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Structure of financial assets in insurance companies in Croatia before and after the implementation of the new accounting model for the recognition and measurement of financial instruments and the impact on financial performance

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Abstract

The main purpose of this paper is to identify and compare the structure of financial assets in insurance companies in Croatia before and after the implementation of IFRS 9, as well as to assess the impact of financial asset measurement on the financial performance of insurance companies in Croatia before and after the implementation of IFRS 9. In order to achieve the objectives of the paper, the paper specifically investigates: (a) the structure of financial assets before and after the implementation of IFRS 9; (b) the correlation between the carrying amount of financial assets and the financial performance of insurance companies in Croatia and (c) the correlation between income, gains and losses from investments in financial assets recognized in profit or loss and other comprehensive income and the financial performance of insurance companies in Croatia. The research used methods of descriptive statistical analysis and correlation analysis based on the Pearson correlation coefficient. The paper presents the results of the reclassification of financial assets from categories according to IAS 39 to categories according to IFRS 9. The research results indicated a strong positive correlation between the carrying value of financial assets and the financial performance of insurance companies in Croatia for all categories of financial assets based on IFRS 9. Furthermore, the results showed a strong positive correlation between income from investments in financial assets recognized in profit or loss and financial performance and a weak negative correlation between gains and losses from investments in financial assets recognized in other comprehensive income and the financial performance of insurance companies in Croatia. The investments in financial assets have a relative weak impact on the profitability of insurance companies. According to the research results, investments in financial assets and income from investments in financial assets recognized in profit or loss have a strong impact on financial performance, while gains and losses from investments in financial assets recognized in other comprehensive income do not have a significant impact on the financial performance of insurance companies in Croatia.

Keywords: financial assets, financial position, financial performance, IFRS 9

Jel codes: M40, M41, G22



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1. Introduction

Investments in financial assets are the prevailing items in total assets in insurance companies in Croatia. In the period from 2017 to 2021 investments in financial assets circulated from 73,24% to 66,21% of total assets in insurance companies in Croatia and therefore represented the most significant item in their statements of financial positions (Perčević, 2023). Due to that, accounting policies on the recognition and measurement of financial assets play a significant role in assessing the financial position and financial performance of insurance companies in Croatia. Previous study confirmed the statistically significant impact of investments in financial assets on the financial position of insurance companies in Croatia (Perčević, 2023), but did not confirm the statistically strong impact on the profitability. Instead, the study found that only loans and receivables and financial assets at fair value through profit or loss have an impact on profitability, with loans and receivables having a medium impact and financial assets at fair value through profit or loss having a weak impact on the profitability of insurance companies in Croatia. (Perčević, 2023).

Insurance companies in Croatia are defined as public interest entities and are therefore required to apply International Financial Reporting Standards (IFRS) for financial reporting purposes. Under the temporary exemption from the approach defined in International Financial Reporting Standard 4 Insurance Contracts (IFRS 4), insurance companies in Croatia applied International Accounting Standard 39 Financial Instruments: Recognition and Measurement (IAS 39) until 31 December 2022 for financial reporting on financial instruments. Starting from 1 January 2023, insurance companies in Croatia apply the new International Financial Reporting Standard 9 Financial Instruments (IFRS 9) for the recognition, measurement and presentation of financial instruments together with the new International Financial Reporting Standard 17 Insurance Contracts (IFRS 17). The aim of this paper is to determine how financial assets are reclassified from IAS 39 categories to IFRS 9 categories and whether the reclassification caused a change in the subsequent measurement of financial assets and consequently affected the financial performance of insurance companies in Croatia. More particularly, this paper explores: (a) the structure of financial assets before and after the implementation of IFRS 9; (b) whether the reclassification of financial assets from IAS 39 categories to IFRS 9 categories caused the change in subsequent measurement of financial assets; (c) the correlation between investments in financial assets and financial performance before and after the implementation of IFRS 9; (d) the correlation between income from investment in financial assets recognized in profit or loss and financial performance before and after the implementation of IFRS 9 and (e) the correlation between gains and losses from revaluation of financial assets recognized in other comprehensive income and the financial performance of insurance companies in Croatia before and after the implementation of IFRS 9. The study refers to the period from 2022 to 2023.

2. Literature Review

2.1. Theoretical framework of recognition and measurement of financial assets

Since investments in financial assets constitute the largest item in the total assets of insurance companies in Croatia, the issues of their recognition and measurement are the most important in terms of assessing the financial position and performance of insurance companies. According to the temporary exemption approach from IAS 4 and Commission Regulation (EU) 2016/2067, insurance companies in Croatia applied IAS 39 for the recognition and measurement of financial assets until 31 December 2022. From 1 January 2023, insurance companies in Croatia started to apply IFRS 9 for recognizing and measuring of financial assets along with IFRS 17, the new standard on insurance contracts (Commission Regulation (EU) 2016/2067, 2016). The implementation of IFRS 9 and IFRS 17 required a great effort and affected the financial reporting of insurance companies. This paper focused on the effects of implementing IFRS 9 on the financial performance of insurance companies in Croatia.

Upon initial recognition, according to IAS 39, financial assets were classified into one of the following four categories for measurement purposes: (a) financial assets at fair value through profit or loss; (b) held-to-maturity investments; (c) loans and receivables and (d) available-for-sale financial assets. The classification was based on management's intention in relation to the financial assets (Perčević, 2020, p. 58). Financial asset was classified as financial assets at fair value through profit or loss if it was held for trading or, at initial recognition, it was designated for measurement at fair value through profit or loss (Perčević, 2020, p. 58). Held to maturity investment included debt financial instruments created by other entities that an entity intended to held to maturity and collect contractual cash flows. Loans and receivables were debt financial instruments created by the entity itself with fixed or determinable payments that were not quoted in an active market. Available-for-sale financial assets were a residual category in which those financial assets that could not be classified into any other category were classified (Perčević, 2020, p. 59). The measurement of financial assets according to IAS 39 is presented in Table 1.

