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FACTORS OF PROFITABILITY OF INSURANCE COMPANIES IN THE REPUBLIC OF SERBIA

Faktori profitabilnosti osiguravajućih društava u Republici
Srbiji

Abstract

All companies strive to maximise profit, i.e. net income. Since insurance companies are also businesses, it is clear that they too aim to achieve and maximise profit. For the management of insurance companies, apart from providing security to policyholders, the primary goal is to generate and increase profit year after year. However, depending on the type of business, the factors that contribute to profitability, or the ability of a company to generate profit, differ. This paper examines the relationship and impact of specific factors, such as the age of the insurance company, premium revenue growth, liquidity, and leverage, on the profitability of insurance companies operating in the Republic of Serbia. The results of the research conducted in this paper indicate that age, premium revenue growth, and leverage have a statistically significant impact on the profitability of insurance companies. The research findings can be useful to various stakeholders, such as owners, management, creditors, and clients.

Keywords: *insurance companies, profitability, factors of profitability, financial performance*

Sažetak

Svim preduzećima je svojstveno da teže maksimiziranju profita, odnosno neto dobitka. Budući da su i osiguravajuća društva preduzeća, sasvim je jasno da i ona teže ostvarivanju i maksimiziranju profita, te da je za menadžment osiguravajućih društava, osim pružanja sigurnosti osiguranicima, primarni cilj sticanje i uvećavanje profita iz godine u godinu. Međutim, u zavisnosti od vrste preduzeća, različiti su faktori koji doprinose profitabilnosti, odnosno sposobnosti preduzeća da generiše profit. U ovom radu su ispitani povezanost i uticaj pojedinih faktora, kao što su starost osiguravajućeg društva, rast prihoda od premije, likvidnost i leveridž na profitabilnost osiguravajućih društava koja posluju na teritoriji Republike Srbije. Rezultati istraživanja sprovedenog u radu ukazuju na to da starost, rast prihoda od premije i leveridž imaju statistički značajan uticaj na profitabilnost osiguravajućih društava. Rezultati istraživanja mogu biti od pomoći brojnim stejkholderima, kao što su vlasnici, menadžment, kreditori i klijenti.

Ključne reči: *osiguravajuća društva, profitabilnost, faktori profitabilnosti, finansijske performanse*

Introduction

Businesses are established with various goals and motives, among which the acquisition and increase of profit can certainly be singled out as the most common goal that is given the greatest importance. However, with the development of the capital market and the increase in the number of stakeholders, a new and more modern approach to determining the primary goal of a business has emerged. Namely, it is believed that in the conditions of capital market growth, an increase in the number of owners, as well as the emergence of numerous stakeholders, the primary goal of a business should be to maximise value for stakeholders, rather than generating profit. It is considered that the purpose of business and the existence of a company is not to achieve profit, but to provide solutions to problems related to people and the planet, while profit is generated as part of this process [25, p. 15]. According to stakeholder theory, which is based on the premise that the most important goal is to maximise value, managers should make decisions taking into account the interests of all parties involved in the company, including not only financial creditors but also employees, customers, communities, government officials, and, according to some interpretations, the environment [19, p. 297]. Therefore, stakeholders should be the goal of businesses, rather than instruments for increasing profitability [13, p. 744]. However, in the Republic of Serbia, most businesses are still driven by the goal of maximising profit rather than maximising value, and this is also true for insurance companies, despite the specifics of their operations.

The insurance sector has great importance for every country, as evidenced by Haiss and Sümegi [17, p. 406], who state that the significance of the relationship between insurance and economic growth is becoming increasingly apparent due to the growing share of the insurance sector in the overall financial sector in almost every developing economy and mature market economy. Haiss and Sümegi also note that insurance companies, together with mutual funds and pension funds, represent some of the largest institutional investors in the equity, bond, and real estate markets [17, p. 406]. Therefore, it is not surprising that there is a large number of stakeholders interested in the

financial performance of insurance companies. Indeed, the financial performance of insurance companies has direct implications for a wide range of stakeholders, from policyholders to shareholders, employees to brokers, and from regulatory bodies to potential investors [33, p. 334]. Additionally, Burca and Batrinca [10, p. 299] state that the financial performance of insurance companies, which in most cases is assessed through profitability, is relevant in the macroeconomic context, as the insurance industry is part of the financial system that contributes to stimulating economic growth and stability.

