

**THE EFFECTS OF FAIR VALUE ACCOUNTING ON
THE INFORMATION QUALITY OF BANKS' FINANCIAL
POSITION AND PROFITABILITY IN
THE REPUBLIC OF SERBIA**

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Abstract

The aim of the paper is to examine whether the application of fair value accounting (FVA) impacts the quality of information on the financial position and profitability of banks. The research was conducted on a sample of banks that operated in the Republic of Serbia (RS) in the period between 2010 and 2020. The Paired-Samples t-test and measures of variability of the analysed data were used to test the hypotheses. It has been noticed that the profitability indicators of banks determined under the conditions of application of the full FVA are statistically significantly different from the same indicators determined by the application of historical cost accounting (HCA). No statistically significant difference was found between the profitability indicators of banks determined under the conditions of application of HCA, on the one hand, and those determined under the conditions of application of the mixed-attribute model of measurement, on the other hand, nor was a statistically significant difference between the indicators of the financial position of banks determined by the application of HCA and FVA. The research confirms that the profitability of banks in the Republic of Serbia is more susceptible to changes in times when FVA is applied, than in cases of HCA application.

Key words: financial reporting, fair value accounting, banks, financial position of banks, bank profitability.

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ЕФЕКТИ ПРИМЕНЕ РАЧУНОВОДСТВА ФЕР ВРЕДНОСТИ НА КВАЛИТЕТ ИНФОРМАЦИЈА О ФИНАНСИЈСКОМ ПОЛОЖАЈУ И ПРОФИТАБИЛНОСТИ БАНАКА У РЕПУБЛИЦИ СРБИЈИ

Апстракт

Циљ рада је да се испита да ли примена рачуноводства фер вредности (*енгл. FVA*) утиче на квалитет информација о финансијском положају и профитабилности банака. Истраживање је спроведено на узорку који су чиниле банке које су пословале у Републици Србији (РС) у периоду од 2010. до 2020. године. За тестирање хипотеза коришћени су т-тест упарених узорака и мере варијабилитета анализираних података. Уочено је да се показатељи профитабилности банака утврђени у условима примене пуног *FVA* статистички значајно разликују од истих показатеља утврђених применом рачуноводства историјског трошка (*енгл. HCA*). Није утврђена статистички значајна разлика између показатеља профитабилности банака утврђених у условима примене *HCA*, са једне стране, и модела мешовитог мерења, са друге стране, нити између показатеља финансијског положаја банака утврђених применом *HCA* и *FVA*. Истраживање потврђује да је профитабилност банака у РС подложнија променама у времену када се примењује *FVA* него када се примењује *HCA*.

Кључне речи: финансијско извештавање, рачуноводство фер вредности, банке, финансијски положај банака, профитабилност банака.

INTRODUCTION

The orientation of the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) towards a wider application of fair value (FV) as the basis of measuring assets and liabilities was confirmed by the changes of Conceptual Frameworks for Financial Reporting in 2010 and 2018, when the main focus of financial reporting was transferred to informing on financial position of entities, i.e. the recognising and measuring of assets and liabilities. It is emphasised that, for the purpose of providing quality information to the users of financial statements, fair values should be applied for the measuring of assets which directly (by sale) contribute to entities future cash flows, as well as for the measuring of liabilities that will be transferred to other entities (IASB, 2018, paragraphs 6.83-6.86).

Since the application of FVA has the greatest impact on the financial position and profitability of the banking sector, a large volume of research in the past 30 years has been focused on determining the FVA effects on the banks' financial reports quality and transparency, as well as to the stability of financial markets, in relation to the traditional HCA. Authors examine FVA impact on the quality of the presented information of banks' financial position and profitability by using two general meas-

urement approaches: indirect (Value relevance models and Accrual models) and direct approach (Specific elements in annual report and Qualitative characteristics). In this paper, we use the direct approach, based on the specific elements of financial statements, in order to examine the FVA effects on the quality of accounting indicators of banks' financial position and profitability. Special attention is devoted to determining the impact of FVA on the volatility of banks' periodic results, as one of the most important determinants of periodic results quality (Takacs & Szucs, 2019).

The aim of the paper is to examine whether the FVA application has an impact on the quality of information on the financial position and profitability of banks in RS. The subject of this research is the FVA effect on the quality of financial information which participants on financial markets use for business decision making. For the purpose of realising the set aim of the research, two hypotheses were defined:

Hypothesis 1 (H1) – Measuring banks' assets and liabilities at fair value has a statistically significant impact on the financial position and profitability of banks; and

Hypothesis 2 (H2) – Banks' profitability is more volatile over time, when FVA is applied, in relation to the application of HCA.

