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THE USE OF ALTERNATIVE PERFORMANCE MEASURES IN EVALUATION OF THE FINANCIAL PERFORMANCE OF INSURANCE COMPANIES IN THE REPUBLIC OF SERBIA

REVIEW ARTICLE

Abstract

The purpose of this paper is to evaluate the financial performance of insurance companies by applying an alternative financial metric in combination with cash flows. The sample includes 16 insurance companies operating in the Republic of Serbia during the period between 2017 and 2021. The authors provide evidence that indicators based on cash flows provide greater informational value compared to earnings measures based solely on accrual categories. It was found that the majority of the observed insurance companies have a value of earnings quality indicators greater than 0 during the five-year period. There are fluctuations in the values of earnings quality indicators, but they are not statistically significant. The research results may be of interest to insurance company managers, investors, analysts, and other stakeholders.

Keywords: *insurance companies, non-standardized financial indicators, cash flows, evaluation, Republic of Serbia.*

JEL classification: M41, G22

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I. Introduction

Insurance businesses play a vital role in the financial systems of all countries.⁴ Apart from providing compensation for damages resulting from insured events,⁵ insurance companies foster competition in the financial market, foster the development of innovative financial products, and enhance corporate governance.⁶ Overall, the insurance sector is crucial not only in the global economy but also in national economies.⁷ Insurance and reinsurance companies have a significant impact on every economy as they accumulate substantial funds for investment in various sectors.⁸

Insurance companies play a crucial socio-economic role, making it essential to assess their financial performance and stability. Thus, management, insurance market regulators, and other stakeholders should regularly monitor insurance companies' financial performance. The growing attention from the scientific community is evident in the substantial amount of published research in this field.⁹ The significance of monitoring insurance companies' financial performance becomes even more pronounced during various crises, including financial and health crises.¹⁰ Additionally, insurance companies are exposed to economic and political risks.¹¹ The effectiveness of an insurance company's policies directly impacts its financial performance.¹² In other words, internal determinants such as size, loss ratio, investment coefficient, capital structure, and historical growth of insurance premiums contribute to the financial performance of an insurance company. Furthermore, external performance determinants, including the institutional and political environment, also play a significant role in shaping the financial performance of insurance companies.¹³

⁴ M. Jakšić, *Finansijsko tržište: instrumenti i institucije*, 2016, Kragujevac: Faculty of Economics, University of Kragujevac.

⁵ B.W. Mazviona, M. Dube, T. Sakahuhwa, An Analysis of Factors Affecting the Performance of Insurance Companies in Zimbabwe, *Journal of Finance and Investment Analysis*, 6(1), 2017, 1- 2.

⁶ P. Mimović, M. Jakšić, V. Todorović, Choice of Life Insurance Companies by Using Analytic Hierarchy Process: Experience of the Republic of Serbia, *Journal of Insurance and Financial Management*, 3(1), 2017, 1-18.

⁷ R. Dankiewicz, M. Simionescu, The Insurance Market in Romania: A Macroeconomic and a Microeconomic Approach, *Transformations in Business & Economics*, 19(1), 2020, 248-261.

⁸ I. Amer, I. Modelling foreign exchange rate transaction exposure of UK insurance companies, *Journal of Economic and Administrative Sciences*, 32(2), 2016, 120–136, <https://doi.org/10.1108/JEAS-05-2015-0013>

⁹ R. Lukić, Primena ARAS metode u evaluaciji efikasnosti osiguravajućih društava u Srbiji, *Tokovi osiguranja*, 2021, 37(3), 9-36, <https://doi.org/10.5937/tokosig2103009F>

¹⁰ A. Aničić, A. Anufrijević, A. Da li je scenario razvoja osiguranja u Srbiji optimističan, *Revizor*, 25(99), 2022, 81–88, <https://doi.org/10.56362/Rev2299081A>

¹¹ M. Risimović, Z. Đurić, N. Đurić, Poslovanje sektora osiguranja u Republici Srbiji u uslovima pandemije Kovida 19, *Tokovi osiguranja*, 38(1), 2022, 111-129, <https://doi.org/10.5937/TokOsig2201111R>

¹² R. Kasturi, Performance management in insurance corporation, *Journal of Business Administration Online*, 5(1), 2006, 1–15.

