

# BUSINESS PERFORMANCE AND FORECAST OF BUSINESS PERFORMANCE OF INSURANCE ENTERPRISES IN VIETNAM

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***Abstract:** The Vietnamese insurance market currently has many potential advantages: insurance products are enhanced in both quantity and quality, increasingly meeting the diverse needs of customers, and many new types of products, but there are still many challenges, such as human resource quality, market database, and application of information technology. The article has studied the business performance of insurance companies from 2013 to 2023 and used the ARIMA model to forecast the business performance of insurance companies. The forecast results are consistent with the insurance market development strategy until 2030. The article has proposed a number of recommendations to management agencies and solutions for insurance companies to achieve the scale, growth rate, and business efficiency as set out in the strategy.*

***Keywords:** insurance companies, period 2013-2023, business efficiency, forecast, ARIMA model.*

## **I. Introduction**

The Vietnamese insurance market has been formed since 1993, with the Vietnamese Government allowing the establishment of insurance businesses. Since then, especially in the last ten years, the Vietnamese insurance market has developed remarkably. Although facing many difficulties and challenges from many objective and subjective causes, with the timely attention, direction, and support to remove difficulties and obstacles from the State management agency, the efforts

of Insurance businesses, reinsurance businesses, insurance brokers, insurance company staff, insurance agents..., the insurance industry has been overcoming challenges to achieve successful results.

In the world, there have long been many studies on the efficiency of life, non-life, and general insurance companies. However, up to now there has yet to be any research predicting the business performance of insurance companies operating in Vietnam. Studies in countries such as Al-Amri & colleagues (2012),

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Micajkova (2015), Babatunde & Haron (2015), Biener & colleagues (2015), Grmanová & Strunz (2017), Nourani & colleagues (2017) ), Grmanová & al (2018), Taib & al (2018), Sharew & Fentie (2018), Fenn & al (2008), Zanghieri (2009), Ahmad & al (2013), Rao & al (2014), Lanfranchia & colleagues (2020), These studies analyze efficiency with research results that show differences in the efficiency of insurance companies. The differences in the results stem from the choice of data, the choice of insurance company type, and the choice of output and input variables. Machmud and colleagues (2018) believe that efficiency is an important metric to measure organizational performance, efficiency is considered the use of inputs to create optimal outputs. Thus, the effectiveness of an organization (enterprise) is the ability to make the best outputs from a limited input source. Berger and colleagues (1993) and Berger & Humphrey (1997) have proposed two techniques for measuring efficiency. These are econometric techniques (parametric approach) and linear programming (non-parametric approach). The parametric approach has the advantage of allowing a noise component in the measurement of inefficiency. However, this approach requires specifying the form of the production function, cost function, or profit function. The research “Impact of Internal (Micro) And External (Macro) Factors on Profitability of Insurance Companies” by two authors, Anum Rashid and Muhammad Usman Kemal (2018), analyzes the impact of internal and external factors on the profits of insurance enterprises by considering three measures of profitability of insurance enterprises: overall profit (ROA), underwriting profit (UP) and investment income (INI). The study uses panel data regression to analyze Pakistan’s life insurance companies from 2006-2016. Overall, these are studies

that make important contributions to determining efficiency in insurance companies. This article analyzes the efficiency of insurance companies with data from Vietnam insurance companies in the period 2013 - 2023 and forecasts the business efficiency of insurance enterprises in the coming years.

## **II. Theoretical basis and research methods**

### ***2.1. Business performance of the enterprise***

Business performance is a concept belonging to the economic category. Many documents and research articles mention the term business efficiency. Accordingly, many different perspectives on business efficiency depend on each approach and research angle. During the research process, the research team systematized perspectives on business efficiency based on available domestic and international sources.

Viewpoints on business efficiency of some foreign authors: The effectiveness of an organization is to create the most optimal results from specific resources, or in other words, an effective organization is to create the best results from limited inputs (Lovell, 1993). A company’s performance reflects the company’s results in using assets or equity to earn profits (Riyanto, 2013). A good company uses its assets or capital effectively. According to authors Martono & Harjito (2003), company performance evaluates management activities in corporate financial management, performance measurement is used to evaluate the effectiveness and efficiency of management company on investment and financing sources. Evaluation of a company’s financial performance is done by analyzing the company’s financial statements. From the financial reports submitted by the company, it is possible to

analyze the company's ability to manage short-term and long-term funding sources, its ability to use its assets effectively and efficiently, and the company's ability to create value (Ross et al., 2015).

