

IMPACT OF CAPITAL STRUCTURE ON PROFITABILITY OF VIETNAMESE INSURANCE COMPANIES

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Abstract: *Insurance companies have an important function of absorbing and storing economic risks. Therefore, companies need to have optimal, safe, and stable capital sources to be able to finance, diversify, and transfer risks. Previous studies have only focused on market share, customers, competitive strategies, and insurance premiums without paying attention to the capital sources of insurance companies. This is more necessary when Vietnamese insurance companies have a non-optimal capital structure, leading to low profitability. The study aims to fill the above gap by analyzing the impact of capital structure on the profitability of insurance companies through the research sample of the Data Set of 40 insurance companies (listed on HNX, HOSE, UPCOM), corresponding to 297 observations in the period from 2013 - 2023. By using GMM estimation, the author has identified three independent variables explaining (and two control variables) the variation of the dependent variable profitability (ROE), including (i) General debt ratio (GDR), (ii) Debt ratio (DR), (iii) Long-term debt ratio (LDR). Based on the research results, the authors discuss and assess the important role of capital structure in insurance companies and provide financial solution recommendations to improve their profitability.*

Keywords: *Capital structure, Insurance company, profitability.*

I. Problem statement

In a market economy, capital is the basis and premise for the formation, existence, and development of all companies and insurance companies. To meet production and business activities, insurance companies need to ensure a certain amount of capital. To do so, companies need to do well in all stages of creating, allocating, and using capital effectively. Each source

of capital has fundamentally different costs, characteristics, and methods of mobilization. Companies need to combine many different sources of capital to create a reasonable and genuinely optimal capital structure, thereby meeting business activities, helping businesses improve profitability and sustainable growth, increasing corporate value, and maximizing benefits for the company's owners. The decision on capital structure

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is one of the strategic and vital decisions of insurance companies, ensuring financial capacity to carry out long-term, safe investment activities and sustainable development.

Capital structure is the proportion of each source of capital of an insurance company. The theory of capital structure was proposed by (10), the authors outlined the necessary conditions for an optimal capital structure. Over the past six decades, capital structure has continued to be a topic of deep interest to many researchers, both in terms of the basic theoretical framework as well as empirical evidence. A company's capital cost is used to purchase assets with uncertain returns. Economists have focused on and solved the nature of the cost of capital problem by considering physical assets such as bonds, which are considered to bring profits and a cash flow to the owner. Later (15) proposed models related to capital structure with input products as the most promising. Studies have clarified theories related to capital structure in different research contexts. These results show the specific nature of capital structure and also imply studies on capital structure in different conditions, contexts, and industries to provide a multi-faceted view of corporate capital structure. In particular, as institutional investors and a place to absorb risks from businesses and individuals, insurance companies need to apply a safer capital structure, operating towards more long-term, safe, and sustainable goals. Using equity capital is costly in terms of costs, including agency costs, corporate income tax costs, and management costs. In addition, mobilizing capital in the market is not an easy problem for insurance companies, as it involves asymmetric information, high-interest costs, and balancing revenue from insurance premiums. Therefore, insurance companies often do not want to

mobilize capital from outside. This raises the question of how to have an optimal source of capital for current insurance companies to meet capital needs for business operations, especially when the market is difficult, prices increase, and insurance coverage is limited.

In the current context, besides insurance companies with high financial capacity, good ability to mobilize and use capital, guaranteed profitability, and payment ability such as ABI, BIC, VNR, BMI insurance companies, etc. However, there are still a large number of insurance companies with low capital mobilization ability and low profitability. Many insurance companies have had to stop operating, merge, dissolve, or sell to partners with better capital capacity, such as AON Insurance Company, AAAA Insurance Company, GreatEastern Insurance Company, Groupama Insurance Company, PhuHung Insurance Company, ToanCau Insurance Company, UICVN Insurance Company, VBI Insurance Company, VIAVietNam Insurance Company... Therefore, in addition to developing market share and scale, insurance companies need to set a goal of mobilizing capital to finance risks and losses for current and future business operations.

