Subsequent measurement of non-current assets – the impact of the fair value concept choice on total comprehensive income of listed companies in the Republic of Serbia

Накнадно мерење сталне имовине – утицај избора концепта фер вредности на укупан свеобухватни резултат листираних компанија у Републици Србији

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Abstract: In response to investor demands, with the introduction of the fair value (FV) concept, other comprehensive income (OCI) has become a significant indicator of changes in the current values of certain financial statement items in successive periods. Although it deviates from the traditional concept of historical cost (HC) and its prudence principle, on which reliability rests, the use of fair value contributes to the relevance of the presented information. The total comprehensive income (TCI), as a summary of realized and unrealized gains and losses recognized in the income statement, i.e. OCI, represents a valuable base of relevant information for investors and other users of financial statements.
The paper focuses on a sample of listed entities on the Regulated Capital Market of Serbia for the period 2016-2020 and finds that the FV concept is predominantly used for the subsequent measurement of property, plant and equipment (PP&E). In addition, we analyze the impact of changes in the fair value of certain non-current assets' items (i.e.: PP&E, intangible assets and long-term investments) on TCI. Our research shows that some OCI items have a divergent impact on TCI, and, thus, different information power, which can increase uncertainty, i.e. make it harder for analysts to predict net income.
Keywords: historical cost model, fair value model, non-current assets, other comprehensive income, total comprehensive income
JEL classification: M41

Сажетак: Као одговор на захтеве инвеститора, увођењем концепта фер вредности (ФВ), остали свеобухватни резултат (ОСР) постаје значајан индикатор промена текућих вредности одређених ставки финансијских извештаја у сукцесивним периодима. Иако се одступа од традиционалног концепта историјског трошка (ИТ), у чијој је основи принцип опрезности, на који се наслања карактеристика поузданости, употреба фер вредности доприноси релевантности презентованих информација. Укупан

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свеобухватни резултат (УСР), као збир остварених и нереализованих добитака и губитака признатих у билансу успеха, односно ОСР, представља драгоцену базу релевантних информација за инвеститоре и друге кориснике финансијских извештаја.

У раду смо на узорку листираних ентитета на Регулисаном тржишту капитала Србије за период 2016-2020. утврдили да је за накнадно вредновање некретнина, постројења и опреме (НП&О) доминантно коришћен концепт ФВ. Поред тога, анализирали смо утицај промене фер вредности ставки сталне имовине (односно: НП&О, нематеријалне имовине и дугорочних финансијских пласмана) на УСР. Наше истраживање показује да неке ставке ОСР имају дивегентни утицај на УСР, и тиме различиту информативну моћ, чиме могу повећати неизвесност, односно отежати аналитичарима могућност предвиђања нето прихода.

Кључне речи: модел историјског трошка, модел фер вредности, стална имовина, остали свеобухватни резултат, укупан свеобухватан резултат

ЈЕЛ класификација: M41

Introduction

The principle of conservatism, as a kind of accounting profession's "attitude" on which accounting science and practice has rested for decades, is being abandoned in order to meet the growing investor demand for useful accounting information. As an alternative to conservative reporting, international accounting regulations introduce the fair value concept. "The historical cost concept, as the basis of the principle of conservatism, emphasizes reliability as one of the most important qualitative characteristic of financial information, while the fair value concept emphasizes the relevance of financial information" (Arsenijević, 2020b, p. 379).

Non-current assets are a material item in most companies' financial statements. Therefore, their initial and especially subsequent measurement has an impact on the financial statements and, consequently, on investors', creditors' and other stakeholders' decisions. Measurement options after initial recognition at historical cost less depreciation or at fair value have an impact on income and net assets of the reporting entity. If an entity opts to subsequently measure non-current assets at fair value (revaluation option for the most items in this group of assets), unrealized gains are recognized, which are included in other comprehensive income, resulting in a change in the reporting entity's total comprehensive income. On the other hand, the subsequent measurement of non-current assets at historical cost less depreciation will not lead to the recognition of unrealized gains and impacts on OCI.