Table 1. The measurement of financial assets according to IAS 39

Financial assets category	Initial measurement	Subsequent measurement	The recognition of effects of subsequent measurement
Financial assets at fair value through profit or loss	Fair value	Fair value	Profit or loss
Held to maturity investments	Fair value plus transaction costs	Amortized cost	Impairment cost, interest and amortization of premium or discount recognized in profit or loss
Loans and receivables	Fair value plus transaction costs	Amortized cost	Impairment cost, interest and amortization of premium or discount recognized in profit or loss
Financial assets available for sale	Fair value plus transaction costs	Fair value	Other comprehensive income

Source: Authors'

According to IAS 39, financial assets were initially measured at fair value plus transaction costs, except for financial assets at fair value through profit or loss which were initially measured at fair value only. Subsequently, financial assets at fair value through profit or loss and available-for-sale financial assets were measured at fair value at the reporting date. Changes in fair value between two reporting dates were recognized in profit or loss in the case of financial assets at fair value through profit or loss, and in other comprehensive income in the case of financial assets available for sale. Held to maturity investments and loans and receivables were subsequently measured at amortised cost, that is the original cost adjusted over time to reflect principal repayments, interest, and any discounts or premiums. Impairment losses, interests and amortization of premium or discount were recognized in profit or loss.

According to IFRS 9, upon initial recognition, financial assets need to be classified into one of the following three categories for measurement purposes: (a) financial assets at amortised cost; (b) financial assets at fair value through other comprehensive income and (c) financial assets at fair value through profit or loss (IFRS 9, 2025). The classification is based on two factors: "(a) entity's business model for managing the financial assets and (b) the contractual cash flow characteristics of the financial asset" (IFRS 9, 2025). According to these factors, financial asset is classified as a financial asset at amortised cost if "the financial asset is held within a business model whose objective is to hold financial assets in order to collect contractual cash flows and the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding" (IFRS 9, 2025). A financial asset classifies as a financial asset at fair value through other comprehensive income if "the financial asset is held within a business model whose objective is achieved by both collecting contractual cash flows and selling financial assets and the contractual terms of the financial asset give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding" (IFRS 9, 2025). If a financial asset does not fulfill the requirement for measuring at amortised cost or fair value through profit or loss, then it is measured at fair value through profit or loss (IFRS 9, 2025). Usually, financial assets held for trading or managing on a fair value basis are classified as financial assets at fair value through profit or loss. The initial and subsequent measurement of financial assets according to IFRS 9 is presented in Table 2.

Table 2. The measurement of financial assets according to IFRS 9

Financial assets category	Initial measurement	Subsequent measurement	The recognition of effects of subsequent measurement
Financial assets at amortised cost	Fair value plus transaction costs	Amortised cost	Loss allowance, interest and amortization of premium or discount recognized in profit or loss
Financial assets at fair value through other comprehensive income	Fair value plus transaction costs	Fair value	Other comprehensive income
Financial assets at fair value through profit or loss	Fair value	Fair value	Profit or loss

Source: Authors'

According to IFRS 9, financial assets are initially measured at fair value plus transaction costs except for financial assets at fair value through profit or loss which are initially measured at fair value only. Subsequently, financial assets classified in the category of financial assets at amortised cost are measured at amortised cost, that is "the amount at which the financial asset or financial liability is measured at initial recognition minus the principal repayments, plus or minus the cumulative amortisation using the effective interest method of any difference between that initial amount and the maturity amount and, for financial assets, adjusted for any loss allowance" (IFRS 9, 2025). Financial assets classified as financial assets at fair value through other comprehensive income are subsequently measured at fair value at the reporting date and the changes in fair value between two reporting dates are recognized in other comprehensive income. Financial assets at fair value through profit or loss are also subsequently measured at fair value at the reporting date, but the changes in fair value between two reporting dates are recognized in profit or loss (IFRS 9, 2025).

Insurance companies in Croatia were applying IAS 39 for the recognition and measurement of financial instruments until 31 December 2022. From 1 January insurance companies in Croatia apply IFRS 9 for the recognition and measurement of financial instruments together with IFRS 17 the new standard for insurance contracts. This paper examines how financial assets were reclassified from IAS 39 categories to IFRS 9 categories as well as the impact of reclassification of the financial performance of insurance companies in Croatia.

2.2. Review of previous relevant studies

The factors that affect profitability in insurance companies

Numerous studies were engaged in identifying the key drivers of financial performance and profitability in the insurance sector. The following section provides an overview of research conducted with the aim of analyzing the impact on the performance of insurance companies

Malik (2011) investigated what are the determinants of insurance companies profitability based on the listed insurance companies in Pakistan for the period 2005 to 2009, where profitability is proxied by return on assets (ROA). Results indicated that there is no relationship between the age and profitability. Loss ratio and leverage ratio have negative but significant relationship with profitability, while the volume of capital and size have strong and positive relationship with profitability.

Almajali, Alamro and Al-Soub (2012) analysed the factors that mostly affect financial performance of Jordanian Insurance Companies based on the insurance companies listed at Amman Stock Exchange for the period from 2002 to 2007. Research results indicated that leverage, liquidity, size and management competence index have significant statistical impact on financial performance, while company age doesn't. Researchers also "recommended that high consideration of increasing the company assets will lead to a good financial performance".

Mehari and Aemiro (2013) analysed firm specific factors that determine insurance companies' performance in Ethiopia in period from 2005 to 2010. Research results showed that that firm size, leverage, loss ratio and tangibility of assets were statistically significant to explain performance of insurance companies in Ethiopia.

Therefore, insurance companies that are large sized, highly leveraged, low risk and high fixed asset have better financial performance than the opposite one.

Burca and Batrinca (2014) analyzed the determinants of financial performance in the Romanian Insurance market during the period 2008 to 2012. Research results indicated that financial leverage in insurance, company size, growth of gross written premiums, underwriting risk, risk retention ratio and solvency margin are the determinants of the financial performance based on the analysed companies.

