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Factors Affecting Profitability of Insurance Companies in Bangladesh

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ABSTRACT

Purpose: The purpose of this study is to evaluate profit earning capacity of insurance companies in Bangladesh and to identify both company specific and macro-economic factors that influence the profitability.

Design/methodology/approach: This study uses panel data collected on 21 insurance companies operating in Bangladesh over the period of 2017-2021. Ordinary Least Square (OLS) method of regression analysis has been applied in the study to identify the determinant variables of profit of insurance companies.

Findings: The results show that volume of capital, proportion of investment and commission expense positively affect profitability of insurance companies whereas underwriting risk, tangibility, GDP and interest rate have negative impact on profitability.

Research limitations/implications: In a small economy like Bangladesh, the existence of a large number of insurance companies creates a question of sustainability of these organizations. To sustain in the long run, the insurance companies need to earn sufficient profit. This study focuses on the factors that may influence and enhance profit earning capacity of these organizations. The limitation of this study is that the sample includes both life and non-life insurance companies. Therefore, future studies can be done focusing each sector separately.

Originality/value: There is no other study focusing on profitability of insurance companies in Bangladesh concentrating recent scenario and large sample size. This research contributes the regulatory authority to direct insurance companies in the path of earning better profit. The findings of the study can also benefit the insurance companies as they can know the areas where they should focus more and take care of while operating business.

Keywords: insurance, profitability, determinants, economic, Bangladesh

I. Introduction

In every financial system, insurance companies' contribution is unparalleled as they extend financial support to businesses and individuals at the time of their financial distress created by a fortuitous event. Malik (2011) identified the important role of insurance

industry in an economy through facilitating flow of fund; encouraging trade, commerce and entrepreneurial activities and supporting financial and economic progress. IMF (2016) has recognized insurance industry as one of the largest investors in the world economy which is about 12% of all financial assets. Bernoth and Pick (2011) and Lee et al. (2016) have analyzed the role of insurance industry in controlling financial crises. Besides, studies like Arena (2008), Han et al. (2010), Lee (2011) proves positive impact of insurance industry on economic development. Naveed (2011) discusses the role of insurance industry

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in financial and economic stability. To serve the economy in its prosperity, the insurance companies therefore need to be sustainable. A company that earns good profit is expected to provide quality services to its customers improving their living standards, offering better remuneration package for employees improving their income level, serving the society and taking part in economic development. Nino Datu (2016) states that profitability of insurance company protects the interest of policyholders as well as determines the volume of policies an insurance company can issue.

In a small and growing economy like Bangladesh, at the present time there are in total 81 insurance companies in the country (35 life insurance and 46 non-life insurance companies). In spite of having such huge number of insurance companies, the rate of penetration of the industry is just 0.4% (Swiss Ree, 2022). This penetration rate is too low even compared to the neighbor nation India where the industry penetrates about 4% (Ahmed and Shafiullah, 2023). Ali (2020) mentions that the contribution of insurance industry of Bangladesh is not substantial as banking industry. However, Ali (2020) identified potentiality in the industry and commented that the contribution of the industry can be enhanced by taking proper measures. To proceed towards the goal, the existing large number of insurance companies need to be profitable. As insurance companies will become able to earn more profit, they will be able to make more contribution to the economy. Profitable insurance companies can also enhance economic development by making large investment in different sectors of economy. The current study focuses on the issue and attempts to identify variables that can influence the profitability of insurance companies in Bangladesh. Literature on profitability analysis include two sets of variables, company-specific variables and external (macroeconomic) variables. This is because profit earning capacity of insurance companies are fluctuated based on their internal management strength as well as due to favorable economic condition. Profit of any organization cannot be fully studied with only its internal factors as every

organization operates in an economy and its performance is affected with the change in economic condition. Therefore, this study considers both company's internal factors as well as economic factors and found that capital strength, investment and commission expense positively affect profitability of insurance companies in Bangladesh whereas tangibility, GDP and market interest rate have negative impact. This finding will help the policymakers to guide the insurance companies to enhance contribution of the sector to the economy. The current government of Bangladesh has adopted several reform programs for the development of this sector through the establishment of IDRA (Insurance Development & Regulatory Authority) in 2011, Insurance Act 2010, The National Insurance Policy 2014. In this aspect, this study would contribute to guide the insurance companies in earning more profit and establishing their role in economic development. Also, the management team of insurance companies would come to know how to accelerate their profit earning capacity and protect general interest of the policyholders and investors. The rest of the paper is arranged as 2. Literature Review; 3. Methodology; 4. Data & Variables; 5. Descriptive Statistics 6. Empirical Results and 7. Conclusion.