The aim of our research is first to find out which accounting policies of subsequent measurement of non-current assets are practiced by listed companies in the Republic of Serbia. Also, if the revaluation model is applied, our primary focus is on examining the effects of changes in the fair value of these assets on TCI. We aim to survey a sample of companies of public interest, since the quality of information presented in their financial statements mostly affects a wide range of existing and potential investors. There is similar new research in the Republic of Serbia, but on a sample that is not primarily oriented to listed companies (Karapavlović, Obradović & Bogićević, 2020), or in a specific industry, such as tourism (Milašinović, Obradović & Karapavlović, 2022), or is only focused on the application of the fair value concept (Pantelić, 2019), i.e. accounting policies applied

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(Arsenijević, 2022), with no analysis of the impact of the applied fair value concept on TCI, which is why we believe that our research can fill that gap in creating a comprehensive picture of this issue. In accordance with the research subject and objective, we define four hypotheses. First, we assume that the listed entities on the Regulated Capital Market in Serbia apply historical cost or fair value as the basis for subsequent measurement of the PP&E rather than historical cost. Then, through the next three hypotheses, we want to provide an answer to the impact of changes in the fair value of some non-current assets on TCI if the accounting policy of listed companies in Serbia is to subsequently measure those assets using revaluation model. In doing so, we analyze the level of changes in fair value for three forms of fixed assets: PP&E, intangible assets, long-term financial investments (LTFI). The basis for the testing the mentioned hypotheses are the financial reports of non-financial entities listed on the Regulated Market of the Belgrade Stock Exchange (BSE) for the period 2016-2020.

In addition to Introduction and Conclusion, the paper is structured in three chapters in order to realize the research objective. First, through the literature review, we point out the consequences of historical-cost-based conservative reporting, on the one hand, and the consequences of fair value, on the quality of accounting information as an information basis for decision making on the other. The second part of the paper refers to the research design, where the theoretical foundations of the research are first presented, and then the sample and methodology are described. The third part contains research results and discussion. The final part is the conclusion, with implications, limitations and directions of future research.

1. Historical cost vs fair value for subsequent measurement of non-current assets

From investors' perspective, as the basis for conservative financial reporting, historical cost is not always a desirable way of valuing and presenting assets, liabilities, equity, and based on their changes, consequently, revenues and expenses, profit or loss. The primary reason for this is orientation towards prudent measurement of income and net assets in order to maintain the company's capital. By using historical cost, with the conscious formation of latent reserves and hidden losses, this goal is achieved.

Francis et al. (2004) study a sample of US companies in the period 1975-2001 and find that "entities with higher levels of conservatism as a measure of higher quality of the presented income have a lower cost of equity". Chan, Lin & Strong (2009) found in their research that "ex-post conservatism is associated with lower-quality financial information and higher cost of equity, and that ex-ante conservatism is associated with higher-quality financial information and lower equity cost". However, a study by Gietzmann and Trombetta (2003) suggests that "ex-post conservatism may be seen as a substitute for the voluntary disclosure of information that is empirically proven to reduce the cost of equity" based on reducing the information risk of investors. Also, the recent 2018 study by Khalifa et al. (2018) points to a "positive correlation between ex-ante conservatism and the cost of

equity", as well as a "negative correlation between ex-post conservatism and the cost of equity".

The aforementioned and other research indicates, therefore, that conservative reporting and the related historical cost concept, in addition to its strengths, has its drawbacks. Taking into account the qualitative characteristics of useful accounting information expected by their primary users, the shortcomings of conservative reporting can be eliminated by using the fair value concept.

Empirical studies have shown that under the fair value concept, relevance is less susceptible to manipulative activities than reliability (Kadous, Koonce, & Thayer, 2012; Fukui & Saito, 2022). However, Landsman (2007) as well as Watts (2003) discuss relevance versus reliability of the fair value concept. They believe that the valuation of financial statements at FV, which is determined on the basis of Level 1 and Level 2 inputs, may contain serious errors in assessment that will lead to problems of information asymmetry and moral hazard. In the event that fair value is not measured reliably, i.e. when based on managerial valuation techniques (Level 3), the fair value determined in this way will provide less relevant information on future cash flows (Hernandez, 2004), and "will not be useful to investors in assessing entity value" (Beisland, 2014). Managers will then have the opportunity to manipulate income, i.e. to manage it and to equalize it through accounting periods. Thus, although fair value may be informationally relevant to investors, it can also be very problematic when it comes to its level of reliability, primarily due to unknown valuation errors.