Apart from the introduction, conclusion and list of references, the paper consists of three parts. Theoretical and empirical considerations of the FVA effect on the quality of information used by financial market participants for business decision-making are shown in the first part. The second part of the paper is related to presenting basic information and defining the methodology of research. In the third part, the results of the conducted empirical research are shown, the results are discussed and general conclusions are formulated. Starting from the set hypotheses, the basics for their acceptance or non-acceptance were especially indicated in the conclusion.

REVIEW OF PREVIOUS RESEARCH

The most important empirical research, published in the period between 1994 and the present day,¹ mainly confirms that FVA improves the transparency and quality of banks' financial statements in relation to the historical cost (HC) concept. Palea (2014) indicates that FVA improves the comprehensiveness and quality of information on the financial position and profitability of banks, in contrast to HCA. It was found that the

¹ It should be noted that FV relevance was also researched in the period before 1994, but since majority of these researches were focused on non-financial sector, they were not analyzed in detail in this paper. The results of these researches are summarized in Barth, Beaver & Landsman (1996) and Ahmed, Kilic & Lobo (2006).

indicators of the profitability (Song, 2013; Papa, Schacht, Lu, & Peters, 2015; Fiechter, Landsman, Peasnell, & Renders, 2017) and financial position of banks (Papa, Schacht, Lu, & Peters, 2014A; Papa, Schacht, Lu, & Peters, 2014B), which include the effects of assets and liabilities FV changes, statistically significantly differ from the same indicators determined under the conditions of the HC concept application. For investors, regulatory bodies and other users of financial statements, indicators established using FVA form a higher quality basis for making economic decisions in relation to the information created by HCA, because they provide:

- A more comprehensive and plausible image on real economic performance (Takacs, Szucs, Kehl & Fodor 2020; Barth & Landsman, 2018) and the financial position of banks (Fiechter et al. 2017; Blankespoor, Linsmeier, Petroni, & Shakespeare 2013);
- more precise estimations on future business performance and banks' periodic results (Yao, Percy, Stewart, & Hu, 2018; Evans, Hodder, & Hopkins, 2014), economic resources which will be at disposition of banks in the future (Beest, Braam & Boelens, 2009), banks' efficacy of employing new resources (Bertoni & Rosa, 2013) and the value of banks' net assets (Barth & Landsman, 2018; Evans et al., 2014);
- higher quality information on risk assessments to which banks are exposed (Barth & Landsman, 2018; Blankespoor et al., 2013), and a better understanding of these risks (Chartered Financial Analyst Institute, 2013), alongside the managing and control of risks (Barth & Landsman, 2018),
- a higher quality basis for the estimation of efficacy of all management levels (Barth & Landsman, 2018);
- more efficient control of bank business (Takacs & Szucs, 2019), i.e. a timely discovering of potential violations regarding required banks' liquidity and regulatory capital levels (Yonetani, & Katsuo, 1998), as well as bank losses and bankruptcy (Hodder, Hopkins & Schipper, 2014; Blankespoor et al., 2013); and
- a better observation and control of the fulfilment of preconditions for maintaining financial sector stability in general, i.e. a timely taking of corrective actions by which the pro-cyclic effects of irresponsible bank managements are limited, which contributes to the decrease of total costs of bank rehabilitation (Amel-Zadeh, Barth & Landsman, 2017; Blankespoor et al., 2013).

It is also emphasised that FVA limits the manipulative financial reporting and accounting practices (Plantin, Sapra & Hyun, 2008), and that the positive effects of FVA on the quality of banks' profitability and financial position indicators increase to the extent to which the share of assets and liabilities measured by FV increases (Paoloni, Paolucci & Mecnicucci, 2017), and to the extent to which the quality of financial report-

ing standard that initiates FVA is increased (Ahmed, Kilic & Lobo, 2006). The latter was also concluded by Takacs et al. (2020), who additionally confirmed that the positive effects of FVA on the quality of periodical results have been significantly more expressed with banks operating in developed countries in relation to developing countries, and that FVA effects on the quality of periodical result for banks performing their business in developing countries became statistically significant only after 2013 and the application of MSFI 13, which authors interpret as evidence that more quality accounting standards can also improve the quality of financial reports and periodical results.

