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THE USE OF HISTORICAL COST AND FAIR VALUE FOR PROPERTY AND PLANT AND EQUIPMENT MEASUREMENT – EVIDENCE FROM THE REPUBLIC OF SERBIA

ABSTRACT: *The aim of the paper is to reveal how financial statement preparers in the developing and transition country of the Republic of Serbia, behave in situations where they can choose between the valuation model based on historical cost and the valuation model based on fair value. In that regard, we have analysed the subsequent measurement of property and plant and equipment in Serbia. We find that companies are more likely to choose the historical cost model than the revaluation model (the model based on fair value) for owner-occupied properties and plant and equipment, and the fair value model rather than the historical cost model for investment properties. The willingness to use the revaluation model for subsequent*

measurement of owner-occupied properties and plant and equipment varies across different categories of companies, and we find a statistically significant relationship between that willingness and the legal form of the company. We also find that in the notes to their financial statements, a significant number of companies in Serbia do not disclose adequate information on the model used for subsequent measurement of property and plant and equipment, although such information is required by the applicable financial reporting standards.

KEY WORDS: *historical cost, fair value, property, plant and equipment, investment property, accounting policy choice*

JEL CLASSIFICATION: M41, M42

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1. INTRODUCTION

Because of the existence of several measurement bases, today's model for measuring financial statements items is a mixed measurement model. Although the International Accounting Standards Board (IASB) has considered imposing a single measurement attribute system, the prevailing standpoint is that different measurement attributes could provide useful information to financial statements users in different circumstances (Ernst & Young, 2018). In the Conceptual Framework for Financial Reporting developed by the IASB the following measurement bases (measurement attributes) are identified: historical cost, fair value, value in use (for assets), fulfilment value (for liabilities), and current cost (IASB, 2018), wherein historical cost (HC) and fair value (FV) are the most present in the IASB's standards and therefore in financial reporting practice, and are also the most discussed in accounting theory.

One of the important features of International Financial Reporting Standards (IFRS) in general is the existence of open options (Obradović, 2014), in the sense that in some situations financial statements preparers can choose between two or more options for solving the same accounting problem. Subsequent measurement (measurement after initial recognition) of properties and plant and equipment (PPE) is a typical example of such a situation because financial statements preparers can choose between models based on HC and FV. PPE are assets used for the production or supply of goods and services, for administrative purposes, or for rental to others (IASB, 2018a). They are classified as non-current assets because of their intended long-term presence in the company, i.e., because they are not intended for sale in the short-term. An investment property is a specific category of property held to earn rental, for capital appreciation, or for both, rather than for use in the production or supply of goods or services or for administrative purposes or sale in the ordinary course of business (IASB, 2018b).

According to the International Accounting Standard (IAS) 16 – Property, Plant and Equipment, when creating accounting policies for subsequent measurement of owner-occupied (non-investment) property and plant and equipment items, financial statements preparers can choose between the HC model and the revaluation model (the model based on FV) (IASB, 2018a). The HC model means that PPE items are carried at cost less any accumulated depreciation and any accumulated impairment loss. The revaluation model means that PPE items

whose FV can be measured reliably are carried at the revalued amount (FV at the revaluation date) less any subsequent accumulated depreciation and any subsequent accumulated impairment loss. Generally, any revaluation gain as a result of an increase in the carrying amount is included in the revaluation reserve within equity and treated as other comprehensive income, while any revaluation loss as a result of a decrease in the carrying amount is included in profit or loss as an expense (see more in: IASB, 2018a). According to IAS 40 – Investment Property, financial statements preparers can choose between the FV model and the HC model for subsequent measurement of investment property items (IASB, 2018b). The FV model means that an asset is measured at its FV at the end of each reporting period. Therefore, if the FV model is chosen an investment property is not depreciated, and this is the first difference between investment property accounting, on the one hand, and other PPE accounting, on the other hand. The second difference results from the fact that a gain or loss arising from a change in the FV should be recognized in the profit or loss in the period in which it occurs.

PPE are very important for many companies, due to significance of their share in total assets (Karapavlović et al. 2018), while their individual values are often relatively high, which means that the choice of measurement model can have a significant impact on the reported financial position, profit or loss, and other comprehensive income. Consequently, an insight into the practice of subsequent measurement of PPE can provide a solid basis for estimating which measurement attribute – HC or FV – financial statements preparers prefer.