The subject of this paper is the various factors of profitability of insurance companies operating in the Republic of Serbia. These profitability factors have been identified in the paper based on previous research. In line with the defined research subject, the aim of the paper is to establish the relationship between the factors of profitability and profitability measured through profitability ratio indicator, as well as to determine the impact of these factors on profitability.

The paper, apart from the introduction and conclusion, consists of three parts. The first part presents a literature review and hypotheses development. The research methodology is presented in the second part of the paper, and the third part provides the research results, along with a discussion of the results.

Literature review and hypotheses development

As already mentioned, profitability still represents the main goal of businesses, and thus insurance companies, which makes it possible to identify a relatively large number of papers, studies, and research addressing the impact of certain factors on the profitability of insurance companies. Numerous efforts have been made to understand and encompass as many factors as possible that may influence the profitability of insurance companies. In most cases, these studies focus on the profitability of insurance companies offering either life or non-life insurance services, and specific internal factors are often used to determine their impact on profitability. The profitability of insurance companies depends on numerous factors, which can be classified into internal, industry, and macroeconomic

factors, with most research focusing on internal factors of profitability, such as company age, asset size, debt ratio, growth rate, premium growth rate, asset growth rate, and liquidity ratio [37, p. 4].

The most commonly used dependent variable for measuring profitability in both the banking and insurance sectors is Return on Assets (ROA) [16, p. 657]. However, some authors consider it useful to use other profitability indicators as well. For example, Bourke [9, p. 73] in his study uses various profitability measures, such as Return on Equity (ROE), ROA, and added value of return on total assets. Adams and Buckle [2, p. 137] use the ratio of net income from investments to net premiums as a dependent variable, arguing that it summarises the performance in two main economic activities of insurance companies: investment management and risk underwriting. Additionally, Oscar Akotey et al. [30, p. 298] use three profitability measures as dependent variables: ROA, investment income, and profit from risk underwriting.

The following is an overview of the individual determinants on the basis of which the research hypotheses have been formulated in this paper, based on previously conducted studies. Each determinant has a potential impact on the profitability indicators of insurance companies.

The profitability of insurance companies can be significantly influenced by the age of the companies, as established by numerous studies. It could be expected that older insurance companies achieve higher profitability rates, which has been confirmed by previous research. Derbali [14, p. 95] highlights that based on the results of his research, it can be concluded that the age of a company has a significant positive impact on the profitability of insurance companies. Pervan et al. [32, p. 162], analyzing insurance companies from Bosnia and Herzegovina, report a positive impact of age on profitability, which is also confirmed by the research results of Kulustayeva et al. [21, p. 2401]. Additionally, Ambaw and LiJuan [6, p. 116] found that the age of insurance companies positively affects profitability, measured by the ROA indicator. Samosir [35, p. 56], analyzing the impact of age on company profitability, notes that there is a positive effect of age on company profitability, which aligns with the results of Coad et al. [12, p. 186]. Osunsan et al. [31, p. 418] also indicate that a

positive impact of company age on profitability has been identified. Given the results of previous studies, the first research hypothesis can be formulated:

H₁: The age of insurance companies has a statistically significant positive impact on the profitability of insurance companies.