¹³ H. Malik, Determinants of insurance companies' profitability: an analysis of insurance sector of Pakistan, *Academic Research International*, 1(3), 2011, 315–321.

The research paper focuses on analyzing the financial performance of insurance companies in the Republic of Serbia from 2017 to 2021, utilizing a combination of alternative financial metrics and cash flows. The main objectives of the paper are to evaluate the quality of earnings of insurance companies and examine the trends in earnings quality indicators during the specified period. The paper utilizes the following indicators of earnings quality: the ratio of Net Cash Flows from business activities (referred to as NCF from business activities) and Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA), the ratio of NCF from business activities to Earnings Before Interest and Taxes (EBIT), and ratio of NCF from business activities and Earnings Before Taxes (EBT). While previous research on the financial performance of insurance companies in the Republic of Serbia predominantly employed CARMEL indicators, this study stands out by employing a combination of alternative financial metrics and cash flows. The lack of prior research using this approach highlights the original contribution of this study.

The paper begins with introductory considerations, followed by a literature review. The third part outlines the research methodology and the data utilized. In the fourth part, the research findings are presented and analyzed. The final section concludes the paper by offering concluding remarks and discussing limitations encountered during the research process.

II. Literature Review

When evaluating the financial performance of insurance companies, insured individuals primarily focus on examining solvency and liquidity. Conversely, owners (shareholders) are primarily concerned with evaluating the profitability of the business. This evaluation helps them make informed decisions about retaining or divesting their shares.

To ensure the insurance company's ability to meet its obligations, it is crucial to monitor the asset/liability matching based on their maturity. This is a complex task, especially considering the uncertainty surrounding the timing and severity of individual claims.¹⁴ Therefore, careful planning of an insurance company's asset structure is essential to maintain optimal liquidity. Insurance companies operate under strict regulations to safeguard insured individuals from the risks of illiquidity and insolvency. Solvency refers to the company's capacity to fulfill contractual obligations over an extended period, while liquidity pertains to its ability to meet obligations as they become due.¹⁵

¹⁴ R. Lukić, M. Sokić, D. V. Kljenak, Analysis of insurance company's efficiency in the Republic of Serbia, *Economic and Environmental Studies*, 18(1), 2018, 249–264.

¹⁵ F. Colombini, S. Ceccarelli, Liquidity, solvency and cash flow simulation models in non-life insurance companies: the Italian experience, *Managerial Finance*, 30(5), 200476–96, <https://doi.org/10.1108/03074350410769083>

The statement of cash flows serves as the primary source of information for evaluating the solvency of insurance companies, making operational decisions related to cash flow management, and analyzing the disparity between periodic results (profit or loss) and changes in cash balances.¹⁶ Namely, this statement plays a crucial role in assessing both earnings quality (profit) and financial flexibility of insurance companies.¹⁷ It is important to note, however, that the significance of other financial statements, such as the balance sheet and income statement, should not be undermined.¹⁸

Due to the extensive data contained in financial statements, analysts employ a wide array of financial indicators to evaluate performance. Cash flow indicators derived from business activities offer a distinct perspective on financial performance compared to traditional accounting-based indicators.¹⁹ When assessing profitability based on accounting principles, it is customary to relate realized profits to sales revenues, business assets, and equity.²⁰ Depending on the specific circumstances and requirements, it is valuable to examine the relationships between various positions in the financial statements.²¹ Consequently, a multitude of profitability indicators have been developed. Among the commonly used coefficients, EBIT and EBITDA margins stand out.²² These indicators are obtained by dividing earnings (EBIT, EBITDA) by sales revenue.²³ EBITDA gained popularity in the 1980s as a means of evaluating a company's operational profitability relative to other businesses with similar models, irrespective of their capital structure. It is frequently employed as a gauge of an enterprise's debt-paying ability. Alternative Performance Measures (APMs) encompass financial measures of past performance or future financial performance, financial position, or cash flows. APMs are derived from financial statements that are prepared in accordance with the relevant financial reporting frameworks. They are not explicitly defined or prescribed by these frameworks (e.g., EBIT, EBITDA,