II. Literature Review

Profitability of financial institutions has recently drawn attention of many researchers due to its role in economic development (Boadi, 2013). Studies regarding profitability and its determinants for financial institutions mainly concentrate on banking industry. However, in the recent time, some studies have focused on the profitability of insurance industry. Renbao Chen et. al (2004) mentioned that insurance companies need to be profitable to support other industries in an economy. Kaya (2015) argues that insurance profitability has a direct impact on policyholders, investors, employees as well as on

the economic growth and national wealth. Some researchers, therefore, focus on profitability of insurance companies over various countries and have linked the profitability with company specific as well as macroeconomic variables. Kripa and Ajasllari (2016) for insurance companies in Albania, Jerene (2016) for companies in India, Mogro and Bermudez (2019) for companies in Ecuador, Kramaric et al. (2017) for Central and Eastern European countries, Maulana (2020) for Indonesian companies have analyzed the determinant factors of profitability. In these literature, profitability of insurance companies has mainly been measured through ROA and ROE. Hafiz (2011), Almajali et al. (2012), Boadi et al. (2013), Kaya (2015), Hailegebreal (2016) and Nino Datu (2016) used ROA to study profitability of insurance industry in Pakistan, Jordan, Ghana, Ethiopia and Philippines respectively. Hamdan (2008) also mentioned ROA as a criterion to identify profitability of insurance companies. However, along with ROA and ROE some of the studies have considered underwriting profit margin as a measure of profitability. William H. Greene and Dam Segal (2004) argued that for insurance industry, along with ROA and ROE, underwriting profit and net premium income shows financial performance. Kasturi (2006) identifies return on equity (ROE) and profit from underwriting as measures of profitability for insurance companies. In this study, both ROA and Underwriting Profit Margin have been considered to reflect the rate of profit earned by the insurance companies.

The different studies on determinants of profitability of insurance companies have identified two set of variables, one is company-specific variables while the other is the set of economic variables. Kripa and Ajasllari (2016) analyzed the relationship of some company specific with profitability of insurance companies in Albania. They found that volume of capital and growth of premium have significant positive relation with profit whereas liability and liquidity have significant negative relation. Mogro and Bermudez (2019) took data on 29 life and 38 non-life insurance companies over the period 2001-2017. Applying regression analysis, the authors

found that net premium income, technical reserves, capital ratio, score efficiency affect profitability of life insurance companies where as claim level and liquidity affects profitability of non-life companies. Among the macroeconomic variables, interest rate was found to have impact on profits of both the two sectors.

Kramaric et al (2017) made an analysis on total 137 insurance companies from 4 European countries over the period 2010-2014. Their study found that among company specific variables, age of insurance companies has a significant positive impact on performance indicating that as insurance companies are present in the market for longer time, they perform better. Among the macroeconomic variables, GDP growth rate has a significant positive impact meaning favorable economic condition create better opportunities for the insurance companies. Jerene (2016) applied regression analysis on 10 insurance companies in India over 11 years period (2006-2016) to identify determinant variables of profitability. Among the company specific variables, he found capital adequacy ratio affects profitability negatively while liquidity affects profitability positively. According to the research, higher capital adequacy ratio though indicates better solvency condition of the company, but it also blocks fund which cannot be utilized in profitable sectors and therefore profit goes down. Among the macroeconomic variables, the study found inflation has a negative impact on profit while GDP has significant positive impact. Lassad (2021) found that the growth rate of written premium, the tangibility ratio and the fixed-assets ratio are the main factors affecting positively the profitability of Saudi insurance companies. Boadi et al. (2013) made a similar analysis on insurance companies in Ghana and found only tangibility has negative impact on profitability.