The profitability of insurance companies can be significantly influenced by the growth of insurance premium revenue. It could be expected that insurance companies achieving higher rates of premium revenue growth will exhibit better profitability performance, which has been confirmed by numerous studies. For example, Greene and Segal [16, p. 244] concluded in their research that premium growth, measured as the increase in insurance premium revenue, has a positive impact on the profitability of insurance companies. Pjanić et al. [33, p. 342] reached the same conclusion while analysing the non-life insurance sector. Öner Kaya et al. [29, p. 525] also state in their study that the growth of earned premiums leads to an increase in the profitability of insurance companies. Agustin et al. [3, p. 61] observed that the growth of insurance premiums triggers an increase in the profitability of insurance companies. Nusantara and Priantinah [26, p. 10] similarly concluded in their research that the growth of premium revenue has a positive effect on the profitability of insurance companies. Based on the presented findings of previous research, the second research hypothesis is formulated:

H₂: The growth of insurance premium revenue has a statistically significant positive impact on the profitability of insurance companies.

Liquidity may also be of critical importance for the profitability of insurance companies, bearing in mind the fact that profitability and liquidity are opposing goals, as evidenced by a considerable number of studies. Tegegn et al. [37, p. 12] highlight this in their study, stating that their research results showed a negative impact of liquidity on the profitability of insurance companies. Similarly, Öner Kaya et al. [29, p. 526], analysing Turkish insurance companies, emphasised that it was established that insurance companies with higher liquidity achieve lower profitability rates. Sambasivam and Ayele [34, p. 34] reached the same conclusion in their research, noting

that liquidity negatively affects profitability. Adams and Buckle [2, p. 139] in their study state that liquidity has a negative impact on the profitability of insurance companies. Gatsi et al. [15, p. 64], based on the results of empirical research conducted on insurance companies in Ghana, concluded that liquidity has a significant negative impact on profitability. Odira [27, p. 18] also notes that higher liquidity causes lower profitability in insurance companies, which is confirmed by the research findings of Meher and Zewudu [24, p. 77]. Sasidharan et al. [36, p. 248] found evidence of a negative impact of liquidity on profitability in their study results. Abubakar et al. [1, p. 1] reached results that confirm liquidity negatively affects the profitability of insurance companies. Analysing Nigerian insurance companies, Bala et al. [7, p. 129] concluded that liquidity negatively impacts profitability. In their analysis of Nepalese insurance companies, Wosti and Pradhan [39, p. 172] arrived at identical results. Given the presented findings of previous research, the third research hypothesis is formulated:

H₃: The liquidity of insurance companies has a statistically significant negative impact on the profitability of insurance companies.

Leverage can have a significant impact on the profitability of insurance companies, where it is expected that insurance companies with higher leverage achieve lower profitability rates. Malik [23, p. 319], analysing Pakistani insurance companies, concluded that leverage has a statistically significant negative impact on profitability, which is also confirmed by Kumar et al. [22, p. 308] when analysing a sample of insurance companies from Fiji. Ahmeti and Iseni [4, p. 134] similarly state that their results indicate a negative impact of leverage on the profitability of insurance companies. Horvey et al. [18, p. 16], analysing companies in South Africa, arrived at identical results in their study. Kulustayeva et al. [21, p. 2404] also argue, based on their research findings, that leverage has a negative impact on profitability. Camino-Mogro and Bermúdez-Barrezueta [11, p. 858], analysing Ecuadorian insurance companies, concluded that leverage negatively affects the profitability of insurance companies. Bilal et al. [8, p. 15] note that their research results confirm that leverage has a negative impact on the profitability of insurance companies.

Considering the presented research findings, the fourth research hypothesis can be formulated as follows:

H₄: The leverage of insurance companies has a statistically significant negative impact on the profitability of insurance companies.

Methodology of research

For the purposes of the research, a sample was formed consisting of 20 insurance companies operating in the territory of the Republic of Serbia. All the insurance companies belong to the category of large enterprises, according to the criteria outlined in the Law on Accounting of the Republic of Serbia [28]. Additionally, all the insurance companies are organized as joint-stock insurance companies.