On the other hand, certain research indicates that the flexibility of FVA standards expands the space for the manipulative financial reporting of banks; thus, it is implied that FVA blurs and deforms the indicators of banks' real financial position and success (Dechow, Myers & Shakespeare, 2010). Namely, HCA application provides a balance sheet that contains real, and not estimated values, while on the other hand, FV is often based on subjective assumptions that are not reliable and that the entity can adjust to its business policy aims, which ultimately reduces its relevance (Beest et al., 2009). It has been proven that banks often used the flexibility of FVA standards for the needs of short-term oriented profitability adjustments (DeFond, Hu, Hung, & Li, 2020; Deegan, 2014), i.e. in this way, they manipulate financial indicators of profitability (Bagna, Martino & Rossi, 2014), and maintain the indicators of capital adequacy (Khan, 2019; Hanley, Jagolinzer & Nikolova, 2018), leverage (Amel-Zadeh et al., 2017) and liquidity (Shaffer, 2011) above the required level. Research has shown that such practice of using mechanisms which subvert the effects of the financial instruments FV changes impact banks' profitability and financial position indicators and appears most often at banks with a poorer financial position and low indicators of capital adequacy (Khan, 2019), and during a period of crisis and illiquidity on financial markets (Laghi, Pucci, Tutino, & Marcantonio, 2012). However, a general consensus regarding the final aim due to which banks use the flexibility of FVA standards, i.e. whether banks apply FVA as an instrument of profitability management (Laux & Rauter, 2017; Bagna et al., 2014) or as a counter-cyclic instrument (Mahieux, 2021; Amel-Zadeh & Meeks, 2017), still does not exist.

Previous research review shows that the banks periodic results and profitability is more volatile during the time when FVA is applied, in comparison to HCA (Fiechter, 2011; Plantin et al., 2008). Analyses of developed countries' bank systems, which include banks' reported profit and loss data during the period between 1970 and 1990, show that the application of FVA increased the volatility of banks' profitability by 26%, as compared to the profitability measured in terms of using HCA (Barth, Landsman & Wahlen, 1995). Research analysing reported profit and loss

data for the period after 1990 shows that banks' profitability volatility is three to five times higher, on average (Hodder, Hopkins & Wahlen, 2006; Yonetani & Katsuo, 1998).

The two main reasons that authors emphasise for such effects of FVA on bank profitability and the trend of the increasing volatility of banks' periodic results in the previous 35 years are securitisation and the change of banks' business-models (Barth & Taylor, 2010), which has since 1970 contributed to a consistent increase of speculation held for trading securities share in banks' balance sheets, due to which banks were exposed to higher market risks arising from the changes in the financial instruments' values, as a consequence of market price changes (Bhat & Ryan, 2015). Since the trading financial instruments that banks use for speculation purposes (trading book) are under the direct impact of FVA, the effects of FV changes on banks' periodic results increase to the extent of the increase of the speculative financial instruments' share in banks' balance sheets.

The aforementioned authors focused their research on the examination of FVA impact on the financial position and profitability of banks that operate in developed countries. However, their research does not include the banking sector of RS, nor did the researchers pay sufficient attention to FVA application effects on banking sectors in developing countries. Considering the differences (regarding the structure of banks' balance sheets, financial market development level, derivative financial instruments trade volumes and financial reporting regulation) between financial sectors of developed and developing countries (which include RS as well), the empirical testing of the constituted hypotheses will provide a more comprehensive basis for a better understanding of FVA impact on banks' financial position and profitability.

SAMPLE CHARACTERISTICS AND RESEARCH METHODOLOGY

The empirical testing of hypotheses was carried out on a sample made of banks which actively performed business in RS in the period between 2010 and 2020². The sample includes 21 banks in total, i.e. 229 observations. Research data was collected from annual individual financial statements and other official documents of the analysed banks, publicly available on their official websites.

The Paired-Samples t-test was applied to test the first hypothesis, while a calculation of variance and standard deviation was carried out to test the second hypothesis, as the most often applied measures of data

² Two banks, which started operating in 2015 and 2016, were not included in the analyses. A bank for which most of the financial statements for the analysed period between 2008 and 2020 were not publically available was also excluded from the analyses.

variability. The Statistical Package for Social Sciences (SPSS) was used for data processing and statistical analysis. Since the research is based on data from banks' individual financial statements, the method of induction was also used for drawing final conclusions.