The aim of this paper is to determine whether financial statements preparers in the Republic of Serbia prefer the model based on HC or the model based on FV for subsequent measurement of PPE. In that regard, we have analysed the accounting policies of Serbian companies disclosed in the notes to their individual financial statements for the years 2014 to 2016.

The paper is structured as follows. The next section reviews previous research on subsequent measurement of PPE and develops the hypotheses. Next, the research sample and methodology are described. After that, the research results are presented and discussed. The last section consists of concluding remarks, research limitations, and recommendations for future research.

2. LITERATURE REVIEW

According to Arnold et al. (1994), HC has been used for 500 years. Wallace (2008) points out that the accounting profession was largely driven by HC until the early 1990s, meaning that accounting was predominantly based on actual transactions. While HC is undoubtedly traditional, it is also contemporary, because it is still used in practice. HC provides monetary information about elements of financial statements using information derived, at least in part, from the price of business transactions or other events that gave rise to those elements and does not reflect changes in values, except to the extent that those changes relate to impairment of an asset or a liability becoming onerous (IASB, 2018). Barth (2014) notes the difference between unmodified HC and modified HC. Unmodified HC refers to an initial cost amount that has not been changed, while modified HC refers to a cost amount that has been subject to one or several modifications in accordance with applicable financial reporting standards (for example, due to depreciation, amortization, or impairment). Penman (2007) emphasizes that the term HC is inadequate and that the term 'historical transactions accounting' better reflects the essence of this measurement attribute and the accounting system based on it. However, the term 'historical cost' is widely accepted; therefore, this term shall be used in this paper.

FV is "the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants at the measurement date" (IASB, 2018). Simply put, FV is an exit price determined from the market participants' perspective (Wilson, 2007). It is consistent with the standpoint that "something is worth what somebody is prepared to pay for it" (Dempsey & Jones, 2015). The concept of FV is not based on a unique measurement methodology but includes several approaches to exit value estimation (Power, 2010). In that respect, it is significant to note that IFRS 13 – Fair Value Measurements, introduces the FV hierarchy based on the observability of inputs, which are divided into three broad levels (Marabel-Romo et al., 2017). The insight into the contemporary literature on FV might lead readers to believe that its use as a measurement attribute is something new, but according to Whittington (2015), fair value dates back to the late 19th century, while Walton (2007) points out that "current or market value has had some place in statutory financial reporting in Europe since the seventeenth century". However, the application of FV intensified in the 1980s and 1990s when FV emerged as the

IASB's preferred measurement attribute leading to the transition from 'accounting as history' to 'accounting as economics' (see Barker & Schulte, 2017).

Some theoretical studies highlight the superiority of FV over HC in the context of subsequent measurement of PPE. For example, Henderson and Goodwin (1992) and Missonier-Piera (2007) suggest that the usage of FV is especially suitable as (a) a signal of the company's additional borrowing capacity and reduction of debt cost, (b) a signal of the company's increasing credit rating, (c) an indicator of reduced likelihood of violating restrictive covenants, (d) a method for presenting a more realistic measure of profit, (e) a method for improving the debt/asset ratio, and (f) a method for providing more meaningful data in the statement of financial position in general.

However, Krumwiede (2008) points out that the reliability of financial reporting could be reduced in the case of inability to estimate fair values of non-current assets. The observable market inputs are not available for many PPE items and therefore the estimation of the fair value of those items can only be based on inputs of the least reliable (third) level. According to IFRS 13, fair value estimations of PPE items as non-financial assets should be based on the assumption that market participants are able to generate economic benefits through the highest and best use of assets (IASB, 2018c). This assumption is difficult to implement, especially bearing in mind the uniqueness of many PPE items in terms of a unique feature, location, and/or use. Although the mentioned theoretical studies suggest that FV is more relevant to financial statement users than HC in the context of PPE measurement, the FV estimations are not always sufficiently reliable, and therefore the use of FV does not always enhance the overall quality of financial statements. In that regard, Herrmann et al. (2006) argue that FV better meets all the qualitative characteristics of financial information than HC, except verifiability.