The time period covered by the research spans from 2014 to 2023, a total of ten years, with all company performances observed at the end of each year, considering that the subject of analysis is the financial statements of the companies, which are published at the end of the fiscal year. The research presented in this paper encompasses various types of companies engaged in insurance or closely related to insurance activities. Specifically, the sample used in the research consists of companies involved in life insurance, non-life insurance, as well as reinsurance. Since these types of companies operate under different business models and risk profiles, they are all part of the insurance market in the Republic of Serbia and are appropriate subjects for this type of research. Given that the performance of 20 companies are observed over a 10-year period, the research includes a total of 200 observations. An important criterion for inclusion in the sample was that companies must have operated continuously throughout the observed period from 2014 to 2023. Companies that ceased operations, merged, or entered the market after 2014 were excluded. This criterion ensured that each company had a complete series of annual financial statements for the full 10-year period, which is necessary for consistent panel data analysis. Including companies that entered or exited the market during the observation period would have resulted in an unbalanced panel, potentially compromising the comparability of results and the reliability of regression estimates. Therefore, the exclusion of such companies was

not only intentional but also methodologically justified, as it ensured data consistency and increased the robustness of the statistical analysis. All financial statements of the insurance companies were obtained from the website of the National Bank of Serbia (NBS), and the data presented in these statements were processed using the EViews statistical software.

In this study, a multiple panel regression model was used to estimate the type and intensity of the relationship between the dependent variable and the independent variables. The regression analysis examines the impact of the independent variables on the profitability of insurance companies as the dependent variable. The functional relationship between the variables is described by a linear panel model in the following form:

$$ROA_{it} = \beta_{1it} + \beta_2 AGE_{it} + \beta_3 GROW_{it} + \beta_4 LIQ_{it} + \beta_5 LEV_{it} + \varepsilon_{it}$$

where:

ROA_{it} – the return on assets (ROA) ratio (the ratio of net profit for the current year to the average assets over two consecutive years),

$\beta_{1it}, \beta_2, \dots, \beta_5$ – regression coefficients, which indicate the intensity of the influence of each independent variable on the dependent variable,

AGE_{it} – the number of years since the establishment of the insurance company up to year t ,

$GROW_{it}$ – the chain index of growth in insurance premium income of the insurance company i in year t ,

LIQ_{it} – the liquidity ratio of the insurance company i in year t , calculated as the ratio of current assets minus inventories to current liabilities,

LEV_{it} – the leverage of the insurance company i in year t , calculated as the ratio of total liabilities to equity (D/E ratio, DER – Debt-to-Equity Ratio),

ε_{it} – the error (residual term),

$i = 1, \dots, 20$ and

$t = 1, \dots, 10$.

The decision to include only four explanatory variables – company age, premium income growth, liquidity, and leverage – was made deliberately, based on both theoretical relevance and data availability. These variables are among the most widely examined and consistently validated internal determinants of profitability in the insurance sector, as

confirmed by previous studies. By focusing on a limited number of core financial indicators, the model aims to isolate and examine their specific effects on profitability in the context of the Serbian insurance market during a volatile economic period (2014–2023), which includes the COVID-19 crisis.

Furthermore, a more parsimonious model enhances interpretability and reduces the risk of multicollinearity, which is especially important in panel data analysis involving a relatively small and fixed sample of companies. Although additional variables such as firm size, market share, reinsurance ratio, or investment income could potentially enrich the analysis, consistent and complete data for all companies across the ten-year period were not available, making their inclusion methodologically problematic. Future studies could expand the model once more comprehensive datasets become accessible.

The representativeness of the model is assessed by determining the coefficient of determination (R^2) and the p-value of the regression model. Confidence levels of $\alpha = 0.05$ and $\alpha = 0.01$ were used to determine statistical significance. For the analysis of autocorrelation between the observed independent variables, the absence of which is a prerequisite for conducting regression analysis, the Durbin-Watson statistic was used. Additionally, a potential issue in research of this kind may be the presence of multicollinearity, i.e., strong interdependence among the independent variables. Therefore, in order to identify any potential multicollinearity, the Variance Inflation Factor (VIF) was used in this study. To determine the type of panel regression analysis, and to choose between a fixed effects or random effects model, the Hausman test was employed.