II. Theoretical basis

2.1. Basic theories

According to Modigliani and Miller's (1958) capital structure theory, in a perfect market, the combination of equity and debt capital is the same (10). In other words, the growth of a business does not depend on capital but only on financing assets. However, the theory only considers the conditions of a perfectly competitive market.

The pecking order theory of (17), instead of issuing more shares to raise

capital, using retained earnings will be the best channel to increase the sustainable capital of the enterprise. The theory was later developed by (8) into details of the behavior of enterprises in raising capital to serve the growth activities of the enterprise.

Trade-off theory of capital structure. Firms can trade off the benefits of holding capital, and an optimal capital structure always exists (11), (9).

2.2. Experimental studies

* The relationship between capital structure and profitability of insurance companies

The capital structure coefficient is mainly implemented through the debt coefficient, showing the level of financial independence of the insurance company and at the same time there is always a close relationship between capital structure and profitability, which is shown in points such as the higher the profitability, the lower the probability of bankruptcy risk, thereby prioritizing borrowed capital. That is, if the investment has a higher required rate of return, the capital structure is more inclined to use debt. However, there is also a view that, due to the retained profits from business activities, companies prioritize this endogenous capital source and limit borrowing, the cost of capital is low, and the level of leverage will be low. Typical studies reflecting this connotation include (1), (5), (7), (18), (12), (13), (24).

Hypothesis 1 (H1): General debt ratio The larger the insurance company's debt, the lower the impact on the insurance company's profitability.

Hypothesis 2 (H2): Debt ratio The larger the insurance company's leverage, the greater the impact on the insurance company's profitability.

Hypothesis 3 (H3): Short-term debt ratio The larger the insurance company's leverage, the greater the impact on the insurance company's profitability.

Hypothesis 4 (H4): Long-term debt ratio The larger the insurance company's debt, the lower the impact on the insurance company's profitability.

* The relationship between insurance company size and profitability

The size of an insurance company can be measured through the value of its capital. Based on the nature of the ownership relationship, capital can be divided into two types: debt capital (the capital that the insurance company mobilizes through borrowing, payables, etc.) and equity capital (the capital owned by the insurance company, including contributed capital and additional capital from business results). The size of the enterprise is proportional to debt; large-scale companies often have a low risk of bankruptcy and, low production costs, relatively stable cash flow; large scale also helps insurance companies have better debt borrowing capacity, easy access to the stock market to mobilize equity capital, so they tend to use less debt, low leverage, and higher profitability due to low-interest costs, some typical studies:

Hock Ng, Lee Chong & Ismail (2013) examined the relationship between firm size and risk-taking, enhancing the profitability of insurance companies in Malaysia over the period from 2000 to 2020. The results, through the GMM panel data regression method, showed evidence that insurance company size and business risk have a positive relationship (14). Large-scale insurance companies take excessive business risks, and government support can enhance profitability. Studies in recent decades also show that firm size has a substantial impact on insurance company profitability (21), (25), (2), (12),

(23), (7), (4), (22), (20).

Hypothesis 5 (H5): Revenue size The more significant the insurance company's leverage, the greater the impact on the insurance company's profitability.

*** The relationship between asset structure and profitability of insurance companies**

The asset structure ratio reflects the level of investment in the insurance company's assets, expressed in short-term and long-term assets. Asset structure is an important variable affecting insurance companies' debt use level. The more significant the proportion of fixed assets, the higher the collateral value and the higher the debt capacity of the insurance company. However, to finance fixed assets, companies need to borrow more debt, which can affect the profitability of companies in the same or opposite direction. Consider the following case studies:

Biener & Eling (2012) examined the relationship between organization and performance in international insurance markets. Data were collected from 23.807 insurance companies in 21 countries from North America and the European Union (19). The results showed that there was evidence for the asset-efficiency structure hypothesis in selected market segments, but no evidence was found for the cost-preference hypothesis. This suggests the competitiveness and growth of insurance and mutual companies in countries. Similarly, according to (21) and (6), asset structure positively impacts insurance companies' profitability.