Insisting on conditioning the credible presentation on neutrality of the presented information is not expedient, since in such a normative basis, the neutrality of all presented information cannot be achieved (Arsenijević, 2020a, 167). It would be equally inexpedient to insist that only information that has been carefully weighed is presented credibly.

2. Research design

2.1. Theoretical background and development of hypotheses

Thijssen and Iatridis (2016, p. 59) point out that the "value or relevance of accounting information (primarily income) represents the degree to which book values agree with market values". Fair value as a reflection of market value or its approximation (when there are no Level 1 and 2 inputs) can be applied to subsequent measurement of only certain assets and liabilities according to the applicable accounting regulations. The most significant part of assets that can be measured in this way even after initial recognition is long-term assets. Giving up the historical cost in the subsequent measurement of these assets will result in the recognition of unrealized gains in OCI, but also a change in the total comprehensive income for the period.

Profit quality is one of the measures of the quality of financial statements as an information basis for the decision-making process. At the same time, predictability, persistence and volatility of income, as a measure of quality, is most often in the focus of

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financial analysts and other users of financial statements. Certainly, the stated income characteristics, especially the one determined in OCI, do not always have the same value relevance (Jones & Smith, 2011). The reason for this can be found in the heterogeneity of OCI items and the factors that affect the recognition of unrealized gains or losses on subsequent measurement of those items. "Although levels of realized and unrealized income indicate an increase in net worth, changes in realized and unrealized income differ in terms of uncertainty; it is, therefore, more important for market participants to judge information's usefulness" (Park, 2018, p. 1).

The amount of OCI and the structure of the elements that make up OCI, as well as their amount and volatility can affect the company valuation (Dee, 1999), but also have an individual impact when assessing certain financial performance indicators (Touron, 2016), which may be particularly important in crisis periods (Gazzola & Amelio, 2014). The results of the Graham & Lin study (2017, p. 72) suggest that "future discretionary expenditures are associated with both positive OCI and negative OCI for higher leveraged firms but only associated with positive OCI for lower leveraged firms". For listed companies, the value relevance of OCI, as a part of TCI, is even more pronounced. Kanagaretnam et al. (2009, 349) find that "aggregate comprehensive income is more strongly associated (in terms of explanatory power) with both stock price and returns compared to net income". OCI is no less important for creditors. Research has shown that "creditors use information from OCI in their assessment of firm credit risk and in pricing debt contracts" (Bao et al., 2020, p. 457).

On the other hand, there is evidence of limited OCI value. Anderson et al. (2021) document that "analysts' 1-year-ahead earnings forecasts are associated with OCI and OCI components having predictive ability". The partial inclusion of OCI components in earnings forecasting is a consequence of the uncertainty of their realization and, thus, the risk of analyst error. Research in Korea has shown that only one component of OCI, i.e. "net unrealized gains/losses on available-for-sale (AFS) investment securities are positively associated with future earnings" (Lee at al., 2020, p. 31). Furthermore, research has shown a "weak negative association between OCI and equity price" (Harasheh et al., 2021, p. 3835), i.e. a positive correlation between OCI and equity total risk.

Certainly, it should not be neglected that in fair value assessment, the subsequent measurement of certain assets and liabilities may consciously affect the amount of unrealized gains and losses. Thus, OCI can be a solid tool for earnings management (Wang et al., 2021; Lin & Rong, 2012). The application of the fair value concept in practice is often the subject of manipulative activities aimed at earnings management in order to avoid showing its volatility and the repercussions that it brings with it. Specifically, the high level of volatility of the entity's profit is associated with low market values of its shares, which results in higher business risk and increased probability of bankruptcy (Roekhudin et al., 2015, p. 885).

Notwithstanding certain weaknesses, it is considered that there is still some "incremental value relevance of OCI" (Djaballah & Fortin, 2021) and that this report can be a useful source of information for decision makers (He & Lin, 2015).