Viewpoints on business efficiency of some domestic authors: Author Nguyen Trong Kien, in his PhD thesis "Analysis of business efficiency of real estate enterprises listed on Vietnam Stock Exchange" (2020), believes that "Enterprise production and business efficiency is an economic category, reflecting the level of exploitation and use of resources in the enterprise's production and business process to achieve its goals production and business, with the least waste of resources and achieving the highest results. Author Bui Van Van stated his opinion in the research topic "Solutions to improve business efficiency of Vietnamese textile and garment enterprises in the current period" (2015) as follows: "Business efficiency can be expressed through economic indicators that reflect the proportional relationship between the results achieved and the costs or resources used in business to achieve the business goals of the enterprise. In the PhD thesis "Completing the Analysis of Business Efficiency at Listed Seafood Companies in Vietnam" (2020) by author Pham Thi Thuy Van, it is mentioned that "Business efficiency is an economic category." reflects the level of use of resources and the efficiency of using those resources to bring the highest benefits to businesses and society.

Each study focuses on a separate or many industries, but no research has been conducted on listed insurance enterprises in Vietnam. In this study, the authors focus on researching and forecasting the business performance of listed companies in the insurance industry through two indicators that reflect business performance: ROA and ROS.

## 2.2. Research Methods

Within the framework of the research, the author proposes to use the ARIMA model (Autoregressive et al., researched by George Box and Gwilym Jenkins (1976)) and the Box Jenkins method to forecast business performance in insurance companies. Building the ARIMA model as a basis for predicting the effectiveness of insurance business operations:

The p-order autocorrelation model (abbreviated as AR(p)) is a linearly dependent process of lagged values and random errors interpreted as follows:

$$Y_t = \phi_1 Y_{t-1} + \phi_2 Y_{t-2} + \dots + \phi_p Y_{t-p} + \delta + \varepsilon_t \quad (1)$$

The q-order moving average model, abbreviated as MA(q), is a process entirely described by a weighted linear equation of the current random errors and their lagged values. The model is written as follows:

$$Y_t = \mu + \varepsilon_t - \theta_1 \varepsilon_{t-1} - \theta_2 \varepsilon_{t-2} - \dots - \theta_q \varepsilon_{t-q} \quad (2)$$

This means the value Y at time t depends not only on current information but also on past information. However, the most recent information is more meaningful than the previous information. Thus, MA models provide the forecast value of  $Y_t$  on the basis of a linear combination of past error values, whereas AR models forecast  $Y_t$  as a linear function of the past value of  $Y_t$ . The AR and MA (ARMA) model has the following form:

$$Y_t = \phi_1 Y_{t-1} + \dots + \phi_p Y_{t-p} + \delta + \varepsilon_t - \theta_1 \varepsilon_{t-1} - \dots - \theta_q \varepsilon_{t-q} \quad (3)$$

ARMA models can only be implemented when the sequence  $Y_t$  is stationary. However, most economic and financial data time series are trend series, meaning that the average  $Y_t$  value between periods can differ. In other words,

time series in economics and finance are often non-stop series. Therefore, we must eliminate the trend element in the original data series through the difference process to infer a stationary series. A series that is stationary at a difference of degree  $d$  is denoted by  $I(d)$ . Then, the ARIMA model is denoted as ARIMA ( $p, d, q$ ).

In this study, the author uses SPSS software to analyze secondary data. Secondary data was collected through financial reports of 14 listed companies in the insurance industry for the period 2013 - 2023 according to data of  $10 * 14 = 140$  observations of ROA and ROS from 2013 to 2023.

### 2.3. Data source

The data source for this study is taken from the annual financial reports of insurance companies for the period 2013-2023. The study population is all insurance companies operating in Vietnam, and the sample selection is based on the following criteria: Insurance companies operating in Vietnam and publishing annual financial reports during the research period. Therefore, this study's sample includes 22 insurance companies that fit the above criteria. Among the 22 companies, there are ten foreign insurance companies, nine domestic insurance companies, and three joint venture insurance companies (Table 1).