¹⁶ S. Knežević, A. Mitrović, Izveštaj o tokovima gotovine i finansijsko odlučivanje u društvima za osiguranje, *Bankarstvo*, 47(4), 2018, 108–123, <https://doi.org/10.5937/bankarstvo1804108K>

¹⁷ S. Knežević, A. Mitrović, D. Sretić, Specifics of reporting on cash flows in insurance companies, *Hotel and Tourism Management*, 6(2), 2018, 21–33, <https://doi.org/10.5937/menhottur1802029K>

¹⁸ K. Mandić, B. Delibašić, S. Knežević, S. Benković, Analysis of the efficiency of insurance companies in Serbia using the fuzzy AHP and TOPSIS methods, *Economic Research – Ekonomska Istraživanja*, 30(1), 2017, 550–565.

¹⁹ T. L. Zeller, B. B. Stanko, Operating Cash Flow Ratios Measure a Retail Firms Ability to Pay, *Journal of Applied Business Research*, 10(4), 1994, 51–59, <https://doi.org/10.19030/jabr.v10i4.5907>

²⁰ A. Mitrović, S. Knežević, M. Milašinović, Profitability analysis of hotel companies in the Republic of Serbia, *Hotel and Tourism Management*, 9(1), 2021, 131–134, <https://doi.org/10.5937/menhottur2101121M>

²¹ S. Knežević, A. Mitrović, M. Vujić, A. Grgur, A. Analiza finansijskih izveštaja, izdanje autora, 2019, Beograd.

²² M. Brozović, S. Mališ, Sever, L. Žager, Limitations in using EBIT and EBITDA margin in measuring companies' financial performance, *Zbornik radova Ekonomskog fakulteta Sveučilišta u Mostaru*, 24, 2019, 38–61.

²³ S. Knežević, R. Lukić, A. Mitrović, Application of non-standardized (alternative) financial metrics based on the income statement in measuring the performance of trade companies, *Scientific Conference Accounting and audit in theory and practice* (65–81), Banja Luka College, Banja Luka, 25th of May 2019.

free cash flow, etc.). However, their usage is extensive²⁴ and is more commonly employed by management compared to indicators based solely on GAAP (Generally Accepted Accounting Principles) or IFRS (International Financial Reporting Standards).

The research focuses on evaluating specific indicators of alternative financial metrics in relation to cash flow from business activities.²⁵ These indicators include:

- **Earnings quality 1:** EBITDA compared to NCF from business activities;
- **Earnings quality 2:** EBIT compared to NCF from business activities;
- **Earnings quality 3:** EBT compared to NCF from business activities.

The calculation of earnings quality 1 follows the formula:

$$\text{Earnings quality 1} = \text{NCF from business activities} / \text{EBITDA}$$

Similar calculations are made for other indicators of earnings quality based on NCF from business activities. These relationships assess the company's efficiency in converting various levels of profit into cash, which is significant for two reasons. Firstly, in credit analysis, it provides insights into the company's cash generation. Secondly, in the evaluation of the company's value, it helps assess the quality of the company's earnings.

III. Research Methodology and Data Utilized

As of the end of 2021, there were 20 (re)insurance companies operating in the Republic of Serbia, maintaining the same number as the previous year. Among these companies, 16 exclusively conducted insurance business, while four focused solely on reinsurance. Out of the insurance companies, four were engaged in life insurance, six in non-life insurance, and six in both life and non-life insurance. Based on ownership structure data from 2021, 15 of these companies were predominantly in foreign ownership. The research conducted in this paper utilized a sample of 16 insurance companies in the Republic of Serbia. The study covered their business activities during the period from 2017 to 2021. For the purpose of this research, individual financial statements of the insurance companies were sourced from the official website of the Business Registers Agency of the Republic of Serbia.²⁶

²⁴ A. Grgur, S. Milojević, Key non-standardized financial metrics based on the income statement for measuring hotel performance and the possibility of fraud. In: Runcheva Tasev, H. & Makrevska Disoska, E. (Eds.) *Business Threats and Opportunities in the Western Balkans* (19–29), 2021, Cambridge Publishing.