For the purpose of determining whether the measuring assets and liabilities of banks using FV has a statistically significant impact on their financial position and profitability, we analysed four forms and three components of the banks' periodical result: (1) Historical cost earnings (HCE) – periodical result form reported in the profit and loss statement, determined in terms of using the mixed-attribute model of measurement; (2) Recognised fair value gains and losses (RFVGL) – a component of the periodical result that includes the gains/losses of FV changes of financial instruments recognised in profit and loss statements; (3) Full historical cost earnings (FHCE = HCE – RFVGL) – a periodical result form that does not include gains and losses from the changes of FV of financial instruments that are recognised in profit and loss statements, which represents an approximation of periodical results determined by the application of the HC concept; (4) Unrealised fair value gains and losses (URFVGL) – a component of periodical results that includes non-realised gains/losses from the changes of FV reported in Other comprehensive income (OCI); (5) Fair value earnings (FVE = HCE + URFVGL) – a periodical result form determined in terms of the application of FVA; (6) Disclosed fair value gains and losses (DFVGL) – a component of periodical results that includes disclosed gains/losses from the changes of FV of financial instruments measured according to amortised cost (AC); and (7) Full fair value earnings (FFVE = FVE + DFVGL) – a periodical result form determined in terms of the application of Full fair value accounting (FFVA), applying a methodology that relies on the methodology of previously conducted research (Papa et al., 2015; Blankespoor et al., 2013; Hodder et al., 2006; Yonetani & Katsuo, 1998; Barth et al., 1995). The value of each form of periodical results refers to the amounts of banks profit/losses prior to taxation, and is calculated for each observed fiscal year.

The indicator that we used in the context of the analysis of the financial position of banks in RS is the total bank capital adequacy ratio. As one of the three most important indicators of capital adequacy (Todorović, Furtula & Durkalić, 2018), the total bank capital adequacy ratio represents the basic indicator of bank stability, the risks to which banks are exposed, and their capacity to overcome sudden disturbances on the market through maintaining required capital levels. In order to test the impact of FVA on the financial position of banks in RS, we calculated two types of banks' capital adequacy ratios: (1) Fair value capital adequacy ratio (CA_{FV}) – as the quotient of regulatory capital level calculated on the basis of the currently applied mixed-attribute model of measurement, which includes the effects of financial instruments FV changes

(Fair value regulatory capital – RK_{FV}), and risk-weighted assets; and (2) Historical cost capital adequacy ratio (CA_{HC}) – as the quotient of regulatory capital level calculated by the application of the HC concept, which does not include effects of financial instruments FV changes (Historical cost regulatory capital – $RK_{HC} = RK_{FV} - URFVGL - RFVGL$), and risk-weighted assets; furthermore, we analyse whether there are statistically significant differences between the CA_{HC} and CA_{FV} ratio.

Bank profitability was measured by the application of two indicators: Return on Assets ratio (ROA – profit before taxes divided with average total assets (TA)) and Return on Equity ratio (ROE – profit before taxes divided with the average equity). For the purpose of testing our hypotheses, we calculated ROA and ROE for each defined periodic result form, and analysed the effects of FVA on bank profitability on the basis of the statistical significance of differences among profitability indicators and indicators of impact size.

The volatility of periodical results was examined by calculating the standard deviation and variance of each form of the banks' periodic result in the period between 2010 and 2020. By comparing the obtained results, we determine whether the application of FVA statistically significantly increases the variability of bank profitability indicators in relation to the HCA. Due to the distinctly low share of non-financial assets in banks' TA, the effects of non-financial assets FV changes on the financial position and profitability of banks in RS are negligible, and hence, not included in our analysis.

RESEARCH RESULTS AND DISCUSSION

The analysis of the balance structure of banks in RS in the observed period indicates that loans and other receivables (LOR) represent the dominant asset item, with an average share of 62.11% in TA, and that banks have been investing a larger part of their free financial funds in speculative business. Namely, the average share of financial assets measured according to the Fair value through profit or loss model (FVTPL) and the Fair value through other comprehensive income model (FVTOCI) in TA of banks has increased from 4.75% in 2010 to 12.86% at the end of 2020. Therefore, it can be concluded that the exposure of the banking sector of RS to the effects of financial assets FV changes significantly increased. The Average 28.3% of banks TA was measured to FV, out of which 18.9% related to cash and cash equivalents, and 9.4% to FVTPL and FVTOCI. Banks in RS were obliged to measure the FV of an additional 65.88% of TA in order to disclose them in financial statements' notes.