*Table 1: List of insurance companies in the research sample*

| No  | Enterprise  | Nation    | No  | Enterprise  | Nation  |
|-----|---|-----------|-----|---|---------|
| 1.  | AIA Life Insurance Company Limited (Vietnam)                                      | America   | 12. | Generali Life Insurance Company Limited                 | Italy   |
| 2.  | AAA Insurance Joint Stock Company   | Vietnam   | 13. | Vietnam Agricultural Bank Insurance Joint Stock Company | Vietnam |
| 3.  | BIDV Metlife Life Insurance Company Limited                                       | Vietnam   | 14. | Hanwha Life Vietnam Insurance Company Limited           | Korea   |
| 4.  | Vietnam Bank for Investment and Development Insurance Joint Stock Corporation BIC | Vietnam   | 15. | Bao Minh Joint Stock Corporation                        | Vietnam |
| 5.  | Bao Viet Group  | Vietnam   | 16. | Hung Vuong Insurance Joint Stock Company                | Vietnam |
| 6.  | Cathay Life Insurance Company Limited - Vietnam                                   | Taiwan    | 17. | MB Ageas Life Insurance Company Limited                 | Venture |
| 7.  | Chubb Vietnam Life Insurance Company Limited                                      | America   | 18. | Phu Hung Life Insurance Joint Stock Company             | Vietnam |
| 8.  | Dai-ichi Vietnam Life Insurance Company Limited                                   | Japan     | 19. | Mirae Asset Prévoir Life Insurance Company Limited      | Venture |
| 9.  | Fubon Life Insurance Company Limited  | Taiwan    | 20. | Prudential Vietnam Life Insurance Company Limited       | UK      |
| 10. | FWD Vietnam Life Insurance Company Limited  | Hong Kong | 21. | Sun Life Vietnam Insurance Company Limited              | Canada  |
| 11. | Vietnam National Reinsurance Joint Stock Corporation                              | Vietnam   | 22. | Vietnam International Insurance Joint Venture Company   | Venture |

## III. Research results and discussion

### 3.1. Current status of business performance of insurance enterprises in the period 2013 - 2023

After 30 years of formation and development, the insurance market has matured and grown in both scale and number of businesses. According to the Ministry of Finance, in the period 2013-2023, insurance premium revenue of the

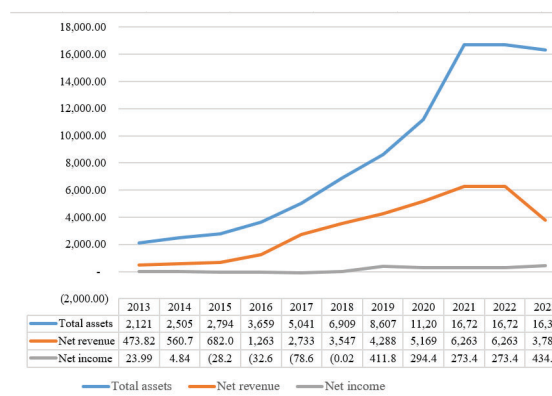
entire market will grow by an average of 18.3%/year, of which non-life insurance premium revenue will increase by an average of 11.6%/year and life insurance premium revenue increased by an average of 23.3%/year. To date, Vietnam has about 12% of the population participating in life insurance with 82 insurance businesses. It is forecasted that the average insurance premium revenue to GDP by 2025 is estimated to reach about 3.5%.

Period 2013 - 2016: The Vietnamese insurance market faced many difficulties and challenges, but the market still achieved positive growth. The insurance industry's revenue growth rate in the period 2013 - 2016 always reached over 20%. Compared to 2012, the insurance market in 2016 had a remarkable development in both the number of insurance businesses and insurance premium revenue. Specifically, the number of insurance enterprises has increased by five insurance enterprises (including four life insurance enterprises and one insurance brokerage enterprise); Insurance premium revenue has more than doubled (from VND 41,246 billion in 2012 to VND 86,049 billion in 2016). Total assets of the entire insurance market in 2016 reached 239,954 billion VND, an increase of 19% over the same period in 2015. The total amount of investment back into the economy reached 193,282 billion VND, an increase of 19.5%. The amount of insurance premiums arranged through brokers is estimated at VND 7,208 billion. Profits of insurance businesses reached VND 3,524 billion, of which the life insurance sector reached VND 1,600 billion, the non-life insurance sector reached VND 1,814 billion, and the insurance brokerage sector was estimated at VND 110 billion.