Bearing in mind the previously discussed shortcomings of FV in the context of PPE measurement, it is not surprising that several empirical studies reveal that the HC model is used more often than the revaluation model (as the model based on FV) for subsequent measurement of owner-occupied properties and plant and equipment. Lourenço et al. (2015) reveal that the HC model is used almost exclusively for subsequent measurement of PPE in a sample of 300 European

companies (including 20 Russian companies) that apply IFRS. Cairns et al. (2011), who analyse 228 listed companies in the United Kingdom and Australia, also reveal the small number of companies applying the revaluation model. More specifically, only a few companies use the revaluation model to measure properties, while no company uses that model for plant and equipment.

The previous findings suggest that the use of the revaluation model is not equally distributed over PPE types. Some other studies (Emanuel, 1989; The Institute of Chartered Accountants in England and Wales, 2007; Christensen & Nikolaev, 2009; Christensen & Nikolaev, 2013) also suggest that property (land and buildings) is more often measured using the revaluation model than plant and equipment. In addition, the same model is not equally distributed among companies with different economic characteristics. Hlaing and Pourjalali (2012) reveal that larger companies with a high share of PPE in total assets and companies with higher debt ratios are more likely to adopt the revaluation model. Examining a sample of 1,100 South Korean firms, Baek and Lee (2016) find that companies that opt for the revaluation model have higher average debt cost, equity cost, and weighted average cost of capital than companies that do not opt for the revaluation model. However, Gaeremynck and Veugelers (1999) argue that successful companies do not choose to revalue assets as a credible signal to potential investors, while Seng and Su (2010) point out that larger companies are more likely to revalue their assets in order to mitigate political costs than companies of other sizes.

The mentioned studies predominantly focus on companies operating in developed countries, while the preference of financial statements preparers in developing and transition countries for the HC and revaluation models is not sufficiently examined. It is reasonable to expect that the market for owner-occupied properties and plant and equipment in developed countries is more enhanced and therefore provides more reliable inputs for the revaluation model than the markets in developing and transition countries, which means that conditions for using the revaluation value model are less favourable in developing and transition countries. However, the reliability of inputs is only one factor affecting the preference for the revaluation and HC models. The second factor is the motive behind financial statement preparers' preference for the revaluation

model. Studies conducted in developed countries suggest that companies are not equally motivated to use the revaluation model.

The Republic of Serbia is a developing and transition country in which a relatively wide range of companies are obligated or have an option to use IFRS. In addition, IFRS have been used in Serbia for more than a decade, which means that financial statements preparers have had enough time to become familiar with IFRS, including the concept of FV, the advantages and disadvantages of this measurement attribute, and the manner in which it is applied. Starting from the results of studies conducted in developing countries, we have formulated the first research hypothesis as follows:

H1. Companies in the Republic of Serbia are more likely to choose the HC model than the revaluation model for subsequent measurement of owner-occupied properties and plant and equipment.

The mentioned research conducted by Cairns et al. (2011) also reveals that the FV model is predominantly used for subsequent measurement of investment properties. Mäki et al. (2016) focus on the relation between the use of the FV model for subsequent measurement of investment properties and ownership dispersion and reveal that companies with dispersed ownership are more likely to use the FV model and that about 80% of the examined companies from different European Union countries use this model. The research conducted by Muller et al. (2008) on a sample of 77 Continental European investment property firms reveals approximately the same percentage of companies that use the FV model for subsequent measurement of investment properties as the research conducted by Mäki et al. (2016). However, Prewysz-Kwinto and Voss (2016) focus on companies included in the capitalization-weighted stock market index of the 30 largest companies on the Warsaw Stock Exchange (WIG 30) on 1 August 2015 and reveal that about 37% of the observed companies use the FV model and about 63% use the HC model for subsequent measurement of investment properties. Taplin et al. (2014) examine the use of the FV model for investment properties in 96 randomly selected Chinese listed companies' 2008 year-ending annual reports and find that half of the companies use the FV model while the other half use the HC model. They also point out that companies with an

international influence and companies with above average earnings volatility are more likely to use the FV model.

The results of the abovementioned studies conducted in countries with different development levels are mixed and indicate that preferences for the HC model and the FV model differ across countries. We conclude that there is slightly more evidence that companies prefer the FV model for subsequent measurement of investment properties rather than the HC model. Therefore, we formulate the second hypothesis as follows:

H2. Companies in the Republic of Serbia are more likely to choose the FV model than the HC model for subsequent measurement of investment properties.