Having in mind the above-mentioned advantages of the analysis of OCI elements, we define the following hypotheses:

H1 – Listed entities at BSE use FV for subsequent PP&E measurement rather than HC

H2 – Changes in the fair value of PP&E have effect on TCI

H3 – Changes in the fair value of intangible assets have minor effect on TCI

H4 – Changes in the fair value of LTFI have effect on TCI

Included within the OCI, changes in the fair value of non-current assets affect the change in the TCI. However, changes in the fair value of non-current assets (mostly PP&E) can affect net income – through the effects of revaluation on depreciation costs. Due to unavailable analytical data on the effects of revaluation on the depreciation costs of the analyzed entities, it is not possible to analyze the impact of changes in the FV of the certain non-current assets on income for the year in the profit or loss statement and consequently on the TCI in the comprehensive income statement. Therefore, our analysis under the second, third and fourth hypotheses will focus only on the effects of applying the concept of fair value on total net comprehensive income for the main non-current assets items.

2.2. Sample and materials

In accordance with the research objective and defined hypotheses, the sample consists of companies listed on the Regulated Market of the BSE, which use the revaluation model, i.e. the fair value concept, in the subsequent valuation of PP&E. The initial sample consists of companies listed on Regulated Market of the BSE. This sample is the basis for testing the first hypothesis (H1). As on any capital market, the number of listed entities varies over time, as is the case with the BSE. The initial sample from the first three analyzed years (27 entities) drops to 17 in the last two years, because as of 2019, 11 entities no longer list their securities on the BSE Regulated Market, while one new entity is included on the market. The initial sample will be the basis for the H1.

For testing H2, the initial sample is reduced by the number of entities that use historical cost in the subsequent measurement of each PP&E item. The final sample for this hypothesis, therefore, includes only entities that subsequently measure at least one PP&E item at fair value (see Tables 1, 2 and 3). The H3 will be explored on a sample of reporting entities that have recognized intangible assets in individual reports, but also goodwill for parent entities that prepare consolidated financial statements. Finally, the sample for testing the H4 consists only of entities that have long-term financial investments in their financial statements whose changes in fair value are recognized in OCI (see Table 4).

The analysis covers the period for the last five reporting years and publicly available financial statements at the time of completing our research, i.e. 2016-2020. The data for the

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analysis is taken from the annual financial statements available on the website of the Serbian Business Registers Agency.

3. Research results and discussion

3.1. Propensity to use HC or FV for subsequent PP&E measurement (H1)

Before testing our further hypotheses, we find it important to highlight the fact of the tendency to use options in the subsequent measurement of PP&E by entities listed on the Regulated BSE Market. Table 1 clearly shows that, in accordance with accounting policies of the sampled entities, the fair value concept is predominantly used (in the first three analyzed years in 81.48% of cases, and in the reduced sample in the last two analyzed years 70.59%).

Table 1: Subsequent measurement of PP&E

	2016		2017		2018		2019		2020	
	n	*F*	n	*F*	n	*F*	n	*F*	n	*F*
Total entities listed at the Regulated Market of the BSE	27		27		27		17		17	
− Entities that use HC	5	*18.52%*	5	*18.52%*	5	*18.52%*	5	*29.41%*	5	*29.41%*
= Entities that use FV	22	*81.48%*	22	*81.48%*	22	*81.48%*	12	*70.59%*	12	*70.59%*

n – Number of sampled entities
F – Frequency (in %)

Source: the authors' research

Pantelić (2019) comes to similar conclusion on a sample of 53 Serbian companies that "out of total items that could be subject to fair value measurements, 72.70% was actually measured at fair value" (Pantelić, 2019, p. 348). In addition, the survey finds that Serbian "accountants quite firmly believe that fair value provides the most valuable and relevant information to investors".

However, Karapavlović et al. find "that companies are more likely to choose the historical cost model than the revaluation model (the fair value model) for owner-occupied properties and plant and equipment" (Karapavlović et al., 2021, p. 95). We believe that one of the reasons for the discrepancy between the results of our and this research is the sample structure. Specifically, Karapavlović et al. (2021) have 300 companies of all sizes in the sample (without indicating which part of the sample is listed). There are only 94 large companies in the sample that apply IFRS, while the rest predominantly apply IFRS for SME, which at the time of the survey (2014-2016) provided for the use of historical cost as the only option for subsequent measurement of PP&E. On the other hand, our research focuses on a sample of listed companies that apply IFRS, and which, by their nature, seek to provide value-relevant information to investors and other users of their reports, which is why they use the option to measure PP&E at fair value.