Table 1. The results of descriptive statistics – Forms and components of periodical results of banks in RS in the period between 2010 and 2020

	Mean	Median	Std. Dev.	Min	Max
	(<i>rsd mil.</i>)	(<i>rsd mil.</i>)	(<i>rsd mil.</i>)	(<i>rsd mil.</i>)	(<i>rsd mil.</i>)
TA	128,475	80,775	140,191	2,519	717,186
Total equity	25,710	12,179	30,088	711	205,493
FHCE	1,585	494	3,806	-16,080	13,811
RFVGL	95	8	367	-2,090	2,851
HCE	1,595	486	3,866	-16,030	13,938
URFVGL	72	0	464	-1,595	2,949
FVE	1,793	496	3,933	-16,037	13,936
DFVGL	2,340	42	9,259	-28,643	50,696
FFVE	4,600	2,109	1,2062	-31,369	64,223
	(%)	(%)	(%)	(%)	(%)
RFVGL/FHCE	10.75	0.87	51.66	-86.50	414.70
URFVGL/HCE	4.40	0.00	49.83	-275.95	370.01
DFVGL/FVE	49.49	6.57	636.11	-2533.16	3892.44

Note – Having in mind the calculated values of arithmetical means of analysed forms and components of the banks periodical results, shown in the table, it can be discernible that there are some deviations from the defined equalities, which are caused by the fact that some banks periodic result components and forms were not calculated for certain years (due to the deficiencies of necessary data), thus they were treated as missing data during the calculation.

Table 1 data indicates that FHCE is on average 1,585 million RSD, with a minimum value of -16,080 million RSD and a maximum value of 13,811 million RSD in the observed period. On the other hand, during the observed period, banks reported RFVGL in the range between -2,090 and 2,851 million RSD in their profit and loss statements. The average RFVGL effects on FHCE changes are, however, positive (10.75%). Observed on an annual basis, the average negative RFVGL effects on periodical results were noticed in 2011 and 2020. HCE, on average, amounts to 1,595 million RSD, while FVE, on average, amounts to 1,793 million RSD. The Minimum and maximum values of HCE and FVE are in the range of -1,6 to 1,4 billion RSD. The banks in RS reported a positive average URFVGL, whose effects on the HCE increase averaged 4.40% in the analysed period. However, the negative average URFVGL effects on banks' periodical results were noticed during six out of the eleven analysed years, and they are especially high in 2012 (-17.48%) and 2020 (-19.71%). The average FFVE value is 4,600 million RSD, and it significantly differs from the average value level of other forms of the banks' periodic results, which is a consequence of the high values of DFVGL disclosed by banks in their financial statements. Although the average DFVGL effect on FVE is positive (49.49%), observed annually, these effects range between -112.86% and 278.90%.

Table 2. The results of descriptive statistics – the indicators of financial position and profitability of banks in RS in the period between 2010 and 2020

	N	Mean	Median	Std. Dev.	Min	Max
		(%)	(%)	(%)	(%)	(%)
CA _{FV}	225	24.12	21.28	10.99	3.60	101.04
CA _{HC}	198	23.60	21.42	8.06	3.62	54.52
ROA _{FHCE}	219	-0.29	1.01	7.29	-81.78	14.26
ROA _{HCE}	228	-0.30	1.01	7.31	-81.52	14.27
ROA _{FVE}	211	0.08	1.02	6.66	-81.56	14.61
ROA _{FFVE}	138	1.53	1.93	7.42	-23.73	26.98
ROE _{FHCE}	219	-1.56	5.01	47.65	-515.77	244.10
ROE _{HCE}	228	-1.29	4.85	46.86	-514.16	244.10
ROE _{FVE}	211	0.61	5.00	44.30	-514.39	242.35
ROE _{FFVE}	138	7.30	8.05	42.62	-127.92	143.05

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010
	Mean										
CA _{FV}	24.80%	25.87%	24.82%	25.27%	25.30%	24.16%	22.17%	22.23%	22.38%	24.64%	23.44%
CA _{HC}	25.09%	25.26%	24.52%	25.14%	24.06%	20.46%	19.22%	20.37%	24.04%	26.08%	27.16%
ROA _{FHCE}	0.51%	0.87%	1.95%	2.02%	-0.49%	-1.58%	-4.39%	-3.30%	0.48%	0.87%	-0.52%
ROA _{HCE}	0.45%	0.85%	2.01%	2.03%	-0.60%	-1.51%	-4.98%	-3.25%	0.85%	0.92%	0.03%
ROA _{FVE}	0.35%	1.20%	2.13%	2.09%	-0.62%	-0.34%	-4.29%	-1.18%	0.72%	0.60%	0.22%
ROA _{FFVE}	1.64%	1.82%	2.96%	4.18%	1.75%	2.50%	-1.61%	-2.76%	3.13%	/	/
ROE _{FHCE}	3.49%	4.96%	10.35%	11.06%	-2.54%	-5.74%	-27.78%	-20.71%	1.27%	3.92%	5.82%
ROE _{HCE}	2.88%	4.82%	10.36%	11.00%	-6.07%	-5.36%	-27.94%	-20.47%	3.35%	4.12%	10.13%
ROE _{FVE}	2.24%	6.78%	11.19%	11.43%	-6.05%	-0.84%	-27.15%	-7.97%	2.49%	2.55%	17.55%
ROE _{FFVE}	8.37%	7.58%	13.01%	20.39%	7.10%	16.71%	-7.29%	-15.76%	11.16%	/	/