Batool and Sahi (2019) made comparison among determinants of financial performance of insurance companies in USA and UK for the period 2007 to 2019, where profitability is measured by return on assets (ROA) and return on equity (ROE). In the USA, internal factors such as firms size, leverage and asset turnover are positively correlated with profitability, while liquidity has insignificant correlation. When it comes to UK firms, liquidity is positively correlated with profitability, while leverage is negatively correlated and firm size and asset turnover have insignificant relationship with profitability.

Fali, Nyor and Mustapha (2020) analysed effects of insurance specific risks on profitability in Nigerian insurance firms for the period 2009 to 2018. Profitability is measured by net profit margin. Results indicated that technical provision and underwriting risks had a negative and significant impact on profitability, while re-insurance risk had a negative and insignificant impact on profitability.

Khersiat and ALkabbji (2020) analysed impact of application of IFRS 9 standard on the profits and losses of insurance companies in Jordan, listed on the Amman stock exchange, based on the annual financial reports issues on 30/3/2019, since insurance companies in Jordan started applying IFRS 9 in 2018. Research results showed that the application of the IFRS 9 has a statistically significant impact on the profits and losses of insurance companies, such as that bank deposits identified as the most affected and influential.

Isayas (2021) investigated the determinants of financial distress of insurance companies in Ethiopia for the period covering from 2008 to 2019, where financial distressed is measured by Altman Z score. Research results indicated that profitability, firm size, leverage, and company age are negatively correlated to financial distress, while asset tangibility and loss ratio have a positive and statistically significant effect on insurance companies' financial distress.

Olaweayyu and Msomi (2021) analysed effect of intellectual capital on financial performance of the South African development community's general insurance companies for the period 2008 to 2019. Results showed that there is "significant and direct relationship between lagged return on assets, intellectual capital and financial performance" of insurers analysed.

Abebe Zelalem et al. (2022) analysed effect of corporate governance measures on insurance companies' financial performance on the case of Ethiopian insurance companies for the period 2012 to 2020. Financial performance is measured by return on asset and equity. All of the corporate governance measures have a significant impact on financial performance, where board size, management soundness, board remuneration and financial disclosure have positive impact, debt and dividend payout have a negative impact.

Ahmeti et al. (2022) investigated impact of internal audit quality on the financial performance of insurance companies operating in Kosovo. They used questionnaire and data from financial statements for the period 2015 to 2021. Financial performance was measured by ROA (return on assets). Results indicated that there is positive correlation between auditor competence, audit efficiency and company size with the financial performance. Also, the relationship between auditing standards and internal auditor independence with the financial performance is negative but insignificant.

Aseinimieyefori (2022) conducted research among listed insurance companies in Nigeria for the period 2015 to 2020 regarding the relationship between non-current assets investments and financial performance where return on capital employed (ROCE) is metric used for analyzing profitability. Results showed that plant and machinery have positive and statistically significant relationship with ROCE, while investment properties have negative and significant relationship and intangible assets investment has negative and insignificant relationship with ROCE.

Siddik et al (2022) analysed impact of insurers' financial insolvency on the profitability of non-life insurance firms. Research was conducted based on the non-life insurance companies operating in Bangladesh, for the period 2011 to 2019. Profitability was measured by return on assets (ROA) and return on equity (ROE). Results showed that: insurers' financial insolvency has a significant adverse influence on profitability, such as that financial leverage, technical provision, age and inflation have a noteworthy adverse influence on profitability based on the companies analysed.

Novara, Arafah and Santosa (2025) investigated the impact of internal and external factors, such as impact of risk-based capital, total assets, inflation rate, and benchmark interest rate on sustainable growth, with financial

performance serving as a mediating variable for insurance companies in Indonesia for the period 2018 to 2023. Research results generally concluded that both internal and external factors significantly affect the sustainable growth rate of companies analysed. Regarding the total assets, it does not have a direct impact on sustainable growth but positively contribute to enhancing financial performance. Those results implied that “the greater the total assets owned by a general insurance company, the stronger its capacity to support business operations, which in turn positively impacts financial performance.”

It can be concluded that there are plenty studies regarding different insurance market and determinants that affect insurance companies' profitability. Based on these studies from various countries, the profitability of insurance companies is determined by different internal and external factors. Regarding internal factors, the most consistent factors in these studies are company size and the volume of capital or assets, leverage, company age, effective risk management, loss ratios and underwriting risk.

Impact of IFRS 17 on the insurance companies

Researches conducted indicated that IFRS 17 enhances the quality and disclosure of accounting information regarding insurance contracts, but it will also have a lots of challenges during the implementation and first years of applying the new standard.

Prior the implementation of standard, Morón and de Jáuregui Sanz (2019) analysed main implications of the IFRS 17. They stated that the new IFRS 17 will bring a lot of advantages that are mainly related to the application of the fair value or market approach in the measurement of insurance liabilities, more aligned with the IFRS 9.

Chan, Peng and Tsai (2021) have done a preliminary analysis of the impact of IFRS 9 and IFRS 17 on regulation and management of Taiwan life insurance industry. They stated that since the IFRS 9 was implemented, “volatility of life insurance companies' profit and loss and owners' equity has increased”, and that “simulations of impact of IFRS 9 and IFRS 17 shows that both the fluctuation of income of life insurance companies and fluctuation of owners' equity will increase significantly”.

Palmborg, Lindholm and Lindskog (2021) in their paper were bringing IFRS 17 into the realm of actuarial science, with the mathematical interpretation of regulatory texts and by defining the algorithm for profit in loss according with the standard. They stated that requirements in IFRS 17 such as how to compute the risk adjustment for non-financial risk, calculation of the confidence level that risk adjustments corresponds to and allocation of risks adjustments to a large number of groups of contracts will influence financial position of a company at a certain date, such as financial performance of many years since it directly affects the revenue streams.