3.2. Impact of change in fair value of PP&E on TCI (H2)

In order to assess the extent to which a change in the fair value of PP&E affects TCI, it is necessary to first analyze the level of change in fair value in relation to the book value of this group of fixed assets.

a) Level of change in fair value of PP&E

Level of change in fair value of PP&E in relation to their book value is calculated as the ratio between changes in revaluation reserves and the total book value of PP&E (Table 2).

Table 2: The level of change in the fair value of PP&E in relation to their book value

Effect of the FV change	Level of change	2016		2017		2018		2019		2020	
		n	F	n	F	n	F	n	F	n	F
No change	0.00%	12	55%	18	82%	15	68%	7	58%	7	58%
Increase in fair value	0.01-0.99%	3	14%	1	5%	2	9%	2	17%	2	17%
	1.00-4.99%	2	9%	0	0%	0	0%	2	17%	0	0%
	5.00-9.99%	1	5%	0	0%	0	0%	0	0%	0	0%
	More than 10.00%	1	5%	1	5%	0	0%	0	0%	0	0%
Decrease in fair value	0.01-0.99%	2	9%	2	9%	4	18%	1	8%	2	17%
	1.00-4.99%	1	5%	0	0%	0	0%	0	0%	1	8%
	5.00-9.99%	0	0%	0	0%	0	0%	0	0%	0	0%
	More than 10.00%	0	0%	0	0%	1	5%	0	0%	0	0%
Total sample		22		22		22		12		12	

n – Number of sampled entities
F – Frequency (in %, rounded)

Source: the authors' research

The research results show that most entities in the observed years have no change in the fair value of PP&E in relation to their book value. The financial statements of the entities in which the fair value of PP&E has changed do not show a drastic change in their carrying amount. Specifically, the changes are often minor in nature and range from 0.01-0.99%, or less than 1% regardless of the sign. Changes in fair value greater than 10% are rare – one entity in the first three years.

We believe that the stated volatility of fair value reflects the real situation if we take into account the annual inflation rate, i.e. the general level of price changes in Serbia, which, according to official data, ranged between 1.1% and 3.0% for the observed period (Statistical Office of the Republic of Serbia, 2022). Certainly, our assessment would be more accurate if there was official data on the movement of specific prices of certain PP&E items. Also, the heterogeneity of items within the PP&E group would require monitoring of individual specific market price indices, which, in the conditions of the Republic of Serbia, was also not available.

b) The effect of changes in the fair value of PP&E on TCI

The effect of changes in the fair value of PP&E on total net comprehensive income is the ratio of changes in revaluation reserves to total net comprehensive profit or loss (Table 3).

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Table 3: Effects of changes in the fair value of PP&E on total net comprehensive profit or loss

Effects of changes	Level of change	2016		2017		2018		2019		2020	
		n	F	n	F	n	F	n	F	n	F
a) No change	0.00%	12	*55%*	17	*77%*	15	*68%*	7	*58%*	6	*50%*
b) Changes in total net comprehensive profit											
Increase in total net comprehensive profit	0.01-0.99%	2	*9%*	1	*5%*	2	*9%*	1	*8%*	1	*8%*
	1.00-4.99%	1	*5%*	0	*0%*	0	*0%*	1	*8%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	1	*8%*	0	*0%*
	More than 10.00%	4	*18%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Decrease in total net comprehensive profit	0.01-0.99%	1	*5%*	1	*5%*	2	*9%*	0	*0%*	1	*8%*
	1.00-4.99%	0	*0%*	0	*0%*	1	*5%*	1	*8%*	1	*8%*
	5.00-9.99%	1	*5%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	1	*5%*	2	*9%*	1	*5%*	0	*0%*	0	*0%*
c) Changes in total net comprehensive loss											
Increase in total net comprehensive loss	0.01-0.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	1	*8%*
	1.00-4.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	0	*0%*	1	*5%*	0	*0%*	0	*0%*	1	*8%*
Decrease in total net comprehensive loss	0.01-0.99%	0	*0%*	0	*0%*	1	*5%*	0	*0%*	1	*8%*
	1.00-4.99%	0	*0%*	0	*0%*	0	*0%*	1	*8%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
Total sample		22		22		22		12		12	

n – Number of sampled entities
F – Frequency (in %, rounded)

Source: the authors' research

The results of the research show that in more than 50% of entities in the observed years there is no change in fair value. The noticeable data from the previous table is that a larger number of entities have a change in the total net comprehensive profit, but not in loss, regardless of the sign of its change. Nevertheless, the low material significance of those changes, as well as the fact that in the majority of the sampled entities there is no impact on TCI, indicates that the relevance of the elements of OCI related to PP&E is very low.