Kulustayeva (2020) made a similar analysis on 32 insurance companies in Kazakhstan over the period 2012-2018. By applying random effect model of regression analysis over the panel data set, they found leverage and growth of insurance companies have significant negative impact on profitability while size

of the companies creates significant positive impact indicating the economies of scale for the industry. Bhattarai (2020) in his study over 10 insurance companies in Nepal used ROE as the measure of profitability. The results reveal that for Nepalese insurance companies, financial leverage and size of the company have significant positive impact. Both Rashid and Kemal (2018) and Malik (2011) conducted research on insurance companies in Pakistan. Rashid and Kemal (2018) considered 6 life insurance companies in Pakistan whereas Malik (2011) did the research over 34 insurance companies. Both the studies consider ROA as a measure of profit and applied regression analysis. However, Rashid and Kemal (2018) included investment income and underwriting profit margin as measure of profit along with ROA. To find out the determinant variables of profitability, Rashid and Kemal (2018) considered gross written premium, claim, management expense, leverage and size as the company specific independent variables and interest rate as macroeconomic independent variable. On the other hand, Malik (2011) analyzed the effect of size, volume of capital, leverage, age and loss ratio on profitability. Both the studies found that size of insurance companies in Pakistan has significant positive impact on profitability whereas leverage has a negative impact. In addition, Rashid and Kemal (2018) found growth in premium has significant positive impact on profit whereas negative impact on profit margin. On the other hand, Malik (2011) found volume of capital and loss ratio has significant impact on profit.

In respect of insurance industry in Bangladesh some studies focus on the status, challenges and prospect of the industry (Rahman et al. 2022; Ali, 2020; Islam and Sultana, 2018; Khan et al., 2016), performance of insurance companies (Siddiqua and Parvin, 2017; Mamun and Chowdhury, 2021), policyholders' perspective towards policy or policy related issues (Hossain et al., 2022; Murad, 2023), employees of insurance industry (Afrin et al., 2023; Murad, 2023). None of these papers put light to the issue of profitability of insurance companies in Bangladesh. That means, whereas throughout the

world, the issue of insurance profitability is being analyzed, for the insurance companies in Bangladesh this area has remained in darkness. Only one research paper has been found on the area, i.e., Wali Ullah et al., 2016. The researchers in this paper made analysis on only 8 insurance companies covering the period 2005- 2014 which does not reflect the current market situation. This current study fulfils this gap in literature to identify determinant variables of profitability of insurance companies in Bangladesh by making the analysis. This paper contributes in literature by incorporating large number of companies in the sample and reflecting recent market condition.

III. Data and Variables

To conduct the research, data has been collected initially from 25 private sector non-life insurance companies in Bangladesh using secondary source of data. While doing the primary scrutinizing, I found four companies with incomplete and missing data. After rejecting those 4 companies, finally the study was conducted on 21 companies over the period 2017-2021. Thus, the study considers a panel data set consisting of a total 105 observations (21 banks over 5 years). The required data to run the OLS program has been derived from secondary sources by using the audited financial statement of the selected companies from their annual reports.

To measure profitability of sample companies, two estimates of profitability have been considered. One is ROA (Return on Assets) which is calculated by dividing the net profit of a company by the amount of total assets. ROA indicates the rate of profit earned by a company by using all its assets. ROA has been used to measure profit in a number of studies like, Hafiz (2011), Curak et al. (2011), Almajali (2012), Boadi et al. (2013), Burca and Batrinca (2014), Hailegebreal (2016), Nino Datu (2016). The other profitability measurement used in the study is underwriting profit margin. Underwriting profit

margin shows from the core operation of insurance, what rate of profit is earned. This second measure of profitability has been taken following Kasturi (2006). Based on the literature discussed previously, in this study, 10 company specific variables and 2 macroeconomic variables have been included to identify the determinants of profitability of insurance industry in Bangladesh. Table 1 contains the list of dependent and independent variables along with the measurements and literature supports.

Size of any organization is an important tool to affect profitability as larger companies are supposed to have stronger market position, better earning capacity, economies of scale and thus resulting to higher profitability (Adams and Buckle, 2003). The second independent variable leverage indicates the use of debt source. Up to a certain level, debt capital gives advantages to companies to improve profitability in the form of tax shield. However, debt source after a certain level, increases risk of the company and thus may have a negative impact on profitability. The next factor considered in the study is liquidity ability to meet up claim payments on time will establish a reputation of the insurance company in market which will help the company to attract more reliable customers and increase profit. However, as per one of the principles of Finance, profitability always has a contradiction with liquidity. Too much liquidity restricts a firm's ability to invest in long run which is more profitable.