3. RESEARCH SAMPLE AND METHODOLOGY

Our sample comprises 300 randomly selected non-financial Serbian companies of different size, legal form, and prevailing activity that apply full IFRS. The research is based on individual financial statements available on the official website of the Serbian Business Registers Agency and relies on hand-collected data from the statements of financial position and the notes to the financial statements of each company included in the sample for the period 2014 to 2016.

According to the initial version of the IFRS for Small and Medium-sized Entities (IFRS for SMEs) published in 2009, which was applied in Serbia in the research period, there is only one model for subsequent measurement of owner-occupied properties and plant and equipment – the HC model. In addition, according to the same standard, an investment property that can be reliably measured at the FV without undue cost or effort shall be measured at FV at each reporting date. This means that FV is normally used for subsequent measurement of investment properties. The HC model is used only if the FV cannot be measured reliably (Melville, 2017). The version of the IFRS for SMEs that was applied in Serbia in the research period did not allow choosing between the model based on HC and the model based on FV, so the Serbian companies that used the mentioned standard are not included in the sample. The current (revised) version of the IFRS for SMEs, which was adopted by the IASB in 2015 but included in the regulatory framework of financial reporting in Serbia only in October 2018, allows the use of the revaluation model, and that could affect future research.

According to the Accounting Law of 2013, which was applicable in the research period, full IFRS were mandatory for large companies, as well as public companies (including companies preparing to go public), financial institutions, and companies preparing consolidated financial statements (parent entities) regardless of their size, and optional for medium-sized entities. However, non-listed, non-financial, and non-parent small and micro entities were not allowed to apply full IFRS. For that reason, small and micro entities have a modest share in the sample. Only those small and micro entities that were listed or prepared consolidated financial statements as parents used full IFRS and therefore are eligible to be included in our sample. The new Accounting Law in the Republic of Serbia adopted in October 2019 has expanded the scope of full IFRS, in the sense that full IFRS has become optional for all small and micro entities. This change in the act refers to the set of financial statements for the annual period beginning 1 January 2020, and therefore will again affect future research in this area.

All of the financial statements included in the sample (900 sets) were subjected to external audit. In 709 cases (78.8%) the auditor's opinion is unmodified (i.e., positive with or without emphasis of matter), while in 191 cases (21.2%) the auditor's opinion is modified and qualified. In the process of sample selection we identified some financial statements that had an adverse opinion or a disclaimer of opinion, and companies with such financial statements were not included in our sample because we do not have enough evidence that the statements are reliable. For the same reason, we have not included companies whose financial statements for 2014, 2015, or 2016 were not the subject of audit. The structure of the sample by size, legal form, and prevailing activity is shown in Table 1.

Table 1: Sample structure

		Number of companies	%
Size*	Micro	22	7.3
	Small	35	11.7
	Medium-sized	149	49.7
	Large	94	31.3
Legal form	Limited liability company	151	50.3
	Stock company	124	41.3
	Public utility company	24	8.0
	Social enterprise	1	0.3
Prevailing activity	Production	148	49.3
	Trade	59	19.7
	Service	90	30.0
	Holding company	3	1.0

*Classification is based on the 2013 Accounting Law.

Source: Authors' calculation

4. RESULTS AND DISCUSSION

According to the pattern prescribed by the Serbian Ministry of Finance, all non-financial companies present properties (both investment and owner-occupied), plant and equipment in the Property, Plant and Equipment category in their balance sheets (the statements of financial position). Property, Plant and Equipment consists of: (a) land, (b) buildings, (c) plant and equipment, (d) investment properties, (e) other PPE, (f) PPE in preparation, (g) investments in other company's PPE, and (h) advances for PPE. The average share of Property, Plant and Equipment in total assets in the analysed period is 44.7%. The lowest individual share of this position is 0.03%, while the highest individual share is 99.56%. The average share of PPE during the period from the end of 2014 until the end of 2016 is less than 5% in only 15 companies (3%), and is less than 10% in 28 (9.3%). A more detailed analysis of company size, prevailing activity, and legal form reveals that the average percentage share of PPE in total assets is (1) highest in micro companies (53.4%) and lowest in large companies (41.3%), (2) highest in service companies (54.9%) and lowest in production companies

(42.8%), and (3) highest in public utility companies (63.5%) and lowest in limited liability companies (36.2%).