Székrané Lindner et al (2024) analysed impacts of in the IFRS 17 on the Hungarian Insurance Sector. In Hungarian insurance sector, insurers have applied IFRS 9 the year before the mandatory application of IFRS 17, that is, since 1 January 2022. They stated that two Hungarian insurers had different financial impacts. For one of them, transition was significant policy change but didn't have major effect on their equity because of the same measurement principle in IFRS 9. For the other one, transition had a significant impact on its equity. But they transitioned to IFRS and it was a significant change compared to HAS.

Ter Hoeven, Borelli and Vlijmen (2024) made an analysis of first year application of IFRS 17 in the financial statements on the sample of large European insurers based on their 2023 annual reports. Results implied that “at the date of transition most insurance companies reported a decrease in opening equity, although the reasons for the difference are hard to compare because of the various policies that IFRS 4 allowed, and the different transition approaches used”. The also noted that the insurers in the sample also switched from IAS 39 to IFRS 9 from reporting year 2023. Based on the analysis they concluded that regarding the information usefulness, IFRS 17 is enhancing the consistency of insurance contract accounting, compared to IFRS 4; but also, there is diversity of the applied accounting policies related to transition, use of presentation and disaggregation options, models used in the subsequent insurance liability measurement.

Based on a questionnaire among faculty members, accounting and auditing offices operating in Jordan, financial reporting preparers of Jordanian insurance companies and financial analysts, Alhawtmeh (2023) analysed the impact of IFRS 17 on the development of accounting measurement and disclosure to improve the quality of financial reports, considering compliance with the requirements of applying the IFRS 4. Some of the study results are that applying the IFRS 17 standard has a statistically significant relationship with development of accounting measurement, recognition, presentation, and disclosure with financial reporting, with compliance with the requirements of IFRS 4. IFRS 17 also improves the quality and disclosure of financial reports, and ensures better compliance with the previous IFRS 4 standard.

Impact of IFRS 9 when applied in banking sector

Regarding the studies made on implementation of IFRS 9 in banking sector, they are mainly focused on expected credit losses. It can be concluded that the implication of IFRS 9 in banking sector required banks to recognize expected credit loss earlier which can result in reducing short-term profitability but provides more transparent information.

Collaku, Ahmati and Alliu (2021) analysed effect of transition to IFRS 9 to financial stability of commercial banks in Kosovo. Results indicated that “transition phase has a significant influence on the recognition of additional loan impairment, but assets and capital regulations are not affected significantly”; results also demonstrated that transition causes instability and re-consolidation of capital, but reduce the possibility for large and sudden losses in long-run.

Dib and Feghali (2021) analysed the impact of IFRS implementation on Lebanese banking sector based on data for the year 2017. Results indicated that impact of new requirements of ECL model is not material to the bank equity, and also that there is not material decrease in the opening retained earnings in the financial statements for 2018.

Chen, Yang and Zhang (2022) studied the influence of IFRS 9 on the impairment of commercial bank credit card based on a theoretical model of the impairment of financial assets in accordance with IFRS 9. Results indicated that, compared to IAS 39, implementation of IFRS 9 led to significant increase in assets subject to impairment, as well as higher provisions for those losses, but coverage ratio of these provisions to the impaired assets decreased.

Löw and Erkelenz (2022) based on the sample of the data from financial statements from 2014 to 2020 for banks directly supervised by the European Central Bank analyzed the change in investment behavior of banks since the publication of IFRS 9 in 2014. They stated that there was no significant decrease in investment maturities. Also, the proportion of financial assets measured at fair value through profit or loss (FVPL) decreased, and the variance in investment returns was also significantly reduced under IFRS 9, which was contrary to expected that that new rule of categorization will create more profit and loss volatility. Results also stated that the use of the fair value through other comprehensive income (FVOCI) category for equity instruments became less popular among the banks studied.

Perčević and Ercegović (2022) studied weather banks in Croatia recognized an increase in expected credit losses in pandemic year. Results indicated that most recognized higher impairment losses in pandemic year 2020 compared to previous year, 2019. Even though the increase didn't significantly affect banks financial position in 2020, it had strong negative impact on their financial performance in both years.

Ben Ltaief and Moalla (2023) analysed the impact of financial assets classification according to IFRS 9 on firm value based on the sample of listed banks in the Middle Eastern and North African for the period 2017 to 2019. Results indicated that banks' value isn't impacted by the adoption of IFRS 9, but rather by the specific classification of its financial assets under the standard. Assets measured at fair value through other comprehensive income (FVOCI) positively affect firm value, while those measured at amortized cost (AC) or fair value through profit or loss (FVPL) have a negative impact. Firm value is measured using the Tobin's Q.

Zampella and Ferri (2024) analysed value relevance of IFRS 9 in the European banking sector, they focused of investor reactions regarding the IFRS 9 based on the research period 2015 to 2020. Results indicated that IFRS 9 in value relevant, there is a positive link between IFRS 9 and market prices which indicated that financial classifications are perceived as useful by investors. Also, it is stated that IFRS is incrementally value relevant in countries with high quality governance and banking supervision.

Grosu et al (2024) analysed the impact of IFRS 9 adoption on the financial performance and sustainability of Romanian credit institutions. Results indicated significant positive impact on performance with evaluation made at fair value through profit and loss, such as negative impact when evaluation is through other comprehensive income. Also, there was negative impact of adjustments for expected credit losses on the financial position and performance, which creates some instability in the medium term, while reduces the possibility of large and sudden losses materialization in the long term.

3. Data & Methodology

The basic purpose of this paper is to identify and compare the structure of financial assets in insurance companies in Croatia before and after the implementation of IFRS 9 and to determine whether the reclassification of financial assets from IAS 39 categories to IFRS 9 categories affect the financial performance of insurance companies in Croatia. More particular, this paper has the following goals:

- to identify and compare the structure of financial assets before and after the implementation of IFRS 9;
- to determine whether the reclassification of financial assets from IAS 39 categories to IFRS 9 categories caused the change in subsequent measurement of financial assets;
- to determine the correlation between investments in financial assets and financial performance before and after the implementation of IFRS 9;
- to determine the correlation between income from investment in financial assets recognized in profit or loss and financial performance before and after the implementation of IFRS 9 and
- to determine the correlation between gains and losses from revaluation of financial assets recognized in other comprehensive income and the financial performance of insurance companies in Croatia before and after the implementation of IFRS 9.