3.3. Impact of change in fair value of intangible assets on TCI (H3)

In modern business conditions, especially of listed entities, intangible assets make up a significant part of the company value. This applies in particular to internally generated intangible assets that, according to accounting rules, cannot be recognized in single financial statements (unless a business combination has been realized in accordance with IFRS 3), but only in consolidated financial statements. However, in the single financial statements of the entities in our sample, the share of intangible assets is materially insignificant (in most entities, the share of intangible assets in total non-current assets is below 0.62%). Most of the sampled entities apply the historical cost concept in the subsequent measurement of intangible assets (78% of the entities), while a significantly

smaller number use the fair value concept. Given the insignificant share in total non-current assets, we believe that the impact of subsequent measurement of intangible assets recognized in the single financial statements on OCI and consequently on TCI is not relevant to our research.

Since the sampled entities are listed on the Belgrade Stock Exchange and are therefore subject to additional financial reporting requirements, we wanted to examine the impact of subsequent goodwill measurement on the group's net income if the parent entity (as an entity covered by our study) mandatory prepares consolidated financial statements. The number of sampled entities preparing consolidated financial statements for the period 2016-2020 is: 15, 16, 16, 11 and 12, respectively. However, more than 80% of these entities did not report goodwill in their financial statements. Out of the entities that reported goodwill in the financial statements, goodwill was impaired in only one case. On the example of this entity, the effect of goodwill impairment on the change in net income of the group, which represents the ratio of the amount of goodwill impairment and consolidated net profit or loss, refers to a decrease in group net profit of 0.07% in 2017, 0.08% in 2018 and 1.08% in 2019 and an increase in group net loss of 0.35% in 2020.

Due to its material insignificance in our sample, we believe that the effects of changes in the fair value of intangible assets reported in TCI do not provide incrementally value-relevant information to users. Even in cases where there is an item of intangible assets (either in single or consolidated financial statements), as well as in the case of PP&E (Karapavlović et al., 2020, p. 95), insufficient and inadequate disclosures in the Notes are a limitation for making quality assessments and decisions.

3.4. Impact of changes in the fair value of long-term investments on TCI (H4)

We investigate the effects of changes in the fair value of LTFI on the TCI both for (1) items that will not be reclassified to the income statement in future periods and to (2) items that may subsequently be reclassified to the income statement in future periods.

A small number of sampled entities (up to four entities per year) show the effects of changes in the FV of the first group of LTFI on TCI. The analysis indicates that these effects most often relate to the impact of recognized unrealized gains on the increase in TCI. In the observed period, the minimum increase in total net comprehensive income is 0.002%, and the maximum is 8.38%. The impact of recognized unrealized losses on the decrease of total net comprehensive income is significantly smaller – a maximum of 1.12%, while the impact on the increase in total net comprehensive loss is a maximum of 5.27%.

On the other hand, the second group of the LTFI items are related to gains or losses from the translation of financial statements of foreign operations, gains or losses from hedging instruments of net investments in foreign operations, gains or losses from hedging instruments of cash flows and gains or losses from AfS securities.

The effects of changes in the FV of LTFI on TCI on these items are presented in Table 4.

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Table 4: Effects of changes in the fair value of long-term investment on total net comprehensive profit or loss