Hypothesis 6 (H6): Asset structure The larger the insurance company's debt, the lower the impact on the insurance company's profitability.

III. Research methods and materials

The article uses the GMM (Generalized Method of Moments) estimation model proposed by (16), implemented on software (3). When studying capital structure, the authors found that the heteroskedasticity defect is very common, and at the same time, the endogenous phenomenon exists. The impact of capital structure on the ability to generate profits on assets is two-way. The advantage of the GMM method is that it has overcome the above limitations. The data used by the author is secondary data, taken from the website (Vietstock.vn), from the annual reports of insurance companies and the General Statistics Office (Gso.gov.vn). The data set of 40 Vietnamese insurance companies (on HNX, HoSE, Upcom), accounting for 100% of listed insurance companies, corresponding to 297 observations in the period 2013 - 2023, the study will exclude newly established or merged companies that make financial data not comparable and companies that do not disclose enough necessary information in the study.

The research equation has the form:

$$ROE = \beta_0 + \beta_1 * GDR + \beta_2 * DR + \beta_3 * SDR + \beta_4 * LDR + \beta_5 * SIZ + \beta_6 * STR + \mu$$

In there:

β_0 : Intercept coefficient, which is the remainder

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are the slope coefficients of the independent variables.

Statistics of variables In the model, variable names and symbols, calculation formula:

Table 1. Statistics of model variables

TT	Variable names and symbols	Calculation formula	Source
Dependent Variable: Return on Equity (ROE)			
Independent variable:			
1	General Debt Ratio (GDR)	The general debt ratio of the insurance company at the end of year t. No distinction between interest-bearing debt and appropriated debt (Total liabilities/Total capital)	(1), (5), (7), (18) (12), (13), (24)
2	Debt Ratio (DR)	Debt ratio of the insurance company at the end of year t. Only consider the interest-bearing debt (Short-term loans + Long-term loans)/Total capital	
3	Short-term debt ratio (SDR)	Current debt ratio at the end of year t (Short-term debt/Total liabilities)	
4	Long-term debt ratio (LDR)	Long-term debt ratio at the end of year t (Long-term debt/Total liabilities)	
Control variables:			
5	Size of insurance company (SIZ)	Ln (Total revenue) at the end of year t	(14) (21) (25) (2) (12) (23) (7) (4) (22) (20)
6	Asset Structure (STR)	Fixed assets/Average total assets at the end of year t and t-1	(19) (21) (6)

IV. Results and discussion:

The GMM model estimation results are shown in Table 2 below:

Table 2. Estimation results using the GMM model

Group variable: MCK01				Number of obs = 2 97		
Time variable: YEAR				Number of groups = 28		
Number of instruments = 28				Obs per group: min = 7		
Wald chi2(7) = 2885.27				avg = 7		
Prob > chi2 = 0.000				max = 7		
ROE	Coef.	Std. Err.	z	P> z	[95% Conf.	Interval]
L1.	.120893	.0108404	11.15	0.000	.0996463	.1421398
GDR	-1,712,573	.2557541	-6.70	0.000	-2,213,842	-1,211,304
DR	5,956,027	7,626,437	7.81	0.000	4,461,273	7,450,782
SDR	.0920575	.2794491	0.33	0.742	-.4556527	.6397677
LDR	-1,895,489	2,447,592	-7.74	0.000	-2,375,208	-141.577
STR	-1,861,307	170,126	-10.94	0.000	-2,194,748	-1,527,866
SIZ	.1162373	.0120831	9.62	0.000	.0925548	.1399198
cons	-1,724,637	.1189045	-14.50	0.000	-1,957,686	-1,491,588
Arellano-Bond test for AR(1) in first differences: z = -1.30 Pr > z = 0.193						
Arellano-Bond test for AR(2) in first differences: z = -1.39 Pr > z = 0.166						
Sargan test of overriding restrictions: chi2(20) = 5.22 Prob > chi2 = 0.599						
Hansen's test of overriding restrictions: chi2(20) = 17.40 Prob > chi2 = 0.627						