The period 2016 - 2021 is the most substantial growth period for insurance businesses in the past ten years. Regarding the number of insurance businesses, Vietnam's insurance market has 76 insurance businesses (including 31 non-life insurance businesses, 19 life insurance businesses, and two reinsurance businesses) and 24 insurance brokerage enterprises) and one branch of a foreign non-life insurance enterprise. By the end of 2021, the total assets of the insurance market are estimated to reach 710,002 billion VND, an increase of 23.86% over the same period in 2020. Insurance businesses investing back into

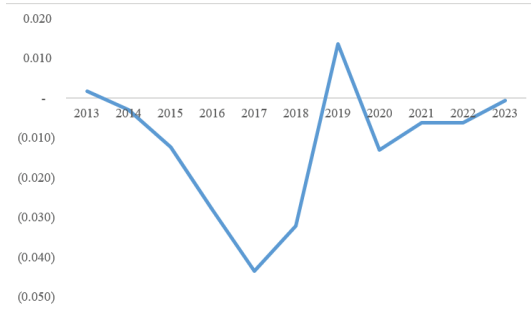
the economy reached 577,069 billion VND, an increase of 22% over the same period in 2020. Total insurance reserves in 2021 reached 455,606 billion VND, an increase of 24.89% over the same period in 2020. Also, according to data from the management agency, total equity capital Ownership of insurance businesses reached 152,484 billion VND, an increase of 19.34% over the same period in 2020. Total insurance premium revenue reached 214,958 billion VND, an increase of 15.59% over the same period in 2020. Payment Insurance benefits reached VND 49,561 billion, an increase of 1.68% over the same period in 2020.

*Figure 1: Total assets, Net Revenue, and Net income of insurance businesses in the period 2013 - 2023*



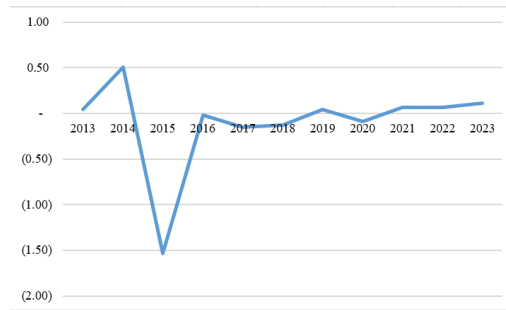
Period 2021 - 2023: The recession wave affects all businesses in the economy, and the insurance business group is no exception, but this time the level of impact is more severe because, at the same time, the industry Insurance also suffered from the "storm" of a media crisis. According to statistics from the Ministry of Finance, by the end of November 2023, the total premium revenue of the entire insurance market reached VND 203,845 billion. Non-life insurance premium revenue is estimated at 63,807 billion VND, up 2% over the same period last year; life insurance premium revenue is estimated at 140,038 billion VND, down 11.6%.





*Figure 2: Average business performance ROA of listed insurance enterprises in the period 2013 - 2023*

The results show that the average efficiency of insurance companies during the research period is ROA reaching - 0.012 and ROS reaching - 0.001, the average efficiency of Vietnamese insurance companies in the period 2013 - 2023 is relatively low. In 2015, insurance businesses had the lowest profit margin on revenue of -1.54, of which the business with the highest profit margin was Chubb Life, with a ROS value of 0.06; The enterprise with the lowest ROS profit margin was BIDV Metlife. Although BIDV Met Life is the enterprise with the fastest revenue growth in the market, it still recorded losses in the period 2015 - 2020 due to the expansion of transaction points to about 240 transaction points at 48 branches of the Bank. BIDV Metlife kept the company's profits at a low level in the first years of development. In 2017, the ROA profitability coefficient of the 22 insurance companies in the research sample was the lowest during the entire period at - 0.043, the insurance company with the highest efficiency was Chubb Life, with a total asset profitability coefficient of 0.027, and the insurance company with the lowest efficiency is Generali Vietnam with ROA of - 0.297. In 2019, the highest average efficiency over the entire period was 0.014; the insurance company with the highest efficiency was Daichi Life, with a result of 0.831, and the insurance company with the lowest efficiency was Sunlife Vietnam,



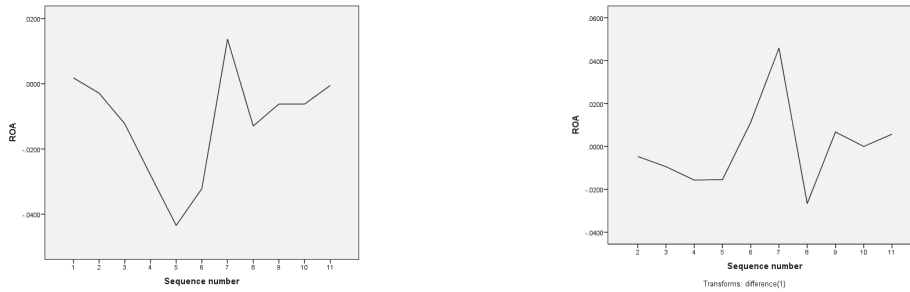
*Figure 3: Average ROS business performance of listed insurance companies in the period 2013 - 2023*