Based on the abovementioned goals, the following four research hypotheses are set up:

H1: The reclassification of financial assets from IAS 39 categories to IFRS 9 categories did not significantly impact the way financial assets are subsequently measured in insurance companies in Croatia.

H2: There is a strong or medium strong positive correlation between the carrying amount of financial assets and the financial performance of insurance companies in Croatia, both before and after the implementation of IFRS 9.

H3: There is a strong or medium strong positive correlation between income from investments in financial assets recognized in profit or loss and the financial performance of insurance companies in Croatia both, before and after the implementation of IFRS 9.

H4: Gains and losses from the revaluation of financial assets recognized in other comprehensive income do not have a strong impact on the financial performance of insurance companies in Croatia, neither before nor after the application of IFRS 9.

The research refers to the period of two consecutive years 2022 and 2023, because IAS 39 was applied in insurance companies until the end of 2022 and IFRS 9 started to apply from 2023. The research included all insurance companies in Croatia that operated in 2022 and 2023. There were 15 insurance companies in Croatia that operated in 2022 and 2023 and all of them have been included in the research.

The data for the research purposes are gathered from publicly available audited financial statements of insurance companies in Croatia, prepared on the basis of IFRS and published on their official web sites. The first hypothesis (H1) is tested by comparing the percentage of the carrying amount of financial assets measured at amortized cost in the carrying amount of total financial assets in accordance with IAS 39 at the end of 2022 with the percentage of the carrying amount of financial assets measured at amortized cost in the carrying amount of total financial assets in accordance with IFRS 9 at the end of 2022 and 2023. The second hypothesis is tested by calculating and comparing the Pearson correlation coefficient between the carrying amount of financial assets and net profit of insurance companies in Croatia, before and after the implementation of IFRS 9. The third hypothesis is tested by calculating and comparing the Pearson correlation coefficient between income from investments in financial assets recognized in profit or loss and net profit of insurance companies in Croatia, before and after the implementation of IFRS 9. The fourth hypothesis is tested by calculating and comparing the Pearson correlation coefficient between gains and losses from revaluation of financial assets recognized in other comprehensive income and net profit of insurance companies in Croatia, before and after the implementation of IFRS 9.

4. Results & Discussion

Insurance companies in Croatia applied IAS 39 for recognition and measurement of financial instruments and IFRS 4 for recognition and measurement of insurance contracts until 31 December 2022. From 1 January 2023, insurance companies in Croatia started applying IFRS 9 for recognition and measurement of financial instruments and IFRS 17 for insurance contracts. The application of new IFRS standards has had a certain impact on the financial reporting of insurance companies. Therefore, the initial objective of this paper is to determine whether the application of IFRS 9 changes the way financial assets are subsequently measured, as well as to determine whether the application of IFRS 9 has affected the financial performance of insurance companies in Croatia.

Financial assets make up a significant part of the total assets of insurance companies in Croatia. Figure 1 shows the share of financial assets in the total assets of insurance companies in Croatia at the end of 2022 and 2023.

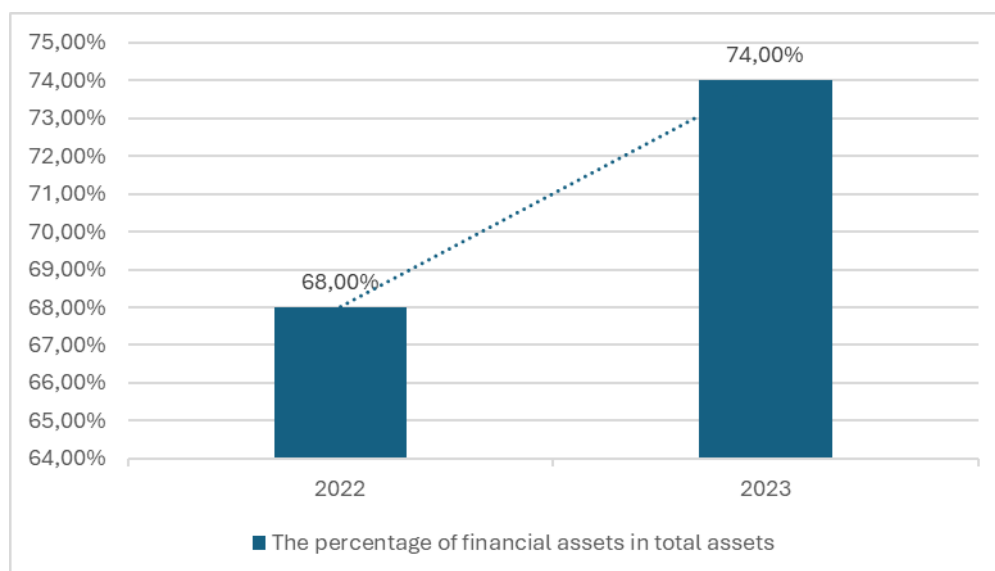


Figure 1. Share of financial assets in total assets of insurance companies in Croatia at the end of 2022 and 2023

Source: Authors

As can be seen from Figure 1, at the end of 2022, financial assets represented 68% of total assets of insurance companies in Croatia, while at the end of 2023, the share of financial assets in total assets increased to 74%. Since financial assets represent a significant item in the statements of financial position of insurance companies in Croatia, changes in the method of measuring financial assets can have a serious impact on the financial statements of insurance companies in Croatia. In the research period, i.e. from 2022 to 2023, the net profit of insurance companies in Croatia increased from EUR 78,758 thousand to EUR 116,349 thousand, while the return on assets, as a measure of the profitability of insurance companies in Croatia, also increased from 1.27% to 1.97%. Figure 2 shows the increase in net profit and return on assets of insurance companies in Croatia from 2022 to 2023.