The capital adequacy ratios established in terms of the application of both HCA and FVA, which amount to 23.60% and 24.12% on average, show that the banks in RS maintained high capacities for absorbing potential financial and operational losses (Table 2). The minimum CA_{FV} value indicates, however, that certain banks violated regulations regarding the required regulatory capital level demands. Also, Table 2 data points to a general conclusion that, in the observed period, the profitability of banks in RS is low regardless of the method of periodic result measuring, with extremely negative average values of ROA and ROE in the period between 2013 and 2016. The average values of ROA_{FHCE} and ROE_{FHCE} (-0.29% and -1.56%, respectively), on the one side, and the average values of ROA_{HCE} and ROE_{HCE} (-0.30% and -1.29%, respectively), on the other, suggest that the effect of RFVGL on the banks' profitability ratios was low. On the other hand, ROA_{FVE} and ROE_{FVE} indicators, calculated in terms of periodical results including both RFVGL and URFVGL, show positive average values of 0.08% and 0.61%, respectively.

The most significant effects on banks' profitability indicators derive from FV gains/losses of AC. When banks' periodical results are calculated using FFVA, which also includes DFVGL, ROA_{FFVE} and ROE_{FFVE} average

1.53% and 7.30%, respectively. The positive effects of DFVGL on banks' profitability are mainly the result of the positive deviations of LOR FV in relation to their HC values.

Table 3. The results of Paired-Samples t-tests

	Indicator	Mean	Std. Dev.	T statistics	Eta square
Block 1	CA _{FV}	0.2412	0.1099	t (197) = 1.199; p = 0.232	0.007
	CA _{HC}	0.2360	0.0805		
Block 2	ROA _{FFVE}	0.0153	0.0742	t (137) = -3.544; p = 0.000	0.084
	ROA _{FHCE}	-0.0029	0.0729		
	ROA _{FFVE}	0.0153	0.0742	t (137) = 3.500; p = 0.001	0.082
	ROA _{HCE}	-0.0030	0.0731		
	ROA _{FFVE}	0.0153	0.0742	t (137) = 3.083; p = 0.002	0.065
	ROA _{FVE}	0.0008	0.0666		
	ROE _{FFVE}	0.0730	0.4262	t (137) = -2.655; p = 0.008	0.049
	ROE _{FHCE}	-0.0156	0.4765		
	ROE _{FFVE}	0.0730	0.4262	t (137) = 2.613; p = 0.010	0.047
	ROE _{HCE}	-0.0129	0.4686		
ROE _{FFVE}	0.0730	0.4262	t (137) = 2.162; p = 0.032	0.033	
ROE _{FVE}	0.0061	0.4430			
Block 3	ROA _{HCE}	-0.0030	0.0731	t (210) = -1.651; p = 0.100	0.013
	ROA _{FVE}	0.0008	0.0666		
	ROA _{FHCE}	-0.0029	0.0729	t (205) = -1.679; p = 0.094	0.014
	ROA _{FVE}	0.0008	0.0666		
	ROA _{FHCE}	-0.0029	0.0729	t (218) = 0.098; p = 0.922	0.000
	ROA _{HCE}	-0.0030	0.0731		
	ROE _{HCE}	-0.0129	0.4686	t (210) = -1.605; p = 0.110	0.012
	ROE _{FVE}	0.0061	0.4430		
	ROE _{FHCE}	-0.0156	0.4765	t (205) = -1.622; p = 0.098	0.013
	ROE _{FVE}	0.0061	0.4430		
ROE _{FHCE}	-0.0156	0.4765	t (218) = -2.052; p = 0.042	0.019	
ROE _{HCE}	-0.0129	0.4686			

Block 2 (Table 3) shows that banks' profitability indicators determined in terms of FFVA (ROA_{FFVE} and ROE_{FFVE}) statistically significantly differ from the same indicators based on HCA (ROA_{FHCE} and ROE_{FHCE}) and the mixed-attribute model of measurement (ROA_{HCE}, ROE_{HCE}, ROA_{FVE}, ROE_{FVE}). Having in mind the Eta square values, we can conclude that these observed differences are significant among ROA ratios, and moderate among ROE ratios. On the other hand, block 3 shows that there is no statistically significant difference between profita-

bility indicators determined in the conditions of HCA application, on the one hand, and profitability indicators established using a mixed-attribute model of measurement, on the other hand. The exceptions are ROE_{FHCE} and ROE_{HCE} , between which a statistically significant moderate difference was observed. A statistically significant difference between capital adequacy ratios established in terms of application of HCA and FVA was not found.