²⁵ T.L. Zeller, B.B. Stanko, Operating Cash Flow Ratios Measure a Retail Firms Ability to Pay, *Journal of Applied Business Research*, 10(4), 1994, 51–59, <https://doi.org/10.19030/jabr.v10i4.5907>

²⁶ Business Registers Agency of the Republic of Serbia, <https://www.apr.gov.rs/%D0%BF%D0%BE-%D1%87%D0%B5%D1%82%D0%BD%D0%B0.3.html>

The availability of high-quality financial reporting enhances the confidence of analysts and investors in their analysis based on these financial statements, consequently influencing investment decisions related to insurance companies.²⁷

For the purpose of statistical data processing, the statistical package *IBM SPSS Statistics Version 24* was utilized. Alongside the descriptive statistics outcomes, the results of Friedman's test are provided below. This test was employed to assess whether there was a statistically significant variation in the earnings quality indicators over the observed period. In case the Friedman test detects significant differences among the earnings quality indicator values across the five-year period, subsequent individual Wilcoxon rank tests should be conducted as the next step.²⁸ When conducting individual Wilcoxon tests, it is essential to apply Bonferroni correction to the alpha values to mitigate the risk of Type I error.²⁹ Since the Wilcoxon test compares indicator values of each year with the previous year (e.g., 2018 with 2017, 2019 with 2018, etc.), the initial level of statistical significance of 0.05 needs to be adjusted. To address multiple comparisons, the significance level is divided by 4, resulting in a new level of significance of 0.0125.

IV. Research Results and Discussion

Table 1 presents the results of the descriptive analysis of earnings quality indicators 1 in insurance companies in the Republic of Serbia from 2017 to 2021.

Table 1 Descriptive analysis of earnings quality indicators 1

	2017	2018	2019	2020	2021
Average value	-9,50	1,27	1,62	1,72	0,97
Median	1,14	0,92	1,34	0,91	0,70
Standard deviation	45,05	1,28	3,65	3,61	3,87
Smallest value	-177,34	-0,61	-5,76	-2,96	-9,31
Highest value	12,47	4,05	13,24	13,87	11,54
Number of insurance companies with net cash inflow from operating activities	15	14	14	14	15

²⁷ S. Farshadfar, C. Ng, M. Brimble, The relative ability of earnings and cash flow data in forecasting future cash flows: Some Australian evidence, *Pacific Accounting Review*, 20(3), 2008, 254–268, <https://doi.org/10.1108/01140580810920236>

²⁸ J. Pallant, *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows (Version 15)*, 3rd ed., 2007, Berkshire, UK: Open University Press.

²⁹ J. Pallant, *SPSS survival manual: A step by step guide to data analysis using SPSS for Windows (Version 15)*, 3rd ed., 2007, Berkshire, UK: Open University Press.

	2017	2018	2019	2020	2021
Number of insurance companies with net cash outflow from operating activities	1	2	2	2	1
Number of insurance companies with positive EBITDA	12	15	15	16	16
Number of insurance companies with negative EBITDA	4	1	1	0	0
Number of insurance companies with an indicator value greater than 0	11	13	15	14	15
Number of insurance companies with an indicator value of less than 0	5	3	1	2	1

Source: The author's calculation based on the financial statements of insurance companies