with a price ROA value of - 0.04. In 2023, the average revenue profit margin and ROA profitability coefficient of insurance businesses show signs of increasing, the ROS value increases by 76.5% from 0.06 to 0.11, in which the enterprise with the most substantial increase in ROA value is Cathay Vietnam from 0.02 to 0.52; ROA value still has a negative average value but has improved, in which Cathay Vietnam also has the highest ROA value increase from 0.002 to 0.052. The analysis results show that the overall efficiency of insurance companies during the research period, although at a low level, is showing signs of gradual improvement over the past five years.

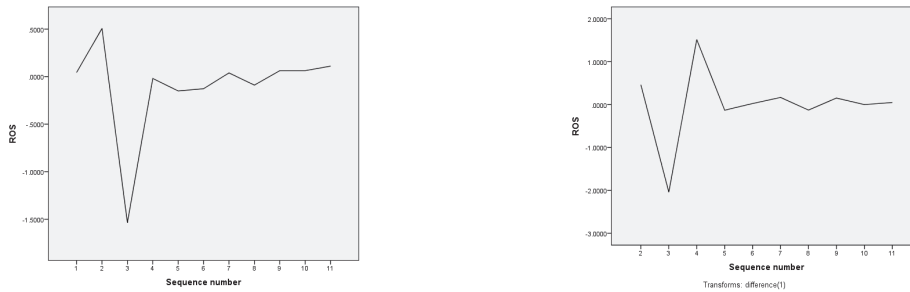
### ***3.2 Forecasting the business performance of insurance enterprises in the coming period***

*\* SPSS software application to check stop sequence:*

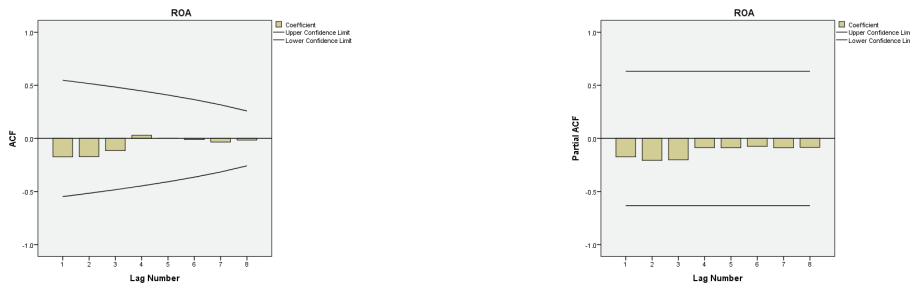
The results in Figure 1 show that the evolution of the asset profitability coefficient ROA and the average profit margin of revenue ROS by year could be more stable. Specifically, the average tends to decrease. To stop the series, take the first difference using SPSS software.



**Figure 1.1: The ROA series does not stop and stops when the first difference is taken**



**Figure 1.2: The ROS chain does not stop and stops when taking the first difference**



**Figure 2.1: ACF and PACF (ROA) graph**



**Figure 2.2: ACF and PACF (ROS) graph**

\* Build an ARIMA model for the profitability coefficient ROA of insurance companies

ARIMA identification (p,d,q). To determine the p and q values of the ARIMA model, it is necessary to rely on the ACF and PACF charts. From observing the PACF and ACF graphs, we obtain ARIMA

(0,1,0) for the ROA series and ARIMA (1,1,1) for the ROS series.

\* Model estimation

Medium-term forecasts of the value of asset profitability coefficient and return on revenue based on the ARIMA (0,1,0) and ARIMA(1,1,1) models are presented in Table 2 and Table 3.

| Forecast    |          |         |         |         |         |         |
|-------------|----------|---------|---------|---------|---------|---------|
| Model       |          | 2024    | 2025    | 2026    | 2027    | 2028    |
| ROA-Model_1 | Forecast | -0.0007 | -0.0010 | -0.0012 | -0.0014 | -0.0017 |
|             | UCL      | .0446   | .0631   | .0773   | .0892   | .0997   |
|             | LCL      | -.0461  | -.0651  | -.0798  | -.0921  | -.1031  |