In literature, tangibility is measured as a ratio of fixed assets to total assets. Malik (2011) and Mehari and Aemiro (2013) argue that greater volume of fixed assets helps an insurance company to earn more profit. In the literature of insurance industry, volume of capital has been identified as an internal strength to the company to invest reluctantly which may help the company to improve their profitability. Also, higher capital enables an insurance company to serve its policyholders by paying claims on due time which also helps the company to strengthen its position in market and eventually earn better profit. Choi and Weiss (2005) argue that a profitable insurance company should diversify underwriting risk and be

able to handle claims in a better way. An efficient insurance company can choose policies which is supposed to face less incidents and thus would be able to earn more profit. On the other hand, Premium is the major source of income for insurance company. As premium income grows over time, an insurance company becomes stronger to accommodate various expenses and earn profit. Therefore, the next variable considered in the study is growth in premium income of insurance companies. The next variable in the model is investment made by insurance companies in various sectors of the economy out of premium collections. This helps the insurance companies to earn a good income on their premium until these are utilized to pay claims which accelerates their profit. However, in respect of selling policies which is the core operation of insurance companies, they need to spend a lot of money in paying commission to their agents. This commission expense becomes a huge burden upon insurance companies and may reduce their profit though spending in this regard accelerates policy issuance of the companies. The last company specific variable considered in the model is age which is an important factor to determine profitability as with passes of time, companies achieve more competence, market reputation to accelerate their profits.

Among the macroeconomic variables, two variables are considered in the model, i.e. GDP and interest rate. GDP of any country reflects its economic progression and with the expansion of economy, business organizations flourish creating scopes for insurance companies to sell more policies and earn more profit. Apart from GDP, as insurance companies make good amount of investment in different sectors in the economy, they earn from these investments which also accelerates their profitability. Market interest rate represents earnings from investment and therefore, it is expected that with the increase in rate of interest, insurance companies' profit will increase as has been found by Nino Datu (2016).

Table 1. List of variables

Variables	Equation Used	Literature	Expected Sign	Hypothesis
Dependent Variable				
ROA	Net Income/ Total Assets	Hafiz (2011), Curak et al. (2011), Almajali (2012), Boadi et al. (2013), Burca and Batrinca (2014), Hailegebreal (2016), Nino Datu (2016), Lassad (2021)		
Underwriting Profit Margin	Underwriting Profit/ Premium	Kasturi (2006), Rashid and Kemal (2018)		
Independent Variable				
Size	ln (Total Assets)	Adams and Buckle (2003), Curak et al. (2011), Almajali (2012), Dogan (2013), Burca and Batrinca (2014), Kripa and Ajasllari (2016), Omondi & Muturi (2013); Al-Shami, (2013); (Swiss Re, 2008); (Çekrezi, 2015); (Malik, 2011), Nino Datu (2016); Lassad (2021)	+	H_o = Size has no effect on profitability H_1 = Size has impact on profitability
Leverage	Total liabilities/ Total Assets	Adams and Buckle (2003), Meric et al. (2003), Malik (2011), Almajali (2012), Charumathi (2012), Rathinasamy (2013), Boadi et al. (2013), Dogan (2013), Burca and Batrinca (2014), Kripa and Ajasllari (2016), Nino Datu (2016), Mazviona et al. (2017)	+/-	H_o = Leverage has no effect on profitability H_1 = <i>Leverage</i> has impact on profitability
Liquidity	Current ratio = total current assets/ total current liabilities	Adams and Buckle (2003), Almajali (2012), Dogan (2013), Kripa and Ajasllari (2016), Birhan (2017), Mazviona et al. (2017), Lassad (2021), Abdeljawad et al. (2022)	+/-	H_o = Liquidity has no effect on profitability H_1 = <i>Liquidity</i> has impact on profitability
Tangibility	Fixed Assets/ Total Assets	Hifza Malik (2011), Boadi et al. (2013), Mehari and Aemiro (2013), Lassad (2021)	+	H_o = Tangibility has no effect on profitability H_1 = <i>Tangibility</i> has impact on profitability
Volume of Capital (VoC)	Total Shareholders' Equity/ Total Assets	Al-Shami (2013), Malik (2011), Burca and Batrinca (2014), Kripa and Ajasllari (2016), Charumathi (2012) and Mazviona et al. (2017), Lassad (2021)	+	H_o = VoC has no effect on profitability H_1 = <i>VoC</i> has impact on profitability
Underwriting Risk	Net Claim/ Net Premium	Adams and Buckle (2003), Curak et al. (2011), Dogan (2013), Burca and Batrinca (2014), Nino Datu (2016), Mazviona et al. (2017), Lassad (2021)	-	H_o = Risk has no effect on profitability H_1 = <i>Risk</i> has impact on profitability
Growth in Premium (GP)	% change in premium income	Burca and Batrinca (2014), Derbali and Jamel (2014), Kripa and Ajasllari (2016), Guendouz and Ouassaf (2018), Banerjee and Majumdar (2018), Lassad (2021), Abdeljawad et al. (2022)	+	H_o = GP has no effect on profitability H_1 = <i>GP</i> has impact on profitability
Investment Ratio	Amount of Investment/ Total Assets	Burca and Batrinca (2014), Banarjee and Majumder (2018)	+	H_o = Investment has no effect on profitability H_1 = <i>Investment</i> has impact on profitability
Commission Expense (CE)	Commission Expense/ Premium	Mazviona et al. (2017)	-	H_o = CE has no effect on profitability H_1 = <i>CE</i> has impact on profitability
Age	No of years in operation	Malik (2011), Almajali (2012), Dogan (2013), Burca and Batrinca (2014), Guendouz and Ouassaf (2018), Lassad (2021)	+	H_o = Age has no effect on profitability H_1 = <i>Age</i> has impact on profitability
GDP	% change in GDP	Burca and Batrinca (2014), Rahman et al. (2018) and Banarjee and Majumder (2018)	+	H_o = GDP has no effect on profitability H_1 = <i>GDP</i> has impact on profitability
Interest Rate (IR)		Nino Datu (2016)	+	H_o = Interest has no effect on profitability H_1 = <i>Interest</i> has impact on profitability