The average share of owner-occupied properties (land and buildings) and plant and equipment in total assets in the period from the end of 2014 until the end of 2016 is 38.3%. These assets observed together have a dominant share in non-current assets (72.5%) and in the category Property, Plant and Equipment (86.0%). We can conclude that owner-occupied properties and plant and equipment are generally very important for the analysed companies, and that therefore accounting policies regarding their subsequent measurement might significantly influence the reported financial position and performance. This implies that most companies cannot be indifferent in their accounting choices regarding subsequent measurement of owner-occupied properties and plant and equipment.

According to Table 2, the HC model is the primary basis for subsequent measurement of owner-occupied properties and plant and equipment in Serbia. On average, 57.8% of the sampled companies use the HC model for all of their owner-occupied properties and plant and equipment, while 15.6% use the revaluation model. However, it is important to notice that the use of the revaluation model increased during the period 2014 to 2016. In the same period, 9.1% of the sampled companies on average use a combination of the models, i.e., the revaluation model for some assets and the HC model for other assets. Most of them use the revaluation model for properties and the HC model for plant and equipment, which can be explained by the fact that property markets provide more reliable inputs for FV estimation than the markets for other types of PPE.

Table 2: Subsequent measurement of owner-occupied properties and plant and equipment

Subsequent measurement	2014		2015		2016	
	No.	%	No.	%	No.	%
Only the HC model	174	58.0	174	58.0	172	57.3
Only the revaluation model	38	12.7	46	15.3	56	18.7
The revaluation model for some assets and the HC model for the rest	28	9.3	27	9.0	27	9.0
Do not completely or clearly disclose	60	20.0	53	17.7	45	15.0
Total:	300	100.0	300	100.0	300	100.0

Source: Authors' calculation

A worrying fact in the context of financial reporting quality is that an average of 17.6% of the sampled companies do not disclose full and clear information regarding the basis of subsequent measurement of owner-occupied properties and plant and equipment. Most of them (11% of the sampled companies) do not disclose any information about it, although IAS 16 requires disclosure. Some companies do not disclose such information clearly (4.7% of the sampled companies). They mostly mention both options, but the notes to the financial statements do not make clear which method is actually used for which category of PPE. Finally, some companies disclose information about the measurement model for some but not all PPE types (1.9% of the sampled companies). The findings of this research regarding disclosure quality are consistent with the findings of some prior empirical studies conducted in Serbia. On the basis of those studies, Obradović et al. (2018, p.50) conclude that Serbian companies "are not always sufficiently motivated or forced to strictly comply with IFRS". The encouraging fact is that the number of companies with inadequate or incomplete disclosures has decreased over the years.

The finding that the HC model predominates in subsequent measurement of owner-occupied properties and plant and equipment is consistent with the findings of the research conducted by Obradović et al. (2018), which reveals that

markets for many assets in Serbia are not sufficiently developed to provide the basis for reliable estimation of FV and that owners and managers of Serbian companies do not have sufficient willingness to engage external experts in the process of measuring financial statements items. This last finding is important because the engagement of such experts is often necessary for adequate FV estimation of PPE items. Because of the need to engage external experts, the FV measurement is more expensive that the HC measurement. Moreover, the impact of tax considerations should not be ignored, because according to the Property Tax Law the FV at the end of an accounting year is the basis for calculating the property tax for companies that use the measurement model based on FV for their properties. For other companies, the tax basis of a property is calculated by multiplying its usable area with the average price per square meter of the properties in the territory where the property is located, whereas the tax basis of some properties specified by the law is equal to their book values at the end of the accounting year. The tax rules described above can discourage companies from using the revaluation model to measure their properties for general purpose financial reporting in the cases where avoiding this model means paying lower property tax. Finally, the accounting policy choices regarding subsequent measurement of owner-occupied properties and plant and equipment might significantly impact the reported financial position and performance, which means that companies may tend to avoid the revaluation model if it is not suitable from the perspective of the company's business policy objectives. When the revaluation model is used, any change in FV affects the financial position and performance reported in the financial statements. Therefore, financial position and performance volatility are generally higher in the case of the revaluation model than in the case of the HC model, which implies that a company that prefers stable amounts in its financial statements is reluctant to accept the revaluation model. Further research that includes interviewing financial statements preparers, which goes beyond the scope of this paper, could provide deeper insight into their motives for using the HC or the revaluation model.