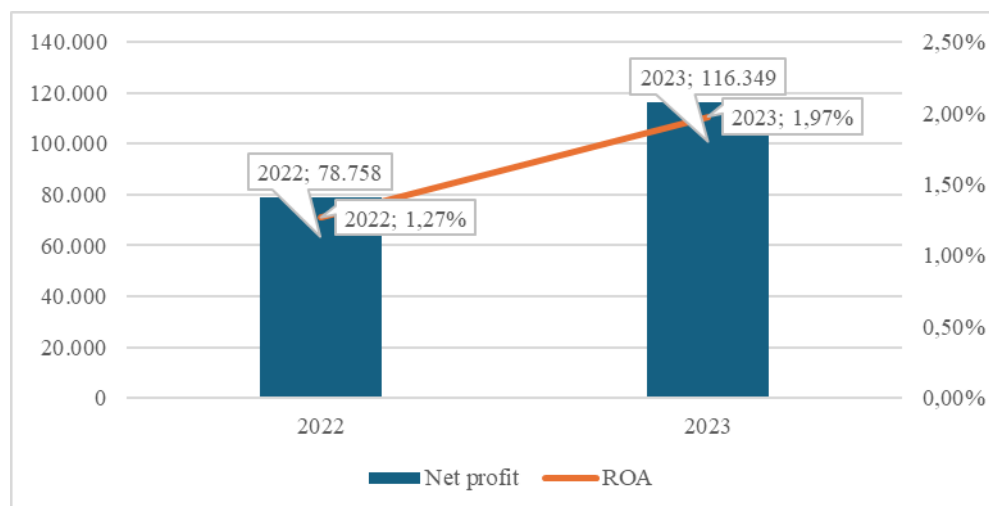


Figure 2. Net profit and return on assets (ROA) in insurance companies in Croatia from 2022 to 2023.

Source: Authors

Income from investment in financial assets (which includes dividends and unrealized gains or losses recognized in profit or loss) have increased from 67,073 thousand EUR in 2022 (based on IFRS 9) to 145,265 thousand EUR in 2023 as well as unrealized gains or losses recognized in other comprehensive income which have increased from -313,031 thousand EUR in 2022 (based on IFRS 9) to 144,310 thousand EUR in 2023. The implementation of IFRS 9 in insurance companies in Croatia resulted in the decrease of income from investment in financial assets from 82,101 thousand EUR (according to IAS 39) to 67,073 thousand EUR in 2022 (according to IFRS 9) and the increase of unrealized gains or losses recognized in other comprehensive income from -345,435 thousand EUR (according to IAS 39) to -313.031 thousand EUR (according to IFRS 9). This was the

result of the reclassification of financial assets from available for sale category according to IAS 39 to financial assets at fair value through profit or loss category according to IFRS 9. The overview of income from investment in financial assets and unrealized gains or losses recognized in other comprehensive income according to IAS 39 and IFRS 9 for 2022 and for 2023 is shown in Figure 3.

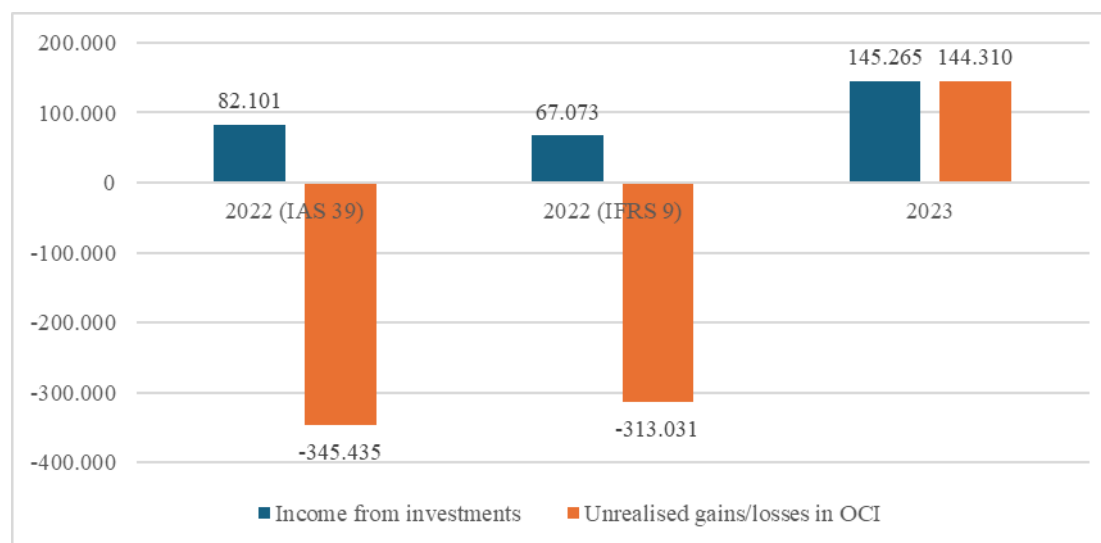


Figure 3. Income from investment in financial assets and unrealized gains or losses recognized in other comprehensive income according to IAS 39 and IFRS 9 for 2022 and for 2023

Source: Authors

This paper first examines the structure of financial assets in insurance companies in Croatia according to IAS 39 at the end of 2022 and the structure of financial assets according to IFRS 9 at the end of 2022 and at the end of 2023. The structure of financial assets according to IAS 39 at the end of 2022 is shown in Table 3.