IV. Methodology

The objective of the current study is to locate the company specific as well as macroeconomic variables those influence the profitability of insurance companies in Bangladesh. To achieve this objective, I have used regression analysis following the study of Jerene (2016), Kramaric et al. (2017), Mogro and Bermudez (2019), Kulustayeva et al. (2020). Under the method, the profitability measure is considered as the dependent variables whereas the company specific and macroeconomic variables have been considered as independent variables. The model function is as follows:

$$Prof = f(x, z)$$

where x is the matrix of company specific variables and z is the matrix of macroeconomic variables. Therefore following the variables under the study, the profit function can be rewritten as follows:

Model 1:

$$\begin{aligned} ROA = & \beta_0 + \beta_1 Size + \beta_2 Leverage + \beta_3 Liquidity \\ & + \beta_4 Underwriting Risk + \beta_5 Tangibility \\ & + \beta_6 Capital + \beta_7 Premium Growth \\ & + \beta_8 Investment + \beta_9 Commission Expense \\ & + \beta_{10} Age + \beta_{11} GDP + \beta_{12} Interest Rate \quad (1) \end{aligned}$$

Model 2:

$$\begin{aligned} Undersriwing Profit Margin = & \beta_0 + \beta_1 Size \\ & + \beta_2 Leverage + \beta_3 Liquidity \\ & + \beta_4 Underwriting Risk + \beta_5 Tangibility \\ & + \beta_6 Capital + \beta_7 Premium Growth \\ & + \beta_8 Investment + \beta_9 Commission Expense \\ & + \beta_{10} Age + \beta_{11} GDP + \beta_{12} Interest Rate \quad (2) \end{aligned}$$

Equation (1) shows the profitability function for Model 1 in which ROA is taken as dependent variable and equation (2) is for Model 2 in which profit margin is taken as dependent variable. Before running the regression model, multicollinearity test was done on

the variables to check whether the determinant variables have high correlation among themselves which may affect the regression result.

V. Descriptive Statistics

Table 2 shows the descriptive statistics on the selected variables of this study. The results show that the sample insurance companies have average profitability of 5.57% in the form of ROA and 20.33% in the form of profit margin. The maximum ROA of these companies is 10.48% and the minimum is 1.28% showing a standard deviation of 1.73%. In terms of profit margin, the maximum value is 45.59% and the minimum profitability is 1.39% resulting a standard deviation of 10.26%. The sample companies maintain an average leverage of 35% and average fixed assets of 16%. The mean liquidity ratio of 4.63 times seems higher compared with the rule of thumb (2:1) but given the pattern of the operation, insurance companies in general need to maintain high liquidity to be able to serve the claims of policyholders which may come anytime.