In our analysis we exclude the cases in which disclosures about subsequent measurement of owner-occupied properties and plant and equipment are not clear or complete, as well as holding companies and social enterprises (from analyses based on company legal forms) because of their small share in the sample, while micro and small entities are merged for the same reason. In

addition, we regroup the companies into two categories: those that use the HC model for all of the mentioned assets and those that use the revaluation model for at least some of those assets. The results of analysis for different types of companies presented in Table 3 reveal that the percentage share of companies that only use the HC model slightly decreased between 2014 and 2016, while the percentage share of companies using the revaluation model slightly increased. The average share of companies using the HC model in the whole analysed period is 70.1%, while the average share of companies that use the FV model is 29.1%.

During the whole period of analysis the HC model predominates in companies of all sizes (being most dominant in micro and small companies) and prevailing activity (most dominant in trade companies), as well as in limited liability and stock companies. Only in the case of public utility companies do more companies use the revaluation model than not. The chi-square tests of independence (Table 4) reveal that differences in subsequent measurement of owner-occupied properties and plant and equipment are statistically significant in the case of companies of different legal form in all of the three observed years ($p > 0.05$) with a small-to-medium effect, and, in the case of companies of different prevailing activity, only in 2015, with a small effect.

Table 3: Subsequent measurement of owner-occupied properties and plant and equipment for different company categories

Subsequent measurement	2014		2015		2016	
	No.	%	No.	%	No.	%
Total						
Only the HC model	174	72.5	174	70.4	172	67.5
The revaluation model	66	27.5	73	29.6	83	32.5
Size						
Micro and small						
Only the HC model	30	78.9	31	81.6	33	78.6
The revaluation model	8	21.1	7	18.4	9	21.4
Medium-sized						
Only the HC model	89	72.4	89	70.6	85	66.4
The revaluation model	34	27.6	37	29.4	43	33.6
Large						
Only the HC model	55	69.6	54	65.1	54	63.5
The revaluation model	24	30.4	29	34.9	31	36.5
Legal form						
Limited liability company						
Only the HC model	104	82.5	107	82.3	104	79.4
The revaluation model	22	17.5	23	17.7	27	20.6
Stock company						
Only the HC model	59	64.8	57	60.6	58	57.4
The revaluation model	32	35.2	37	39.4	43	42.6
Public utility company						
Only the HC model	10	45.5	9	40.9	9	40.9
The revaluation model	12	54.5	13	59.1	13	59.1
Prevailing activity						
Production						
Only the HC model	90	75.6	89	73.0	87	69.0
The revaluation model	29	24.4	33	27.0	39	31.0
Trade						
Only the HC model	38	80.9	41	83.7	40	78.4
The revaluation model	9	19.1	8	16.3	11	21.6
Service						
Only the HC model	45	63.4	43	58.9	44	58.7
The revaluation model	26	36.6	30	41.1	31	41.3

Source: Authors' calculation

Table 4: Chi-square test of independence results

Parameter	2014	2015	2016
Size			
n	240	247	255
Pearson Chi-Square	1.122	3.421	3.025
p	0.571	0.181	0.220
phi	0.068	0.118	0.109
Legal form			
n	239	246	254
Pearson Chi-Square	17.077	22.293	20.144
p	0.000	0.000	0.000
phi	0.267	0.301	0.282
Prevailing activity			
n	237	244	252
Pearson Chi-Square	5.220	9.216	5.601
p	0.074	0.010	0.061
phi	0.148	0.194	0.149

Note: The assumption of the chi-square test of independence regarding expected count in cell is satisfied in all cases.

Source: Authors' calculation

From the aspect of the sample as a whole, investment properties are not as significant assets as owner-occupied properties and plant and equipment. Their average share is 4.3% in total assets, 7.0% in non-current assets, and 8.5% in the Property, Plant and Equipment category. Of the 300 sampled companies, 183 (61.0%), 178 (59.3%), and 176 (58.7%) did not have investment properties on 31 December 2014, 2015, and 2016, respectively. The average share of investment properties in the total assets of companies that had investment properties between the end of 2014 and the end of 2016 is 10.6%, which means that accounting choice regarding subsequent measurement of investment properties might have a significant influence on the financial position and performance of companies with investment properties, and that therefore those companies cannot be indifferent regarding their accounting choices regarding subsequent measurement of investment properties.