Table 4. Volatility of periodical result of banks in RS in the period between 2010 and 2020

Observed period	Periodic result form	Std. Dev.	Variance
2010 - 2020	FHCE	11.30677	127.8431
	HCE	11.41166	130.2259
	FVE	11.64744	135.6629
	FFVE	54.03531	2919.815
2020	FHCE	10.22264	104.5023
	HCE	11.06125	122.3513
	FVE	11.43662	130.7963
	FFVE	41.06058	1685.971
2019	FHCE	14.30093	204.5167
	HCE	14.47974	209.6628
	FVE	14.44281	208.5948
	FFVE	46.8252	2192.599
2018	FHCE	13.54160	183.375
	HCE	13.70396	187.7985
	FVE	12.66087	160.2976
	FFVE	57.12391	3263.141
2017	FHCE	12.56197	157.8032
	HCE	13.35894	178.4612
	FVE	13.86658	192.2820
	FFVE	72.58582	5268.702
2016	FHCE	11.04403	121.9706
	HCE	11.45496	131.2161
	FVE	11.07897	122.7436
	FFVE	65.81612	4331.762
2015	FHCE	10.14090	102.8379
	HCE	10.37526	107.6460
	FVE	11.37742	129.4458
	FFVE	49.44801	2445.106
2014	FHCE	<u>7.871208</u>	61.95591
	HCE	7.863527	61.83505
	FVE	7.593275	57.65782
	FFVE	56.18605	3156.872

2013	FHCE	9.777978	95.60886
	HCE	9.803550	96.1096
	FVE	9.966219	99.32552
	FFVE	39.57272	1566.00
2012	FHCE	11.32289	128.2079
	HCE	11.94053	142.5764
	FVE	11.62391	135.1152
	FFVE	/	
2011	FHCE	<u>11.84328</u>	140.2633
	HCE	11.26847	126.9784
	FVE	12.44116	154.7825
	FFVE	/	/
2010	FHCE	<u>12.57864</u>	158.2223
	HCE	10.76871	115.9652
	FVE	12.9956	168.8855
	FFVE	/	/

Research results (Table 4) indicate that, in the analysed period, the values of the FHCE standard deviation and variance are lesser in relation to the value of the same indicators of other banks' periodic results (HCE, FVE, FFVE), determined in terms of FVA application. Hence it can be concluded that HCA based periodical results shows a lesser level of volatility compared to FVA based periodical results, which include the effects of financial instruments FV changes.

Table 4 data also indicates that the volatility of banks' profitability increases if the share of financial instruments whose FV changes are included in the calculation of the periodic results increase. A fact that confirms this is the notion that the FFVA based periodical result shows the highest level of volatility, since it include the FV changes effects of all financial instruments (FVTPL, FVTOCI and AC). The volatility of FFVE is, on average, five times higher compared to other banks' periodic result forms (FHCE, HCE and FVE).

CONCLUSION

Due to its controversy, FVA is still the subject of dispute among the global scientific and professional accounting communities. Opinions regarding the FVA effects on the quality of banks' financial statements are contradictory because, on the one hand, it is emphasised that FVA application makes more room for manipulative financial reporting practices, which blurs and deforms indicators of banks' real financial position and profitability, while on the other hand, there are claims that FVA limits manipulative accounting and financial reporting practices, and improves the transparency of financial statements and the quality of information on banks' financial position and profitability, in relation to the HC concept.

The empirical research carried out in this paper discovered that the FVA impact on the financial position of banks in RS is not on a statistically significant level for the period between 2010 and 2020. It was also discovered that the FVA effects on banks' profitability are not statistically significant in conditions when RFVGL and URFVGL are included in banks' periodic results. Despite the fact that the exposure of banks in RS to FV assets and liabilities changes effects significantly increased in the past ten years, as a result of growth of investments in speculative (trading) financial instruments, the effect of FV changes of financial instruments measured by FVTPL and FVTOCI models did not significantly impact their profitability.

On the other hand, it has been noticed that banks' profitability indicators determined based on FFVA, statistically significantly differ from the same indicators established in terms of HCA application, which is the consequence of a high share of LOR in banks' TA, and disclosed significant positive deviations of LOR FV in relation to their HC values. The stated is in accordance with the results of conducted research of the banking sectors in France, Germany, Italy, the Netherlands and Spain (Papa, et al., 2014A; Papa, et al., 2014B), and it leads to the conclusion that H1 can be partially accepted. Research results confirm the professional and academic standpoint that FVA provides more comprehensive insight into the components of banks' periodical results and limits the scope for management to hide the consequences of their business decisions from the eyes of investors and creditors, which enables better capital allocation.

