance of the Jordanian Commercial Banks. *Investment Management and Financial Innovations*, 12(1), 338-345.
- Arif, A., & Showket, A. (2015). Relationship between Financial Risk and Financial Performance: An Insight of Indian Insurance Industry. *International Journal of Science and Research*, 4(11), 1424-1433.
- Beck, T., & Webb, I. (2003). Economic, Demographic and Institutional Determinants of Life Insurance Consumption across Countries. *The World Bank Economic Review*, 17(1), 51-88.
- Bessis, J. (2011). *Risk Management in Banking*. Hoboken: John Wiley & Sons.
- Bloom, M. & Milkovich, G. T. (1998). Relationships among Risk, Incentive Pay, and Organizational Performance. *Academy of Management Journal*, 41, 283-97.
- Chen, R., & Wong, K. A. (2004). The Determinants of Financial Health of Asian Insurance Companies. *Journal of Risk and Insurance*, 71(3), 469-499.
- Chen, Y. K., Shen, C.H., Kao, L., & Yeh, C. Y. (2018). Bank Liquidity Risk and Performance. *Review of Pacific Basin Financial Markets and Policies*, 21(1), 1-40.
- Baltes, N. & Ciuhureanu, T. (n.d.). Study on The Risk Management in Banking Institute. *Studies in Business and Economics*, 67-78.
- Creswell, J. W. & Wanqing Zhang. (2009). The Application of Mixed Methods Designs to Trauma Research. *Journal of Traumatic Stress*, 22(6), 612-621.
- Das, U., Davies, N. & Podpiera, R. (2003). Insurance and Issues in Financial Soundness. *IMF Working Paper No. 3/138*, 1-43.

- Desalegn, D. G. (2019). The Effect of Risk Management on Financial Performance of Insurance Companies in Ethiopia. *International Journal for Innovative Research in Multidisciplinary Field*, 5(10), 75-84.
- Eric, D. O. & Amoh, P. (2016). Risk Management and Performance of Listed Banks in Ghana. *European Journal of Business Science and Technology* 2(2), 107-21.
- Ekinci, A. (2016). The Effect of Credit and Market Risk on Bank Performance: Evidence from Turkey. *International Journal of Economics and Financial Issues*, 6(2), 427-434.
- Elamer, A. A., & Benyazid, I. (2018). The Impact of Risk Committee on Financial Performance of UK Financial Institutions. *International Journal of Accounting and Finance*, 8(2), 161-180.
- Everis. (2009). *Risk Management in the Insurance Business Sector*. Published by MFC Artes Graficus, S.L.
- Fali, I. M., Nyor, T., & Mustapha, L. O. (2020). Financial Risk and Financial Performance of Listed Insurance Companies in Nigeria. *European Journal of Business and Management*, 12(12), 143-153.
- Haque, S.M., & Wani, A. (2015). Relevance of Financial Risk with Financial Performance: An Insight of Indian Banking Sector. *Pacific Business Review international*, 8(5), 54 - 64.
- Hunjra, A. I., Mehmood, A., Nguyen, H. P., & Tayachi, T. (2022). Do Firm-specific Risks Affect Bank Performance?. *International Journal of Emerging Markets*, 17(3), 664-682.
- Kadi, A. M. (2003). Basic Conditions and Procedures in Insurance. *The Accountant*, 13(3), 16-19.
- Kiptoo, I. K., Karuiki, S. N., & Ocharo, K. N. (2021). Risk Management and Financial Performance of Insurance Firms in Kenya. *Cogent Business & Management*, 8, 1-17.
- Meredith, L. (2004). *The Ultimate Risk Manager*. Boston: CUSP Communications Group Inc.
- Mukino, M. A. (2018). *Effect of Financial Risks on the Financial Performance of Listed Insurance Companies at Nairobi Securities Exchange*. [Unpublished Master's thesis]. University of Nairobi.
- Okatha, H. (2003). Corporate Risk Management: Costs and Benefits. *Global Finance Journal*, 13(1), 29-38.
- Oyerogba, E. O., & Gbolagade, A. S. (2023). The Influence of Risk Management on the Financial Performance of Listed Insurance Companies in Nigeria. *Research Application of Thermal Engineering*, 6(1), 8-21.
- Pervan, M., & Pavić, K. T. (2010). Determinants of Insurance Companies' Profitability in Croatia. *The Business Review Cambridge*, 16(1), 231-238.
- Sisay, D. (2017). *The Effect of Financial Risk on Performance of Insurance Companies*. [Unpublished doctoral thesis]. Addis Ababa University, Ethiopia.
- Tamakloe, B. V., Boateng, A., Mensah, E. T., & Maposa, D. (2023). Impact of Risk Management on the Performance of Commercial Banks in Ghana: A Panel Regression Approach. *Journal of Risk and Financial Management*, 16(7), 322.
- Ullah, G. M. W., Faisal, M. N., & Zuhra, S. T. (2016). Factors Determining Profitability of the Insurance Industry of Bangladesh. *International Finance and Banking*, 3, 138.
- Wani, A. A., & Dar, S. A. (2015). Relationship between Financial Risk and Financial Performance: An Insight of Indian Insurance Industry. *International Journal of Science and Research*, 4(11), 1424-1434.