Table 3. The structure of financial assets in insurance companies in Croatia according to IAS 39 at the end of 2022

IAS 39 financial asset category	2022	
	(in 000 EUR)	%
Held to maturity	566,993	13.47%
Available for sale	2,945,389	69.98%
Financial assets at fair value through profit or loss	325,507	7.73%
Loans and receivables	368,793	8.76%
Total	4,208,704	100.00%

Source: Authors

As shown in Table 3, the most significant category of financial assets under IAS 39 at the end of 2022 was financial assets available for sale, followed by financial assets held to maturity and loans and receivables, while the least significant was financial assets at fair value through profit or loss. When considering the subsequent measurement of financial assets under IAS 39, the majority of financial assets (77.71%) in insurance companies in Croatia were subsequently measured at fair value, while 22.29% were subsequently measured at amortised cost.

The structure of financial assets in insurance companies in Croatia according to IFRS 9 at the end of 2022 and 2023 is shown in Table 4.

Table 4. The structure of financial assets in insurance companies in Croatia according to IFRS 9 at the end of 2022 and 2023

IFRS 9 financial asset category	2022		2023	
	(in 000 EUR)	%	(in 000 EUR)	%
Financial assets at amortised cost	946,849	22.88%	833,885	19.04%
Financial assets at fair value through other comprehensive income	2,617,657	63.23%	2,973,937	67.91%
Financial assets at fair value through profit or loss	575,112	13.89%	571,502	13.05%
Total	4,139,618	100.00%	4,379,324	100.00%

Source: Authors

The most significant category of financial assets under IFRS 9 in insurance companies in Croatia is financial assets at fair value through other comprehensive income, and at the end of 2022 and 2023, followed by financial assets at amortised cost, while the least significant is financial assets at fair value through profit or loss. According to the results shown in Table 4, the majority of financial assets after the implementation of IFRS 9 are still subsequently measured at fair value. Specifically, 77.12% of financial assets at the end of 2022 and 80.96% at the end of 2023 are subsequently measured at fair value, while 22.87% of financial assets at the end of 2022 and 19.04% at the end of 2023 are subsequently measured at amortised cost. Comparing the carrying amount and percentage of financial assets subsequently measured at fair value and amortised cost at the end of 2022 before and after the implementation of IFRS 9, it can be concluded that there is no significant difference in the method of subsequent measurement of financial assets after the implementation of IFRS 9. The implementation of IFRS 9, and the reclassification of financial assets from categories under IAS 39 to categories under IFRS 9, did not result in a change in the method of subsequent measurement of financial assets in insurance companies in Croatia. Table 5 shows a comparison of the subsequent measurement of financial assets at the end of 2022 under IAS 39 and under IFRS 9.

Table 5. Comparison of subsequent measurement of financial assets at the end of 2022 before and after the implementation of IFRS 9

Subsequent measurement of financial assets	Financial assets according to IAS 39 at the end of 2022		Financial assets according to IFRS 9 at the end of 2022	
	(in 000 EUR)	%	(in 000 EUR)	%
Financial assets subsequently measured at fair value	3,270,896	77.71%	3,192,769	77.12%
Financial assets subsequently measured at amortised cost	935,786	22.29%	946,849	22.88%
Total	4,208,704	100.00%	4,139,618	100.00%

Source: Authors

Furthermore, based on the research results shown in Table 3 and Table 4, the reclassification of financial assets from IAS 39 categories to IFRS 9 categories can be determined. The research results show that financial assets held to maturity and loans and receivables were reclassified into the category of financial assets at amortised cost. Financial assets available for sale were mostly reclassified to the category of financial assets at fair value through other comprehensive income, and to a lesser extent to the category of financial assets at fair value through profit or loss. Financial assets at fair value through profit or loss remained in the same category after reclassification. Since the results of the study show that there is no significant difference in the method of subsequent measurement of financial assets before and after the implementation of IFRS 9, the first hypothesis

(H1) of the study is accepted, that the reclassification of financial assets from categories according to IAS 39 to categories according to IFRS 9 did not significantly affect the method of subsequent measurement of financial assets in insurance companies in Croatia. These results are in line with the results of a similar study conducted in Croatian banks after the implementation of IFRS 9 in the Croatian banking sector (Perčević, 2020).

The paper further examines: (a) the correlation between the carrying amount of financial assets and the financial performance of insurance companies in Croatia, both before and after the application of IFRS 9; (b) the correlation between income from investments in financial assets recognized in profit or loss and the financial performance of insurance companies in Croatia, both before and after the application of IFRS 9 and (c) the correlation between gains and losses from the revaluation of financial assets recognized in other comprehensive income and the financial performance of insurance companies in Croatia before and after the application of IFRS 9. The results of the correlation analysis based on the Pearson correlation coefficient are shown in Table 6 and Table 7. Table 6 shows the results correlation analysis for the year 2022 when IAS 39 was applied.

Table 6. Correlation analysis for 2022 when IAS 39 was applied

Correlation	Net Profit
Held to maturity	0.836965
Available for sale	0.614554
Financial assets at fair value through profit or loss	0.250857
Loans and receivables	0.55251
Income from investments in financial assets	0.841225
Fair value reserves (gains / losses from revaluation of financial assets recognized in other comprehensive income)	-0.42391

Source: Authors

The results of the correlation analysis for 2022, when IAS 39 was applied, show: (a) a strong positive correlation between financial assets held to maturity and net profit; (b) a medium strong positive correlation between financial assets available for sale and net profit and between loans and receivables and net profit and (c) a weak positive correlation between financial assets at fair value through profit or loss and net profit of insurance companies in Croatia. Furthermore, the results also indicate a strong positive correlation between income from investments in financial assets and net profit of insurance companies in Croatia and a weak negative correlation between fair value reserves and net profit.

The results of the correlation analysis for 2022 and 2023 when IFRS 9 is applied are shown in Table 7.