In addition to regression analysis, correlation analysis was also used in the study. The correlation coefficient indicates the strength of the relationship between two variables and can range from -1 to +1. When the value of the coefficient is zero, there is no correlation between the variables. A coefficient value of 1.00 indicates a perfect positive correlation, while a value of -1.00 indicates a perfect negative correlation. The closer the coefficient value is to zero, the weaker the relationship, while the relationship is stronger the closer the value is to one [33, p. 340]. In this study, Spearman's correlation coefficient was used,

as it was determined that the observed phenomenon does not follow a normal distribution.

Research results and discussion

The descriptive statistics of the variables used are presented in Table 1. It can be observed that, on average, insurance companies in Serbia achieve a net profit of 0.018 dinars for every dinar of assets employed, with the highest ROA coefficient observed during the study period being 0.162. There are also insurance companies with a negative ROA, meaning they operated at a loss. Additionally, it is notable that the youngest insurance company is only 2 years old, while the oldest insurance company in the sample is 60 years old. A significant difference between the minimum and maximum values is present for the liquidity ratio (the lowest value is 0.273, and the highest is 126.103), which explains why the standard deviation is most pronounced for the liquidity indicator.

Table 1: Descriptive statistics of variables used

	ROA	AGE	GROW	LIQ	LEV
Mean	0.018	20.650	1.134	15.784	3.683
Median	0.020	19.000	1.090	9.783	3.044
Minimum	-0.781	2.000	0.452	0.273	0.216
Maximum	0.162	60.000	3.921	126.103	13.192
Standard deviation	0.066	11.455	0.324	22.016	2.577
Observations	200	200	200	200	200

Source: Authors

Before determining the impact of the independent variables on the dependent variable, i.e., performing the panel regression analysis, it is first necessary to establish whether there is interdependence between the observed variables. For this purpose, a correlational statistical analysis was conducted, using the Spearman correlation coefficient. The correlation matrix with the Spearman correlation coefficients is presented in Table 2.

Table 2: Matrix of Spearman's correlation coefficients

	ROA	AGE	GROW	LIQ	LEV
ROA	1.000	0.403**	0.045	0.182**	-0.153*
AGE	0.403**	1.000	-0.006	0.149*	-0.039
GROW	0.045	-0.006	1.000	-0.173*	0.051
LIQ	0.182**	0.149*	-0.173*	1.000	-0.327**
LEV	-0.153*	-0.039	0.051	-0.327**	1.000

Note: statistically significant at the level of 5%(*) and 1%(**)

Source: Authors

Based on the presented data of Spearman correlation coefficients, it can be unequivocally concluded that the profitability of insurance companies, measured by ROA, is statistically significantly correlated with the age of the company, liquidity, and leverage. The relationship between ROA and the age of insurance companies is positive, moderate in intensity, and statistically significant at the 1% level. Regarding the interdependence between ROA and premium income growth, it can be observed that there is no statistically significant relationship at the 5% or 1% level. The relationship between profitability, observed through the ROA indicator, and liquidity, viewed as the ratio of current assets minus inventories to current liabilities, is statistically significant at the 1% level. This relationship is positive and weak in intensity, showing that an increase in one of the two observed variables by one unit leads to an increase in the other variable by 0.182 units. Further analysis in the paper, which will focus on regression analysis, will determine the potential impact of the independent variable of liquidity on the dependent variable of profitability. Finally, when observing the interdependence between ROA and leverage, a statistically significant relationship is observed at the 5% level, with a negative weak-intensity relationship. In other words, an increase in one of the two mentioned variables by one unit leads to a decrease in the other variable by 0.153 units. Considering the results of the presented correlation analysis, it is also noticeable that liquidity is correlated with all observed variables at the 5% or 1% level. This observation points to the conclusion that autocorrelation of the observed variables, must be considered and analyzed when conducting the panel regression analysis of the impact of independent variables on the dependent variable of profitability, which follows in the next section of the paper.