The average value of earnings quality indicator 1 exhibits fluctuations throughout the observed period (Table 1). In the initial year, one insurance company recorded an exceptionally low value (-177.34) for the earnings quality indicator 1, resulting in a negative average value. By excluding this outlier, the average for 2017 would be 1.68. From 2018 to 2020, there was a notable upward trend in the average value. However, in the most recent year, a decrease in the average value was observed. The majority of insurance companies achieved positive EBITDA values throughout the observed period, and it is worth noting that all companies with positive EBITDA values also had positive EBIT values. Additionally, a significant number of insurance companies generated net cash inflows from their business activities. The majority of insurance companies during the observed period reported earnings indicator values greater than zero. Analyzing the changes in earnings quality indicator 1, it is observed that in 2018, five insurance companies experienced an increase in this indicator compared to 2017, while 11 companies recorded a decrease. Similarly, in 2019, seven insurance companies improved their earnings quality compared to 2018, while nine companies exhibited a decline. In 2020, four insurance companies saw an increase in the indicator compared to 2019, and the same trend was observed in 2021 compared to 2020. Conversely, 12 companies experienced a decrease in the indicator in 2020 compared to 2019, as well as in 2021 compared to 2020. The results of the Friedman test indicate that the observed changes in earnings quality indicator 1 are not statistically significant ($\chi^2(4, n=16) = 7.900, p=0.095$), since $p > 0.05$). Therefore, it can be concluded that there was no statistically significant increase or decrease in the quality of earnings, as measured by the ratio of net cash from business activities to EBITDA, among the insurance companies during the observed period.

Table 2 illustrates the descriptive analysis results of earnings quality indicators 2 in insurance companies within the Republic of Serbia from 2017 to 2021.

Table 2 Descriptive analysis of earnings quality indicators 2

	2017	2018	2019	2020	2021
Average value	0,47	1,39	3,40	1,95	7,92
Median	1,20	0,99	1,41	1,01	0,77
Standard deviation	10,85	1,39	10,43	3,97	28,73
Smallest value	-35,43	-0,64	-7,00	-3,32	-10,72
Highest value	14,63	4,49	41,56	14,47	114,75
Number of insurance companies with net cash inflow from operating activities	15	14	14	14	15
Number of insurance companies with net cash outflow from operating activities	1	2	2	2	1
Number of insurance companies with positive EBIT	12	15	15	16	16
Number of insurance companies with negative EBIT	4	1	1	0	0
Number of insurance companies with an indicator value greater than 0	11	13	15	14	15
Number of insurance companies with an indicator value of less than 0	5	3	1	2	1

Source: The author's calculation based on the financial statements of insurance companies

As shown in Table 2, there is a clear upward trend in the average value of earnings quality indicators 2 during the first three years, followed by a decline in 2020. However, in the most recent year, there was an increase in the average value of this indicator, primarily driven by a significant surge in one insurance company (amounting to 114.75). Nevertheless, if we exclude this outlier, the average value would be 0.79. It is worth noting that the lowest values of earnings indicators 2 over the last three years have been observed in one insurance company. Furthermore, when examining the data for the observed five-year period, it is evident that the majority of insurance companies in the Republic of Serbia achieved positive EBIT, indicating operating profit. Over 65% of the insurance companies exhibited values greater than zero throughout the review period. In 2018, five insurance companies experienced an increase in the value of earnings indicators 2 compared to 2017. Conversely, 11 insurance companies recorded a decrease in this indicator during the same period. Moving on to 2019, seven insurance companies demonstrated an increase in the value of earnings quality indicators compared to 2018, while nine insurance companies experienced a decrease. In 2020, three insurance companies witnessed an increase in the value of earnings indicator 2 compared to 2019, while 13 insurance companies recorded a decrease in this indicator. Similarly, in the last year,

six insurance companies experienced an increase in the value of earnings indicator 2 compared to 2020, while 10 insurance companies saw a decrease.

However, the observed changes in the value of earnings indicator 2 during the observed period are not statistically significant ($\chi^2(4, n=16) = 6.300, p = 0.178$), since $p > 0,05$). Therefore, it can be concluded that the insurance companies in the Republic of Serbia, as observed during the given period, did not exhibit a statistically significant increase or decrease in the quality of earnings, as measured by the ratio of NCF from business activities to EBIT.

Table 3 presents the descriptive analysis results of earnings quality indicators 3 in insurance companies within the Republic of Serbia from 2017 to 2021.