Table 2: Forecasting ROA profitability coefficient for the period 2024 - 2028

| Forecast    |          |       |       |       |       |       |
|-------------|----------|-------|-------|-------|-------|-------|
| Model       |          | 2024  | 2025  | 2026  | 2027  | 2028  |
| ROS-Model_1 | Forecast | .0833 | .1356 | .1644 | .2001 | .2338 |
|             | UCL      | 1.440 | 1.517 | 1.557 | 1.591 | 1.624 |
|             | LCL      | -1.27 | -1.24 | -1.22 | -1.19 | -1.15 |

Table 3: Forecast of profit margin on ROS revenue for the period 2024 - 2028

**IV. Conclusion**

With forecast results on the business performance of insurance enterprises, specifically on the ROA profitability coefficient criteria, the profit ratio on ROS revenue tends to increase in the period 2024-2028 reaching the highest value ROA is 0.0997 and ROS is 1.624. This result is consistent with the insurance market development strategy until 2030, with the target of average revenue growth of the entire insurance industry in the period 2021-2025 being 15%/year, and by 2025, the scale will reach 3- 3.3% of GDP; Average growth in the period 2026-2030 is 10%/year, by 2030 the scale will reach 3.3-3.5%. By 2025, 15% of the population will participate in life insurance; By 2030, 18% of the population will participate in life insurance, achieving an average growth rate of 10%/year in revenue from providing insurance products in the online

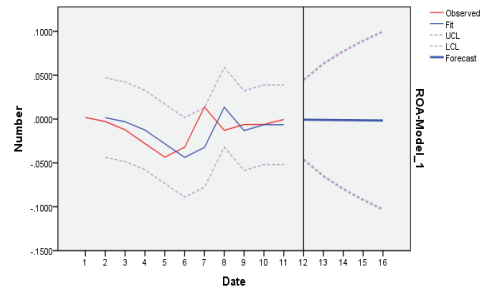


Figure 4: Results of forecasting the ROA profitability coefficient of the companies assurance Company

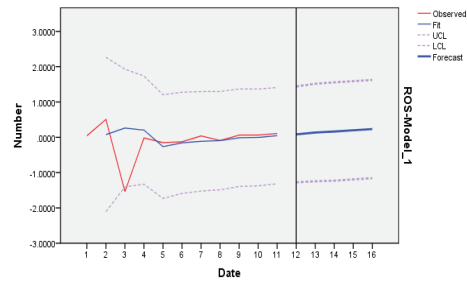


Figure 5: Forecast results of profit margin on revenue of companies assurance Company

environment in the period 2023-2030. To achieve such results, management agencies must continue to reform administrative procedures and enhance the application of information technology to improve the effectiveness and efficiency of management and supervision. On the part of insurance businesses, it is necessary to rectify and improve management capacity to aim for sustainable development and improve quality from products to sales teams and distribution channels, thereby meeting customers' needs and increasing customer trust.

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## KẾT QUẢ HOẠT ĐỘNG KINH DOANH VÀ DỰ BÁO KẾT QUẢ HOẠT ĐỘNG KINH DOANH CỦA CÁC DOANH NGHIỆP BẢO HIỂM TẠI VIỆT NAM

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**Tóm tắt:** Thị trường bảo hiểm Việt Nam hiện nay có nhiều tiềm năng lợi thế: các sản phẩm bảo hiểm được tăng cường cả về số lượng và chất lượng, đáp ứng ngày càng tốt hơn nhu cầu đa dạng của khách hàng, nhiều loại hình sản phẩm mới tuy nhiên vẫn còn nhiều thách thức như chất lượng nhân lực, cơ sở dữ liệu thị trường, ứng dụng công nghệ thông tin. Bài báo đã nghiên cứu hiệu quả hoạt động kinh doanh của các doanh nghiệp bảo hiểm trong giai đoạn 2013 – 2023 và sử dụng mô hình ARIMA để dự báo về hiệu quả hoạt động kinh doanh của các doanh nghiệp bảo hiểm. Kết quả dự báo phù hợp với chiến lược phát triển thị trường bảo hiểm đến năm 2030. Bài báo đã đề xuất một số kiến nghị với cơ quan quản lý và giải pháp về phía doanh nghiệp bảo hiểm nhằm đạt được quy mô, tốc độ tăng trưởng, hiệu quả kinh doanh như chiến lược đặt ra.

**Từ khóa:** doanh nghiệp bảo hiểm, giai đoạn 2013-2023, hiệu quả kinh doanh, dự báo, mô hình ARIMA.

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