The average loss ratio of the sample companies shows to be 25.78% with average growth of premium income as 10.4%. Out of the premium income, the sample companies on an average make investment of 12.76% whereas 10.02% is spent to pay commission to the insurance agents. The average equity capital strength is 58.36% which shows that insurance companies in general maintain high proportion of equity capital. The average age of the companies is 21 years.

Table 2. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	105	.012800	.104800	.05566000	.017282209
Profit Margin	105	.013939	.455893	.20335843	.102605897
Size	105	20.388403	25.562764	21.58024204	1.136121985
Leverage	105	.010099	.599151	.35574227	.132234203
Liquidity	105	.401192	43.324957	4.63107326	7.353722804
Underwriting Risk	105	-.060794	3.844319	.25785755	.464217753
Tangibility	105	.010000	.700000	.16095238	.162950699
Capital	105	.022403	.841340	.58368349	.166334722
Premium growth	84	-.220000	1.200000	.10428571	.199645986
Investment	105	.009656	.446457	.12760093	.110843718
Commission expense	105	.000223	.155596	.10021296	.048519730
Age	105	8.00	36.00	21.2381	8.16244
GDP	105	.0380	.0820	.066600	.0160843
Interest	105	5.0500	6.7800	6.034000	.6508288

VI. Empirical Results

Following the methodology set for the research, two separate regression analysis has been done. In the first model, ROA is taken as dependent variable whereas in the second model, Profit Margin is considered as dependent variable to reflect profitability of insurance companies. In light of the literatures reviewed, 10 company specific variables and 2 macro-economic variables have been considered to explain the profitability. The results of both the two models are given on Table 3.

The above results show that in Model 1, the determinant variables are able to explain profitability (ROA) of insurance companies 36.1%. This finding is statistically significant at 99% confidence level. Through the multi-collinearity test, no variable was found to have collinearity as for all the variables, the VIF was in between 1-3. In respect of the effect of individual variables, the model shows that only investment proportion has significantly positive impact on profitability of insurance companies in Bangladesh. On the other hand, tangibility, age and GDP have significant negative impact. Under this

model, it is found that size, leverage, liquidity condition, underwriting risk, volume of capital, premium growth, commission expense and interest rate have insignificant impact on profits. On the other hand, in Model 2, where profit margin has been considered to reflect profitability, the determinant variables explain profitability 63.9%. This result is statistically significant at 99% confidence level and shows no existence of multicollinearity. Under this model, volume of capital, commission expense and age show significant positive impact whereas underwriting risk, tangibility, GDP and interest rate have significant negative impact on profitability of insurance companies in Bangladesh. As per the model, size, leverage, liquidity, investment proportion, growth in premium do not show any significant impact.

Based on the findings of the two models, Table 3 shows that size of insurance companies has an insignificant positive impact on profit. The same finding was derived by Kripa and Ajasllari (2016) for Albanian insurance companies. Considering the operating pattern, insurance companies always need to have access to liquid funds as anytime the company may have to pay for claims on policies. Ability to meet up claim payments on time will establish a

reputation of the insurance company in market which will help the company to attract more reliable customers and increase profit. Many researchers like, Almajali et al. (2012), Charumathi (2012), Boadi et al. (2013), Birhan (2017), Mazviona et al. (2017), Abdeljawad et al. (2022) found positive impact of liquidity on profitability as has been found in this study also. However, the impact is insignificant. The next variable, leverage which has a positive impact on ROA. Tulcanaza-Prieto et al. (2020) also found positive impact of leverage on firms' performance.

However, the finding is insignificant. Cho et al. (2023) found insignificant impact of leverage on profit for firms in Korea. The underwriting risk of insurance companies have a significant negative impact on profitability of insurance companies at 95% confidence level. This relationship between risk and return is supported by the risk return trade off theory of Finance (Gitman and Zutter, 2015). Underwriting risk is reflected by the loss ratio (net claim/ net premium) which shows how efficiently an insurance company is evaluating a policy before issuing it.