In order to test the proposed research hypotheses, panel regression analysis was used in the paper, since all four research hypotheses relate to the impact of identified independent variables on the dependent variable ROA. The results of the Hausman test are provided in Table 3,

Table 3: Hausman test results

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	p-value
Cross-section random	15.344	4	0.004

Source: Authors

while the results confirming the validity of the constructed model are presented in Table 4. Additionally, the results of the panel regression analysis are presented in Table 5.

Based on the results of the Hausman test presented in Table 3, it is clear that the p-value of the conducted test is 0.004, which is lower than the error risk $\alpha = 0.01$. This means that the results of the Hausman test are statistically significant at the 1% level. These results suggest that a panel regression model with fixed effects should be used. Specifically, if the p-value of the Hausman test is greater than the error risk α , a panel regression model with random effects should be used. On the other hand, if the p-value of the Hausman test is lower than the error risk α , then it is necessary to use a panel regression model with fixed effects [20, p. 377].

Table 4: Validity of model

Model	R2	Stand. error	Durbin-Watson	Wald test (prob.)	F	p-value
1	0.262	0.061	2.367	0.000	2.713	0.0001

Source: Authors

Based on the data presented in Table 4, it can be concluded that the constructed model explains 26.2% of the observed phenomenon, meaning that 26.2% of the changes in the dependent variable are influenced by the independent variables, while the remaining part is influenced by other external factors not captured by the model. The results of the Durbin-Watson test for autocorrelation (which should be approximately 2 [33, p. 341]) indicate that there is minimal autocorrelation between the independent variables, or in other words, autocorrelation is almost nonexistent. To test for the presence of heteroskedasticity, the Wald test was employed in this study, given that the analysis is based on a fixed effects panel regression. Since the p-value of the Wald test was determined to be 0.000, it is concluded that heteroskedasticity is present. Therefore, robust standard errors were used in the regression analysis. Moreover, the overall model is statistically significant at the 1% level, as the p-value of the model is 0.0001.

Considering the results of the panel regression analysis presented in Table 5, it can be unequivocally concluded that three out of the four observed independent variables have a statistically significant impact on profitability measured by the ROA indicator. Also, based on the VIF

Table 5: Panel regression with fixed effects

Variable	β	Robust Std. Err.	t	p-value	VIF
AGE	0.004179	0.001632	2.5602	0.0191*	1.0450
GROW	0.045708	0.016569	2.7587	0.0013**	1.0440
LIQ	-0.000298	0.000309	-0.9655	0.3464	1.0138
LEV	-0.107326	0.052731	-2.0353	0.0460*	1.0095

Note: statistically significant at the level of 5%(*) and 1%(**)

Source: Authors

values presented in the last column of Table 5, it can be concluded that there is no evidence of multicollinearity. Namely, VIF values below 10 are considered acceptable, and Table 5 clearly shows that the VIF for two independent variables is about 1.01, while for the other two it is about 1.05, indicating that the VIF values are well below the threshold of concern. So, it can be concluded that precondition of successful regression analysis is satisfied.

Regarding the impact of the age of the company on profitability, it is concluded that there is a statistically significant positive impact at the 5% level. Based on the determined value of the beta coefficient, it can be stated that if the age of the insurance company increases by one year, the ROA indicator increases by 0.004, or if the age of the insurance company increases by 1%, the ROA indicator will be 0.4% higher. In other words, it has been established that older insurance companies achieve higher profitability, meaning that the older the insurance companies, the higher the ROA indicator. The reason for these results may lie in the fact that older insurance companies have better reputations, leading current and potential clients to prefer entering into insurance contracts with older companies. Given that these are reputable insurance companies that have been operating for many years or decades and have survived in the market despite numerous challenges faced by businesses, it is not surprising that such companies achieve higher profitability. These findings align with the results of previous research (Derbali, 2014; Pervan et al., 2012; Kulustayeva et al., 2020; Ambaw & LiJuan, 2021; Samosir, 2018; Coad et al., 2013; Osunsan et al., 2015), supporting the *acceptance of the first research hypothesis*.