Table 5 shows that more companies with investment properties use the FV model than the HC model. The finding that companies are more willing to use the FV model for investment properties than for owner-occupied properties and plant and equipment can be explained by the fact that according to IAS 40, companies should estimate and disclose the fair values of their investment properties regardless of the model they choose. Keeping this in mind, it is reasonable to conclude that "if fair values are already available, it is relatively easy and cheap for entities to use them for measurement in financial statements" (Karapavlović et al. 2018). The second possible explanation refers to one of the earlier-mentioned purposes of investment properties: among other things, companies hold investment properties because of expected gains from changes in their market (fair) values. The FV model is exactly the model that makes it possible to measure and report these gains (or losses) on investment properties. On the other hand, gains and losses arising from changes in the market values of owner-occupied properties and plant and equipment are of secondary importance because these assets are held to be used.

Table 5: Subsequent measurement of investment properties

Subsequent measurement	2014		2015		2016	
	No.	%	No.	%	No.	%
Companies with investment properties						
The HC model	41	13.7	45	15.0	43	14.3
The FV model	49	16.3	55	18.3	56	18.7
Do not completely or clearly disclose	27	9.0	22	7.3	25	8.3
Companies without investment properties						
The HC model	10	3.3	12	4.0	9	3.0
The FV model	16	5.3	15	5.3	18	6.0
Do not disclose	157	52.3	151	50.3	149	49.7
Total:	300	100.0	300	100.0	300	100.0

Source: Authors' calculation

Some companies disclose their accounting policy for subsequent measurement of investment properties despite the fact that they do not have those assets, which means that they have either developed the accounting policy to be activated when

and if they acquire an investment property or that they used to have investment properties in some earlier reporting periods and have therefore developed an accounting policy. Again, those companies mostly choose the FV model. On the other hand, some companies with investment properties (an average of 20.4%) do not disclose information on accounting policies regarding their subsequent measurement at all or do not clearly disclose the measurement basis (so that reading the notes to the financial statements does not reveal which method is actually used), which is more than in the case of owner-occupied properties and plant and equipment at the sample level. Among the companies that have investment properties and clearly disclose the accounting policies for their subsequent measurement, the percentage share of companies using the FV model is not much higher than the percentage share of companies using the HC model – on average 55.3% vs. 44.7%. Only further research where financial statements preparers are interviewed can provide a deeper insight into the motives behind companies using the FV or HC model.

We also analyse subsequent measurement of investment properties in the companies that have those assets and disclose the applicable accounting policies from the perspective of company size, prevailing activity, and legal form (Table 6). We find that companies in almost all categories are more likely to choose the FV than the HC model, the exceptions being a moderate number of public utility companies with investment properties that predominantly use the HC model, and production companies that use one or the other model almost equally. The chi-square tests of independence do not reveal any statistically significant relationship between the accounting policies regarding subsequent measurement of investment properties and size, legal form, and prevailing company activity.

Table 6: Subsequent measurement of investment properties for different company categories

Subsequent measurement	2014		2015		2016	
	No.	%	No.	%	No.	%
Total						
The HC model	41	45.6	45	45.0	43	43.4
The FV model	49	54.4	55	55.0	56	56.6
Size						
Micro and small						
The HC model	7	50.0	6	40.0	7	46.7
The FV model	7	50.0	9	60.0	8	53.3
Medium-sized						
The HC model	22	45.8	25	46.3	22	41.5
The FV model	26	54.2	29	53.7	31	58.5
Large						
The HC model	12	42.9	14	45.2	14	45.2
The FV model	16	57.1	17	54.8	17	54.8
Legal form						
Limited liability company						
The HC model	18	45.0	22	50.0	20	47.6
The FV model	22	55.0	22	50.0	22	52.4
Stock company						
The HC model	18	43.9	17	37.0	17	36.2
The FV model	23	56.1	29	63.0	30	63.8
Public utility company						
The HC model	5	55.6	6	60.0	6	60.0
The FV model	4	44.4	4	40.0	4	40.0
Prevailing activity						
Production						
The HC model	18	51.4	21	50.0	21	50.0
The FV model	17	48.6	21	50.0	21	50.0
Trade						
The HC model	8	40.0	10	45.5	8	36.4
The FV model	12	60.0	12	54.5	14	63.6
Service						
The HC model	14	43.8	13	39.4	13	40.6
The FV model	18	56.2	20	60.6	19	59.4