(Source: Regression on STATA 14 software)

Model regression results:

$$\text{ROE} = -1,712,573 * \text{GDR} + 5,956,027 * \text{DR} - 1,895,489 * \text{LDR} + 0.1162373 * \text{SIZ} - 1.861.307 * \text{STR} + \mu$$

Table 3. Summary of model results of the impact of capital structure on the profitability of insurance companies

Hypothesis	Impact			Expected	Reality	Significance level	Label
H1	ROE	<---	GDR	-	-	Meaning 1%	Accept
H2	ROE	<---	DR	+	+	Meaning 1%	Accept
H3	ROE	<---	SDR	+	+	No meaning	Reject
H4	ROE	<---	LDR	-	-	Meaning 1%	Accept
H5	ROE	<---	SIZ	-	-	Meaning 1%	Accept
H6	ROE	<---	STR	+	+	Meaning 1%	Accept

(Source: Author's synthesis)

The estimation results show that capital structure (DR) has a positive impact on the profitability (ROE) of Vietnamese insurance companies. Specifically, the positively correlated and statistically significant variables with ROE are DR and SIZ. The variables that are negatively correlated with ROE and statistically significant are GDR, LDR, and STR. The variable SDR is positively correlated with ROE but not statistically significant. This can be explained by the fact that loans have partly met the capital for the business activities of companies; in addition, thanks to taking advantage of the benefits of tax shields, profitability has been improved.

The model results also show that there is no statistical significance between the Short-term Debt Ratio (SDR) and profitability. Meanwhile, the Long-term Debt Ratio (LDR) has a negative correlation with profitability. The items that could be more effective are short-term payables to sellers and unearned commission revenue, especially insurance reserves. Insurance reserves are reserves for each insurance business to pay claims that have been identified and incurred in the signed insurance contract. These are insurance premiums or, in other words,

debts to customers, and are made to pay for customers who unfortunately encounter risks and have to suffer actual losses.

Based on the results of GMM model estimation, the article proposes groups of solutions to help Vietnamese insurance companies perfect their capital structure and improve their profitability through mobilizing loan capital, specifically:

Firstly, capital mobilization from the issuance of corporate bonds. In a market economy, bonds are a very important tool that allows insurance companies to mobilize capital proactively through the market. Bond issuance meets the need for capital increase and mobilizes significant capital quickly. Analyzing the current situation of scale and debt structure, the study found that large-scale insurance companies that need capital for business operations choose financing from equity and the rest through short-term loans from commercial banks with limited scale. For insurance companies that are eligible to issue bonds, the administrators of these companies do not want to share benefits with new owners, so bond issuance is considered a suitable option. Bond issuance brings many advantages, such as (i) Mobilizing

a larger amount of capital compared to borrowing from commercial banks; (ii) The cost of issuing bonds is usually lower than that of common stocks and preferred stocks or loans from commercial banks because bank loan interest rates are often floating and periodically reviewed and changed; (iii) Owners do not have to share management and control of the company with bondholders; (iv) Helps insurance companies to be more proactive in business operations compared to loans from commercial banks.