Table 3. Empirical results

Variables	Model 1	Hypothesis Testing	Model 2	Hypothesis Testing
Size	0.003 (0.209)	$H_o = \text{Accepted}$	0.001 (0.926)	$H_o = \text{Accepted}$
		$H_1 = \text{Rejected}$		$H_1 = \text{Rejected}$
Leverage	0.006 (0.708)	$H_o = \text{Accepted}$	-0.036 (0.583)	$H_o = \text{Accepted}$
		$H_1 = \text{Rejected}$		$H_1 = \text{Rejected}$
Liquidity	0.000 (0.433)	$H_o = \text{Accepted}$	0.001 (0.975)	$H_o = \text{Accepted}$
		$H_1 = \text{Rejected}$		$H_1 = \text{Rejected}$
Risk	-0.001 (0.789)	$H_o = \text{Accepted}$	-0.045** (0.014)	$H_o = \text{Rejected}$
		$H_1 = \text{Rejected}$		$H_1 = \text{Accepted}$
Tangibility	-0.0.030** (0.022)	$H_o = \text{Rejected}$	-0.214*** (0.000)	$H_o = \text{Rejected}$
		$H_1 = \text{Accepted}$		$H_1 = \text{Accepted}$
Capital	0.016 (0.283)	$H_o = \text{Accepted}$	0.138** (0.038)	$H_o = \text{Rejected}$
		$H_1 = \text{Rejected}$		$H_1 = \text{Accepted}$
Growth in Premium	-0.007 (0.429)	$H_o = \text{Accepted}$	0.014 (0.730)	$H_o = \text{Accepted}$
		$H_1 = \text{Rejected}$		$H_1 = \text{Rejected}$
Investment	0.052** (0.015)	$H_o = \text{Rejected}$	-0.073 (0.428)	$H_o = \text{Accepted}$
		$H_1 = \text{Accepted}$		$H_1 = \text{Rejected}$
Commission Expense	0.014 (0.808)	$H_o = \text{Accepted}$	0.634** (0.012)	$H_o = \text{Rejected}$
		$H_1 = \text{Rejected}$		$H_1 = \text{Accepted}$
Age	-0.001*** (0.000)	$H_o = \text{Rejected}$	0.005*** (0.000)	$H_o = \text{Rejected}$
		$H_1 = \text{Accepted}$		$H_1 = \text{Accepted}$
GDP	-0.231** (0.023)	$H_o = \text{Rejected}$	-1.037** (0.020)	$H_o = \text{Rejected}$
		$H_1 = \text{Accepted}$		$H_1 = \text{Accepted}$
Interest	-0.005 (0.235)	$H_o = \text{Accepted}$	-0.047** (0.017)	$H_o = \text{Accepted}$
		$H_1 = \text{Rejected}$		$H_1 = \text{Rejected}$
R Square	36.1%*** (0.001)		63.9%*** (0.000)	

So, higher value of the ratio shows less efficiency of insurance companies and higher claim payment which will reduce profit. Malik (2011), Dogan (2013), Mehari and Aemiro (2013), Lee (2014) and Mazviona et al. (2017) also found risk having negative impact on profitability. The growth in premium found to have no significant impact on profit which means rather than increasing premium income, insurance companies need to have better control in their underwriting judgement to reduce the claim payment.

Tangibility is found to have a significant negative impact on profit under both the models. This result follows the findings of Boadi et al. (2013) in Ghana and Kripa and Ajasllari (2016) in Albania. The result shows that as insurance companies acquire more fixed assets, their profit goes down. After analyzing the annual reports, it is found that the main format of fixed asset for insurance companies are land, buildings, furniture etc. The negative impact of fixed assets on profitability indicates that as insurance companies establish new branches, invest in purchasing land or building space, their profitability will be reduced for these investments. Volume of capital, on the other hand, shows a significant positive impact on profit margin. Higher volume of capital gives an internal strength to the company to invest reluctantly which may help the company to improve their profitability. Also, higher capital enables an insurance company to serve its policyholders by paying claims on due time which also helps the company to strengthen its position in market and eventually earn better profit. Al-Shami (2013), Malik (2011) also found similar results.