Source: Authors' calculation

5. CONCLUSION

The empirical research conducted in this paper shows that financial statement preparers in the Republic of Serbia use the HC model rather than the revaluation model (based on FV) for subsequent measurement of owner-occupied properties and plant and equipment. The percentage share of sampled companies that use only the HC model is significantly higher than the percentage share of companies that use the revaluation model for at least some of the owner-occupied property and plant and equipment items. We conclude that the first hypothesis is accepted. The accounting choices of financial statements preparers in Serbia, as a developing and transition economy, are similar to the accounting choices in developed countries. The level of use of the revaluation model in Serbia slightly increased between 2014 and 2016. We find that this model is more used for properties than for plant and equipment, which is consistent with the findings of studies conducted in other countries. The dominance of the cost model might be explained by insufficient reliable market inputs for estimation of fair values, the insufficient motivation of companies' managers to engage external experts to estimate fair values, the expected costs of fair value measurement, the impact of tax considerations, and the impact of business policy objectives.

The willingness of Serbian companies to use the revaluation model is related to the level of the company's economic and social importance and accountability. Stock companies and especially public utility companies use the revaluation model more often than limited liability companies (wherein the relationship between the company's legal form and its willingness to use the revaluation model is statistically significant in all of the three years), and willingness to use the revaluation model increases with company size (although the relationship between company size and willingness to use the revaluation model is not statistically significant in any of the three years). Service companies are more willing to use the revaluation model than production companies, which are more willing than trade companies (wherein the relationship between the prevailing activity and willingness to use the revaluation model is statistically significant in only one of the three years). We conclude that the willingness to use the revaluation model varies across different categories of companies.

We have found that Serbian companies that have investment properties are generally more likely to use the FV model than the HC model for subsequent

measurement of those assets. This conclusion refers to all company categories identified by size and prevailing activity and also to limited liability and stock companies. The only exception is public utility companies, but the results are not representative because the sample includes a very small number of public utility companies that have investment properties and adequately disclose their accounting policies regarding subsequent measurement. We conclude that the second hypothesis cannot be rejected. However, the percentage share of companies that use the FV model is not significantly higher than the percentage share of companies that use the HC model and is lower than the percentage share detected in other studies conducted in Europe. The level of use of the FV model in Serbia increased slightly between 2014 and 2016. We do not find that the willingness to use the HC and the FV models significantly varies across different company categories. The finding that the measurement model based on FV is more often used for investment properties than for other kinds of PPE might be explained by the fact that companies have to estimate fair values of their investment properties anyway (to disclose these values). In addition, the need to measure and report gains and losses on changes in the FV of investment properties is more essential than the need to measure and report the same gains and losses on other kinds of PPE.

Finally, we find that a relatively significant (but decreasing during the period of analysis) number of companies does not disclose at all or does not clearly disclose the model for subsequent measurement of PPE. This means that companies in Serbia do not fully comply with IFRS (specifically, IAS 16 and IAS 40). This finding is consistent with the findings of some previous studies conducted in the Republic of Serbia. The finding that disclosures of accounting policies regarding subsequent measurement of PPE are inadequate becomes especially worrying when we bear in mind that all of the examined financial statements were subject to external audit. We conclude that external auditors should pay more attention to those disclosures.

The fact that the model that was applied in some companies remains unknown is one of the research limitations. The second limitation of this research stems from the fact that we have not examined the motives behind financial statements preparers preferring the selected measurement model, the level of engagement of internal and external persons in the process of FV estimation, and inputs used in

that process. In this regard, future research should show (a) which factors predominantly cause the choice of the model for subsequent measurement of PPE, (b) whether the reporting entity's staff or external valuation specialists make FV estimations, and (c) whether visible or invisible inputs are predominantly used in the process of FV estimation. Subsequent measurement of PPE is not the only case covered by IFRS in which financial statements preparers face the problem of choosing between HC and FV. Therefore, future research should also examine the practice of the measurement of other financial statement items for which the HC-based and FV-based models are available.

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