When it comes to the impact of the growth in insurance premium income on profitability measured by the ROA indicator, it can be concluded that a statistically significant positive impact has been identified at the 1% level, despite the correlation analysis showing no

statistically significant interdependence. It was observed that if premium income increases by 1%, the ROA will increase by 0.046%, as indicated by the beta coefficient. Thus, the growth in premium income has a clear positive impact on profitability, which is not surprising given that the main source of income for insurance companies is precisely the revenue from insurance premiums. However, the intensity of the ROA growth is weaker compared to the intensity of the growth in insurance premium income, meaning that as premium income grows, profitability will also increase, albeit to a lesser extent. Given the above, *the second research hypothesis is confirmed*, what aligns with the results of previous research (Greene & Segal, 2004; Pjanić et al., 2018; Öner Kaya et al., 2015; Agustin et al., 2018; Nusantara & Priantinah, 2021).

When examining the data on the impact of liquidity on profitability, it is concluded that there is no statistically significant impact. Specifically, the obtained result is not significant at either the 1% or the 5% level. Furthermore, the beta coefficient value is negative, indicating a negative impact of liquidity on the profitability of insurance companies, which is not statistically significant. The negative impact of liquidity on profitability contradicts the findings of the correlation analysis, which showed a positive relationship between liquidity and profitability, with a confidence level of 1%. Therefore, the results of the regression analysis align with the formulated research hypothesis but lack statistical significance. Given that the correlation analysis demonstrated a statistically significant positive relationship between liquidity and profitability, but the regression analysis produced contradictory results that are not statistically significant, *the third research hypothesis is rejected*. So, these results are not in line with results of previous research (Tegegn et al., 2020; Öner Kaya et al., 2015; Sambasivam & Ayele, 2013; Adams & Buckle, 2003; Gatsi et al., 2013; Odira, 2018; Meher & Zewudu, 2020; Sasidharan et al., 2023; Abubakar et al., 2018; Bala et al., 2022; Wosti & Pradhan, 2023).

Based on the results of the panel regression analysis regarding the impact of leverage on profitability, measured through the ROA indicator, it can be concluded that a statistically significant effect has been identified. Specifically, the impact of leverage on profitability is negative and

significant at the 5% level. The beta coefficient is -0.107, indicating that an increase in leverage of 1% leads to a reduction in profitability by 0.107%. The negative impact of leverage on the profitability of insurance companies is explained by the fact that more leveraged insurance companies face higher interest expenses and other borrowing-related costs, which affect the net result and, consequently, the ROA indicator derived from the net result. Additionally, the results of the previously conducted correlation analysis indicated an inverse (negative) relationship between leverage and the ROA indicator, further supporting the assertion that leverage negatively affects profitability. Thus, it is concluded that the obtained results confirm the findings of prior research (Malik, 2011; Kumar et al., 2022; Ahmeti & Iseni, 2022; Horvey et al., 2024; Kulustayeva et al., 2020; Camino-Mogro & Bermúdez-Barrezueta, 2019; Bilal et al., 2013), and *the fourth research hypothesis can be accepted*.