Investment made by insurance companies also creates a strong positive impact on profit. Insurance companies need to maintain a big part of their premium income in the form of reserve as per requirement of the regulatory authority. Out of this reserve and also from the profit earned, companies make investment in different sectors in the economy. All the different formats of investments have positive income which accelerates profit of the company. Burca and Batrinca (2014) also found similar results. On the other hand, the proportion of commission expense also shows to have significant positive impact on profitability. Though Muzata and Marozva (2023) found as management compensation increases, firm performance deteriorates, this current study finds that higher agency commission encourages insurance agents to convince more potential policyholders and arrange new policies which increase premium income as well as profit of the company. Age has two different dimension of impact in the two models. In first model, age shows a negative impact on profit indicating as insurance companies become older, their profit goes down. However, in the second model, age shows to have a positive impact on profit meaning that as insurance companies grow older, their profit increases.

Table 4 shows the variables that have significant impact on profitability.

Among the macroeconomic variables, GDP shows a negative relation with profit indicating that with the improvement in GDP, profit of insurance companies reduces. This result is different than what

Table 4. Summary of findings

Variables	Model 1			Model 2		
	Found	Significant	Effect on Profitability	Found	Significant	Effect on Profitability
Tangibility		Yes	Negative		Yes	Negative
Capital					Yes	Positive
Investment		Yes	Positive			
Commission Expense					Yes	Positive
Age		Yes	Negative		Yes	Positive
GDP		Yes	Negative		Yes	Negative
Interest					Yes	Negative

is found in literature. In Bangladesh, business firms become more confident about risk management as the economy improves and as a result, profit earned by the insurance companies go down. Just like GDP, interest rate also shows significant negative impact on profit. That is as interest rate increases, profit of these companies also decreases. As interest rate increase, many policyholders become interested to involve their money in profitable sectors rather than engaging capital in insurance. Therefore, with increase in interest the propensity of taking policy goes down lowering the profits.

VII. Conclusion

Over the time, the insurance industry in Bangladesh has expanded rapidly. In this small economy at the recent time, in total 81 insurance companies are operating in both life and non-life segments. With this huge number of insurance companies, thousands of business organizations and millions of individuals share their risk. For the welfare of these organizations and individuals who are the policyholders, the insurance companies need to sustain in the long run. And sustainability is ensured when a company earns sufficient to make profit after covering various expenses. The current study focuses on this issue and attempts to identify variables that influence profitability of insurance industry in Bangladesh. To represent the insurance industry of the country initially 25 insurance companies were selected from non-life segment out of which finally data has been considered from 21 companies. To achieve the objective, 10 company specific variables and 2 macroeconomic variables have been taken under consideration. Profitability has been recognized using two different measurements, ROA and profit margin. Two regression models have been conducted taking the two profitability measures as dependent variables.

From the results it is found that among all the independent variables investment, volume of capital,

commission expense and age have positive impact on profitability. Whereas, underwriting risk, tangibility, GDP and interest rate have significant negative impact. Size, leverage condition, liquidity of the company and growth in premium which are found to have significant impact on profitability of insurance companies in literature (Adams and Buckle, 2003; Almajali, 2012; Dogan, 2013, Kripa and Ajasllari, 2016; Birhan, 2017; Mazviona et al., 2017; Lassad, 2021; Abdeljawad et al., 2022), in this study no significant impact was found of them. Following the findings, to improve profit earning capacity, insurance companies need to make underwriting analysis more efficiently and make more diversified investments in financial assets and reduce investment in fixed assets. Increased capital strength and motivating agents through better commission offers are going to benefit the companies. The larger size companies need to be very cautious about earning premium and reducing claim payments. Besides, companies should grab the advantage of favorable market interest rate and take precautions during deteriorating economic condition. Thus, the findings of this study will be a guideline for insurance companies in Bangladesh, to know which operating areas of their business they need to concentrate to earn more profit and achieve sustainable in the long run in this competitive market. This study would also help the regulatory authority of this industry, IDRA, to take their policies for insurance companies in respect of underwriting analysis, expanding number of branches which will enhance fixed assets, capital strength, agency commission, investments made by the companies and so on. However, the study is done only on a sample considering only non-life insurance companies. Therefore, there is scope of further analysis on life insurance companies and make a comparison among the scenario of life and non-life segment. Also, as two variables, capital volume and agency commission have shown different results in the two models, further analysis can be done on this issue.

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