Effects of changes	Level of change	2016		2017		2018		2019		2020	
		n	*F*	n	*F*	n	F	n	F	n	F
a) Impact of recognized unrealized gains											
Increase in total net comprehensive profit	0.01-0.99%	2	*13%*	4	*28%*	3	*23%*	1	*14%*	0	*0%*
	1.00-4.99%	3	*20%*	2	*14%*	2	*15%*	1	*14%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	1	*6%*	1	*7%*	2	*15%*	2	*29%*	0	*0%*
Decrease in total net comprehensive loss	0.01-0.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	1.00-4.99%	1	*6%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
b) Impact of recognized unrealized losses											
Increase in total net comprehensive loss	0.01-0.99%	0	*0%*	0	*0%*	1	*8%*	1	*14%*	2	*29%*
	1.00-4.99%	0	*0%*	0	*0%*	1	*8%*	0	*0%*	0	*0%*
	5.00-9.99%	0	*0%*	0	*0%*	0	*0%*	0	*0%*	0	*0%*
	More than 10.00%	1	*6%*	1	*7%*	0	*0%*	0	*0%*	0	*8%*
Decrease in total net comprehensive profit	0.01-0.99%	4	*26%*	0	*0%*	0	*0%*	2	*29%*	2	*29%*
	1.00-4.99%	2	*13%*	2	*14%*	2	*15%*	0	*0%*	1	*14%*
	5.00-9.99%	0	*0%*	3	*21%*	1	*8%*	0	*0%*	1	*14%*
	More than 10.00%	1	*6%*	1	*7%*	1	*8%*	0	*0%*	1	*14%*
Total sample		15		14		13		7		7	

n – Number of sampled entities
F – Frequency (in %, rounded)

Source: the authors' research

Looking at the percentage data in the Table 4, we can conclude that the impact of recognized unrealized gains, which is reflected in the increase in total net comprehensive income, and the impact of recognized unrealized losses, which is reflected in the decrease in total net comprehensive income, are relatively equal. The level of change is lower than 10% in most cases.

Although some studies have shown that "only realized gains and losses on available-for-sale securities have value relevance" (Yulianti et al., 2020), the importance of unrealized gains and losses on long-term financial investments should not be overlooked. Thus, for example, Barth and Clinch (1998), Kanagaretnam et al. (2009) find "that unrealized gains or losses on securities held for sale or for trading have a significant association with price changes or abnormal returns".

Conclusion

The application of the FV concept in the subsequent measurement of certain items of assets and liabilities requires the recognition of unrealized gains and losses, which should be reported within OCI, which, together with net income, constitutes total comprehensive income. Research has shown that OCI has its value relevance especially in developed capital markets.

Our research had four hypotheses. The first hypothesis is confirmed by checking how much listed entities on BSE use FV for subsequent PP&E measurement - 81.48% of entities in sample for 2016, 2017 and 2018 and 70.59% of entities in the sample for 2019 and 2020. The second hypothesis is not confirmed because the research results show that most entities in the observed years have no change or the changes are often minor in nature in the fair value of PP&E in relation to their book value. The H3 is confirmed – results show that the effects of changes in the fair value of intangible assets reported in TCI are minor in nature and do not provide incrementally value-relevant information to users. Finally, the fourth hypothesis is confirmed by investigating the effects of changes in the fair value of LTFI on the TCI both for (1) items that will not be reclassified to the income statement in future periods and to (2) items that may subsequently be reclassified to the income statement in future periods.

Regardless of the underdevelopment of the Serbian capital market, we believe that data on the use of the FV concept and the effects of changes in FV assets and liabilities on OCI may be relevant for investors in Serbia, as shown in other studies in developing countries (for example: Yousefinejad et al., 2017). However, our research shows that some OCI items have a divergent impact on the TCI, and thus different information power, which may increase uncertainty or make it harder for analysts to predict net income, as demonstrated in other studies (Lee et al., 2020; Arthur et al., 2019; Jones & Smith, 2011). However, in circumstances where net income is constant, the value relevance of OCI increases (Park, 2018).

The assessment of the full value relevance of OCI requires a series of specific data related to the items of that statement, as well as data from the capital market. The fact that the entities in our sample do not disclose in the Notes the depreciation costs resulting from the revaluation of PP&E and intangibles is one of the main research limitations. With this data, our analysis could be extended to assess the impact of the application of the fair value concept not only on OCI, but also on net income, as well as on TCI. This data, as well as data from the capital market, would enable the determination of the full value relevance of OCI for decision makers. The next limitation of our research is the small number of entities listed on the Regulated Market of the Belgrade Stock Exchange, as well as the very limited volume of trading in their securities, which, as with the first limitation, limits the application of more complex econometric methods. In that sense, our future research could focus on a comparative analysis of the relevant indicators of OCI relevance on the capital market of Serbia and capital markets similar in level of development.

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