However, with the exception of ROE_{FHCE} and ROE_{HCE} , research confirms that there is no statistically significant difference between the banks' profitability indicators determined in terms of HCA application, on the one hand, and in terms of the application of the mixed-attribute model of measurement, on the other hand. These results are not in accordance with the conclusions of the research of the banking sectors of developed countries (Barth, Gomez-Biscarri, Kasznik & Lopez-Espinosa, 2017; Papa, et al., 2015; Song, 2013) and are primarily the consequence of a lower share of FVTPL and FVTOCI in TA of the banks in RS, in comparison to the banks in the USA and the EU. Besides, finding that the FVA impact on financial position of banks in RS is not statistically significant in the observed period can be explained by the fact that the average level of banks' regulatory capital was significantly higher than required, and the fact that FVA did not have a significant impact on their regulatory capital value due to the low share of financial instruments measured by FV in banks' TA. These findings are similar to the findings of Shaffer (2010).

It was noticed that the profitability volatility of banks in RS increases with the increase of the share of financial instruments whose FV changes are included in the calculation of periodical results, and that the

profitability volatility is largest in terms FFVA application, which implies the measurement of all financial instruments by FV. The aforementioned suggests that H2 can be accepted, i.e. that the banks' profitability is more volatile over time when FVA is applied, in comparison with the application of HCA. These results are similar to the research results of Yonetani and Katsuo (1998), Hodder et al. (2006) and Fiechter (2011). Also, these results cannot be observed as a deficiency of FVA. It is necessary to previously establish whether the changes of the periodic results of banks in RS, due to the FVA application, represent the measure of permanent profit changes or if they are only the reflection of transitory changes of financial instruments values, and how these profitability changes are perceived by the participants on the financial market in RS.

This paper can be used by theorists and practitioners to better understand the complex problem of FVA impact on the quality of financial information, which participants on the financial market use for business decision making, as well as for determining the direction of the ongoing FVA standards reform, especially observed from the angle of approaching or distancing from the FFVA concept acceptance.

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ЕФЕКТИ ПРИМЕНЕ РАЧУНОВОДСТВА ФЕР ВРЕДНОСТИ НА КВАЛИТЕТ ИНФОРМАЦИЈА О ФИНАНСИЈСКОМ ПОЛОЖАЈУ И ПРОФИТАБИЛНОСТИ БАНАКА У РЕПУБЛИЦИ СРБИЈИ

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Резиме

Иако Одбор за стандарде финансијског рачуноводства (енгл. FASB) и Међународни одбор за рачуноводствене стандарде (енгл. IASB) већ дуже од 30 година улажу заједничке напоре у циљу развоја и шире примене фер вредности као основе за мерење средстава и обавеза, ставови научне и стручне јавности о ефектима примене рачуноводства фер вредности (енгл. FVA) на квалитет информација које учесници на финансијском тржишту користе за пословно одлучивање остају подељени. Циљ овог рада је испитивање утицаја примене FVA на квалитет информација о финансијском положају и профитабилности банака у Републици Србији (РС), у односу на традиционални концепт историјског трошка (енгл. HC).

Подаци за истраживање су прикупљени из појединачних редовних годишњих финансијских извештаја и осталих званичних докумената анализираних банака, а хипотезе су тестиране t-тестом упарених узорака и мерама варијабилитета података. Резултати указују да је у претходних десет година, услед све обимнијег шпекулативног пословања, изложеност банака у РС ефектима промена FV имовине и обавеза значајно повећана, да се показатељи профитабилности банака утврђени применом FVA, у одређеним условима, статистички значајно разликују од истих показатеља утврђених применом HC, те да су те разлике највеће у условима примене пуног FVA, што је последица високог удела позиције кредита и осталих потраживања у укупној имовини банака и значајних обелодањених одступања њихове FV у односу на књиговодствене вредности. Истраживање је показало да је профитабилност банака у РС подложнија променама у времену када се примењује FVA у односу на примену рачуноводства HC, те да се променљивост њихове профитабилности повећава са порастом удела финансијских инструмената чије се промене FV укључују у обрачун периодичног резултата. Генерално, резултати истраживања потврђују ставове у литератури да примена FVA пружа комплетнији увид у компоненте периодичног резултата банака и квалитетније информације за доношење пословних одлука.