Table 7. Correlation analysis for 2022 and 2023 when IFRS 9 is applied

Correlation	Net profit for 2022	Net profit for 2023	Net profit for 2022 and 2023
Financial assets at amortised cost	0.92056	0.909644	0.892016
Financial assets at fair value through other comprehensive income	0.637048	0.788716	0.720412
Financial assts at fair value through profit or loss	0.776407	0.809715	0.784419
Income from investments in financial assets	0.823102	0.920497	0.871882
Gains / losses from revaluation of debt instruments recognized in other comprehensive income	-0.45757	0.492316	-0.11653
Gains / losses from revaluation of equity instruments recognized in other comprehensive income	-0.14943	0.491052	-0.01964

Source: Authors

According to the results of the correlation analysis, there is a strong positive correlation between financial assets at amortised cost and net profit of insurance companies in Croatia in 2022 and 2023 and for both years combined, and a medium strong correlation between: (a) financial assets at fair value through other comprehensive income and net profit of insurance companies in Croatia for 2022 and 2023 and for both years combined and (b) financial assets at fair value through profit or loss and net profit of insurance companies in Croatia for 2022 and 2023 and for both years combined. The results of the correlation analysis for the years 2022 and 2023, when IFRS 9 is applied, also indicate a strong positive correlation between income from investments in financial assets and the net profit of insurance companies in Croatia and: (a) a weak negative correlation between gains or losses from the revaluation of debt and equity instruments recognized in other comprehensive income and net profit for the year 2022 and for the years 2022 and 2023 together and (b) a medium strong positive correlation between revaluation gains or losses on debt and equity instruments recognized in other comprehensive income and net income for 2023.

Since the results of the correlation analysis suggest a strong or medium positive correlation between the carrying value of each category of financial assets under IAS 39 and IFRS 9 and the net profit of insurance companies in Croatia for 2022 and 2023 (except for financial assets at fair value through profit or loss under IAS 39, but this category is the least significant in the total carrying value of financial assets at the end of 2022 under IAS 39), the second research hypothesis (H2) can be accepted. In other words, the hypothesis that there is a strong or medium positive correlation between the carrying value of financial assets and the financial performance of insurance companies in Croatia, both before and after the implementation of IFRS 9, can be accepted. This means that the carrying value of financial assets may have a strong or medium impact on the financial performance of insurance companies in Croatia, after the implementation of IFRS 9.

The results of the correlation analysis also suggest that income from investment in financial assets can have a strong impact on the net profit of insurance companies in Croatia, as there is a strong positive correlation between income from investment in financial assets and net profit of insurance companies in 2022 and 2023 and for both years combined. These research results provide sufficient evidence to accept the third research hypothesis (H3), which states that there is a strong to medium positive correlation between income from investment in financial assets recognized in profit or loss and the financial performance of insurance companies in Croatia, both before and after the implementation of IFRS 9.

Finally, the results of the correlation analysis show that gains or losses from the revaluation of debt and equity financial instruments are not strongly correlated with the net profit of insurance companies in Croatia in 2022 and 2023, which supports the fourth research hypothesis (H4). In other words, based on the results of the research, we can accept the hypothesis that states that gains and losses from the revaluation of financial assets recognized in other comprehensive income do not have a strong impact on the financial performance of insurance companies in Croatia, neither before nor after the application of IFRS 9.

5. Conclusion

Financial assets represent a significant item in the statements of financial position of insurance companies in Croatia. Insurance companies in Croatia started applying IFRS 9 for the recognition and measurement of financial instruments on 1 January 2023. Until 31 December 2022, insurance companies in Croatia applied IAS 39. Since financial assets represent a significant item in the total assets of insurance companies in Croatia, the application of the new financial reporting standard for the recognition and measurement of financial assets may have a serious impact on the financial reporting of insurance companies in Croatia. The main objectives of this paper were to identify and compare the structure of financial assets in insurance companies in Croatia before and after the implementation of IFRS 9, and to investigate the interdependence between the subsequent measurement of financial assets and the financial performance of insurance companies in Croatia before and after the implementation of IFRS 9. The paper used descriptive statistical methods and correlation analysis based on the Pearson correlation coefficient. The research covered 2022 and 2023 and included all insurance companies in Croatia that operated in those two years. The results of the research showed that the implementation of IFRS 9 and the reclassification of financial assets from categories under IAS 39 to categories under IFRS 9 did not result in a change in the method of subsequent measurement of financial assets in insurance companies in Croatia. According to the research results, financial assets held to maturity and loans and receivables under IAS 39 were reclassified to the category of financial assets at amortised cost under IFRS 9. Financial assets available for sale under IAS 39 were mostly reclassified to the category of financial assets at fair value through other comprehensive income under IFRS 9, but a smaller part was reclassified to the category of financial assets at fair value through profit or loss. Financial assets at fair value through profit or loss remained in the same category after the reclassification.

The research results suggest that there is a strong or medium positive correlation between the carrying amount of financial assets and the financial performance of insurance companies in Croatia, both before and after the application of IFRS 9. This implies that the carrying amount of financial assets may have a strong or medium impact on the financial performance of insurance companies in Croatia, especially after the application of IFRS 9. Furthermore, the research results also suggest that income from investments in financial assets may have a strong impact on the financial performance of insurance companies in Croatia, as there is a strong positive correlation between income from investments in financial assets and net profit of insurance companies in 2022 and 2023 and for both years combined. Based on the research results, it can also be concluded that gains and losses from the revaluation of financial assets recognized in other comprehensive income do not have a strong impact on the financial performance of insurance companies in Croatia, neither before nor after the application of IFRS 9.

The research has certain limitations that must be considered when interpreting the research results. The research considered the impact of the implementation of IFRS 9 on the financial performance of insurance companies in Croatia, while it did not consider the impact of the implementation of IFRS 17, the new IFRS for the recognition and measurement of insurance contracts that also began to be applied in insurance companies in Croatia together with IFRS 9. Furthermore, the research only covered 2022 and 2023, which is a short period for correlation analysis. Despite these limitations, the research results provide a solid basis for understanding the effects of the implementation of IFRS 9 on the financial performance of insurance companies in Croatia. Further research in this area will be focused on identifying and analyzing the effects of the implementation of IFRS 17 on the financial position and performance of insurance companies in Croatia.

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