Compared to earlier studies on the Serbian insurance market, such as Pjanić et al. (2018) and Kočović et al. (2014), which used similar methods and a broader set of explanatory variables, this paper contributes to the literature in several ways. Most notably, it utilises an updated and extended panel dataset covering a full decade (2014 – 2023), which includes the period of the COVID-19 pandemic, a global exogenous shock that significantly affected financial markets and business performance across sectors – including the insurance industry. The inclusion of this unique period adds relevance and contemporary value to the findings, as it allows for the analysis of company behaviour and profitability under conditions of extreme uncertainty and market disruption. Moreover, the use of a balanced panel of companies that operated continuously throughout this challenging period ensures that the results reflect long-term strategic performance rather than temporary market entries or exits. While the model used in this study explains a smaller portion of the variance in profitability compared to some earlier models with more variables (e.g., higher R^2), the focus here is on key, robust internal financial factors that are most directly actionable and interpretable by decision-makers within insurance firms, especially in volatile economic environments. This trade-off allows for a more focused and policy-relevant analysis.

Conclusion

The research conducted in this study encompassed 20 insurance companies operating in the territory of the Republic of Serbia, observing their performance over a 10-year period, resulting in a total of 200 observations. The aim of the research was to determine the interdependence between certain factors and profitability, measured through the ROA profitability indicator, as well as to assess the impact of the identified factors on profitability.

Considering the results of the conducted research, it was concluded that out of the four identified independent variables, two variables have a positive impact on the profitability of insurance companies. Specifically, the age of insurance companies, measured as the number of years since the establishment of the insurance company, and the growth of premium income, measured as the chain index of insurance premium income, were found to have a statistically significant positive impact on the profitability of insurance companies. Thus, as the values of these two variables increase, the profitability expressed through the ROA indicator also increases. However, when either of these two independent variables changes, the resulting change in profitability is less intense compared to the change in the independent variable itself.

On the other hand, it was determined that one of the four independent variables has a statistically significant inverse (negative) impact. Specifically, this refers to leverage, where it was also observed that the intensity of the change in the ROA indicator is weaker compared to the change in the leverage ratio. In other words, the research conducted in this study established that an increase in leverage (debt level) leads to a decrease in the profitability of the insurance companies included in the sample. Furthermore, regarding the fourth independent variable, namely liquidity and its impact on the profitability of insurance companies, it was noted that there is a negative influence. However, this influence is not statistically significant and, therefore, cannot be considered a relevant result.

The results of the conducted research may prove useful to various stakeholders. Primarily, the owners and managers of insurance companies can benefit by gaining insights into strategies for the growth of insurance companies

and the long-term improvement of profitability. These objectives are characteristic of enterprises in the Republic of Serbia and countries in the region, as highlighted at the beginning of this study. By examining the factors identified as influencing the profitability of insurance companies, owners and managers can, to some extent, manage profitability in future business operations.

Business continuity is a crucial factor for creditors of all companies, including insurance companies. By examining the profitability factors of insurance companies, creditors can determine whether an insurance company is creditworthy, i.e., capable of repaying the debt it applies for, given that profitability is one of the most important prerequisites for this. Likewise, information about the business continuity of insurance companies is of vital importance to clients, as many clients, whether legal entities or individuals, enter into long-term insurance contracts. Furthermore, clients value information about the profitability of insurance companies, considering that insured events might occur, requiring the insurance company to compensate for damages by paying the insurance indemnity or the insured amount.

The research conducted in this paper has certain limitations. Specifically, the study was carried out on a relatively small sample consisting of 20 insurance companies. This is due to the fact that only 20 insurance companies were available for analysis, whose performance could be tracked over the observed 10-year period. In other words, only 20 insurance companies that were included in the study operated continuously from 2014 to 2023. The research conducted in this paper is based on a sample that includes companies engaged in life insurance, non-life insurance, as well as reinsurance. Since these types of companies operate under different business models and risk profiles, analyzing them jointly can distort results. Additionally, a limitation of the research may lie in the fact that only insurance companies operating within the territory of the Republic of Serbia were included. It is also possible that using a different research methodology would have yielded different results.

Future research could involve a larger sample by including insurance companies operating in neighbouring countries. Additionally, the sample could be expanded to

include companies from the real sector as well as banks. In this case, the impact of the identified factors on profitability could be examined for these groups of companies, and certain tests for comparing mean values across different groups of companies could be applied.

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