Table 3 Descriptive analysis of earning quality indicators 3

	2017	2018	2019	2020	2021
Average value	8,29	1,91	4,83	17,20	1,31
Median	1,93	1,46	1,81	1,49	0,97
Standard deviation	16,60	1,97	14,57	60,61	4,68
Smallest value	-0,26	-1,12	-8,14	-3,97	-13,02
Highest value	67,48	6,14	58,53	244,00	11,34
Number of insurance companies with net cash inflow from operating activities	15	14	14	14	15
Number of insurance companies with net cash outflow from operating activities	1	2	2	2	1
Number of insurance companies with positive EBT	14	15	15	15	16
Number of insurance companies with negative EBT	2	1	1	1	0
Number of insurance companies with an indicator value greater than 0	13	13	15	15	15
Number of insurance companies with an indicator value of less than 0	3	3	1	1	1

Source: The author's calculation based on the financial statements of insurance companies

Similar to the previous two earnings quality indicators, the average value of earnings indicator 3 exhibits fluctuations over time. Following a decline in the average value in 2018, an increase was observed in 2019 and 2020, followed by a decline in the most recent observed year. These fluctuations, as seen in the previous indicators, can be attributed to high or low values in specific insurance companies. Over 85% of the insurance companies achieved positive EBT throughout the reviewed years. In the initial three years, insurance companies with negative EBT values

also reported negative EBIT and EBITDA values. In 2017, two insurance companies attained positive EBT while having negative EBIT and EBITDA values. Conversely, in 2020, one insurance company recorded a negative EBT value despite positive EBIT and EBITDA values. Four insurance companies experienced an increase in the value of this indicator in 2018 compared to 2017, whereas 12 companies recorded a decrease. In 2019, half of the companies witnessed a decrease, while the remaining half experienced an increase. In 2020, four companies saw an increase, whereas 12 companies observed a decrease. In the last year, five insurance companies recorded an increase in earnings indicator 3 compared to 2020, while 11 companies recorded a decrease. However, based on the results of the Friedman test, it cannot be concluded that the observed insurance companies in the Republic of Serbia neither increased nor decreased the quality of earnings throughout the reviewed period, as measured by the NCF from business activities and EBT. This is because the changes in the quality indicator of earnings 3 were not found to be statistically significant ($\chi^2(4, n=16) = 9.150, p = 0.057$), because $p > 0,05$).

Conclusion

In the business world, and specifically within the insurance industry, it is crucial for companies to prioritize the stability of their cash flows. Liquidity in insurance companies is assessed over a short time frame, considering typical cash inflows such as premiums and investment income, which should exceed typical cash outflows such as operating expenses and claim settlements. Maintaining a positive net cash flow is vital as it increases the surplus of assets over liabilities, thereby ensuring the solvency of insurance companies. To safeguard solvency over an extended period, it is imperative to achieve liquidity within shorter timeframes. Therefore, market participants rely on indicators such as EBITDA, EBIT, EBT, and cash flow from operating activities. These metrics assist market participants in making more accurate assessments of earnings.

The research findings indicate that the majority of observed insurance companies in the Republic of Serbia demonstrated positive net cash flow (NCF) from business activities over the five-year period. This suggests that they effectively managed their cash inflows and outflows related to business operations. Furthermore, a significant number of these companies exhibited positive values for EBITDA, EBIT, and EBT, showcasing their ability to generate earnings across various levels of expenditure coverage, even amidst the challenges posed by the COVID-19 pandemic. Moreover, the majority of insurance companies analyzed in the study exhibited values above 0 for all three indicators of earnings quality. While fluctuations in all three indicators of earnings quality were observed during the examined period, these oscillations were not found to be statistically significant. Based on this analysis, it can be concluded

that insurance companies in the Republic of Serbia neither significantly improved nor deteriorated the quality of their earnings over the observed period.

One significant limitation of this study is its focus solely on insurance companies operating in the Republic of Serbia. Future research could aim to broaden its scope by including insurance companies from neighboring countries or former Yugoslav countries to facilitate a comparative analysis of the findings. This would provide a more comprehensive understanding of the factors influencing earnings quality across a wider regional context. Additionally, this study does not delve into the specific factors that impact the quality of earnings. To address this limitation, future studies should investigate the influence of both internal and external factors on earnings quality.

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