Second, Mobilizing loans from commercial banks. With the disadvantages of limited business performance and weak cash flow, small-scale insurance companies need to build a good credit position. This credit position allows the company to expand the use of borrowed money. To establish a good credit position, the company needs to have a low current debt level or be considered by commercial banks to have good business prospects. To do so, insurance companies need to take the following measures: improve management skills; publicly disclose information; build a professional accounting system; regularly grasp timely information on the mechanisms and policies of the Government, the State Bank, and commercial banks related to loan support for the company. In addition, to increase the credit limit of commercial banks, insurance companies need to strengthen relationships by building trust and maintaining credibility. Mobilizing capital from cyclical debts with different mobilization costs and maturity dates requires insurance company managers to have a firm grasp of the repayment term requirements of each loan. Regularly cooperate and coordinate with commercial banks in the management of collateral assets and loan capital. On that basis, insurance companies need to have a plan to allocate and use debt capital effectively

and, at the same time, repay debts on time to increase the insurance company's reputation.

IV. Conclusion

The study shows the impact of capital structure on the profitability of insurance companies in the period 2013-2023, thereby drawing valuable insights into both theory and practice. The article has identified three independent variables (and two control variables) that explain the variation of the dependent variable of profitability. The research results are consistent with the reality in Vietnam, where insurance companies need to flexibly mobilize loan capital to meet capital requirements for business operations, thereby improving profitability. Fixed asset investments have not contributed significantly to companies' performance. In addition, companies need to build an in-depth growth strategy, focus on solid customer segments, expand revenue, and restructure the fixed asset portfolio.

Thus, the scientific article has contributed to expanding the theoretical framework and providing empirical evidence for improving the profitability of Vietnamese insurance companies by adjusting the capital structure. The proposed solutions can be applied to insurance companies in Vietnam as well as insurance companies in countries with characteristics and contexts similar to Vietnam's. However, the limitation of the study is that there is no classification in terms of the scale of the companies, and the time of establishment and restructuring of insurance companies has not been clarified because these factors have more or less influence on the capital structure of the companies.

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TÁC ĐỘNG CỦA CƠ CẤU NGUỒN VỐN ĐẾN KHẢ NĂNG SINH LỜI CỦA CÁC CÔNG TY BẢO HIỂM VIỆT NAM

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Tóm tắt: Các công ty bảo hiểm có chức năng quan trọng là hấp thụ và là kho chứa rủi ro cho nền kinh tế. Vì vậy, các công ty cần phải có nguồn vốn hợp lý tối ưu và an toàn, ổn định để có thể tài trợ, đa dạng, và chuyển giao rủi ro. Các nghiên cứu trước đây chỉ tập trung vào thị phần, khách hàng, chiến lược cạnh tranh và phí bảo hiểm, mà chưa quan tâm tới nguồn vốn của công ty bảo hiểm. Điều này cần thiết hơn khi các công ty bảo hiểm Việt Nam có cơ cấu nguồn vốn chưa thực sự tối ưu, dẫn tới khả năng sinh lời thấp. Nghiên cứu nhằm mục đích lấp đầy khoảng trống trên bằng việc phân tích tác động của cơ cấu nguồn vốn đến khả năng sinh lời của các công ty bảo hiểm, thông qua mẫu nghiên cứu là Bộ dữ liệu của 40 công ty bảo hiểm (được niêm yết trên HNX, HoSE, Upcom), tương ứng 297 quan sát trong giai đoạn từ 2013 – 2023. Bằng cách sử dụng ước lượng GMM, tác giả đã xác định được 3 biến độc lập giải thích (và 2 biến kiểm soát) được sự biến thiên của biến phụ thuộc khả năng sinh lời (ROE), bao gồm: (i) Hệ số nợ tổng quát (GDR), (ii) Hệ số nợ vay (DR), (iii) Hệ số nợ dài hạn (LDR). Trên cơ sở kết quả nghiên cứu, các tác giả đưa ra một số thảo luận và đánh giá về vai trò quan trọng của cơ cấu nguồn vốn của công ty bảo hiểm, các khuyến nghị giải pháp tài chính nhằm mục tiêu nâng cao khả năng sinh lời cho các công ty.

Từ khóa: Cơ cấu nguồn vốn, Công ty bảo hiểm, khả năng sinh lời.

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