INCOME TAX MANAGEMENT IN BANKS IN THE REPUBLIC OF SERBIA

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Income tax management includes a set of activities aimed at the legal minimization of income tax liabilities. Due to the tax law flexibility and cross-country differences in income taxation, banks may be in a position to significantly reduce their tax burden. An objective of the paper is to calculate the effective income tax burden of banks in the Republic of Serbia and examine the impact of income tax on banks' operations. A research study conducted on a sample of banks between 2010 and 2016 shows that the effective income tax rate in banks is well below the statutory rate, mostly due to the use of government tax incentives. Furthermore, 25% of the observations have an effective tax rate of 0% despite the reported pre-tax income. The latest increase in the statutory tax rate in the Republic of Serbia has not had an impact on bank leverage, either in the short or long term. This may be an indicator that tax shield effects are not considered when the statutory tax rate is relatively low. The paper also finds that the effective tax rate is not correlated with bank profitability.

Keywords: income tax, tax management, effective tax rate, financial structure, profitability, banks

INTRODUCTION

The taxation of banks is an important issue of the taxation of economic activities in a country. The importance of banks as taxpayers stems from the role that banks, as financial intermediaries, have in society, a heavy regulation imposed on the banking sector and a potential monopoly power the banking sector may enjoy (Caminal, 2003).

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The 2008 economic crisis has led many countries to reexamine, and some are largely reforming, the taxation of financial institutions (Keen, 2011). A number of European countries and some of the leading economic powers among them have introduced a special tax on banks in addition to the usual types of corporate tax (Masiukiewicz & Dec, 2012).

Income tax in banks has a greater relative importance than that in the real sector. This viewpoint stems from the fact that, unlike most real-sector activities, the majority of financial activities are exempt from

value added tax, which is one of the most important tax types. Therefore, when taxing banks, the focus is primarily put on the reported bank income.

Accordingly, the subject matter of this paper is income tax management, implemented with the aim of minimizing the income tax liabilities of banks. Income tax management in banks is a complex issue. The need for interdisciplinary knowledge (in the fields of bank management, accounting, the tax law, etc.) and frequent changes in the tax regulation support this argument.

Bearing in mind the defined research subject, the objective of the paper is to calculate the effective tax burden of banks in the Republic of Serbia (RS) and examine the impact of income tax on banks' operations. The banks that have efficient income tax management should have lower effective tax rates and higher profitability. Furthermore, banks may use a tax-favorable treatment of borrowed financing sources in order to minimize the tax burden.

In line with the defined research subject and objective, the following research hypotheses are tested in the paper:

H1:　An effective income tax rate in banks is statistically significantly lower than the statutory income tax rate.

H2:　An increase in the statutory income tax rate leads to a statistically significant increase in bank leverage.

H3:　There is a statistically significant strong negative correlation between the effective income tax rate and bank profitability.

The research study carried out in this paper is primarily empirically oriented since it captures commercial banks in the RS in the period 2010-2016. In this regard, quantitative research methods, with a special focus put on modern statistical methods, are dominant in this paper.

The paper contributes to the existing, primarily foreign, findings on income tax management in banks. According to the information available to the

authors, this is the first research in the RS on income tax management in banks. The research results can be of interest to the owners and managers of banks in the RS, as well as to the national tax authorities.

Beside the introduction, the conclusion, and the appendix, the paper consists of three parts. The first part is a presentation of the theoretical and empirical findings on bank income taxation. In the second part, the research methodology is explained. The third part presents the results of the empirical research and the discussion.

THEORETICAL AND EMPIRICAL BACKGROUNDS

Bank Income Taxation

Income taxation in banks does not substantially differ from the income taxation of the companies operating in the real sector. The legal basis for bank income taxation is the Corporate Income Tax Law (Službeni glasnik Republike Srbije, 2017) with the related by-laws. The RS applies the proportional system of bank income taxation at a statutory tax rate of 15% (until 1 January 2013, the rate was 10%).

The taxable base (taxable income) is calculated in the tax balance after the adjustment of pre-tax income from bank income statement. The taxable income from the tax balance is often different from the pre-tax income from the income statement due to the different treatment of a certain revenue and certain expenses in the income statement and the tax balance. Certain categories of revenue and expenses presented in the income statement are not allowed in the tax balance; some categories are allowed in the tax balance only up to the prescribed amount, whereas some categories are allowed in the tax balance in a different accounting period compared to the income statement.

A difference between pre-tax income and taxable income and many tax incentives leads to a difference between the effective tax burden (the ratio of the

income tax burden and pre-tax income) and the statutory burden. Therefore, effective income tax management tends to maximize pre-tax income and minimize taxable income and the effective tax burden (Manzon & Plesko, 2002). Furthermore, H. Huizinga (2004) notes that the system of separate reporting for business and tax purposes makes the possibility of manipulating tax liabilities particularly available to the banking sector

Separate reporting for business and tax purposes leads to specific situations in banking practice. Thus, it is possible for a bank to have no income tax expense despite the reported pre-tax income. On the other hand, it is possible that, after an adjustment has been made in the tax balance, the realized pre-tax loss transforms into taxable income, so that the bank with the reported pre-tax loss has an income tax expense in the reporting period.

The income statement made by banks in the RS prepared in line with the International Financial Reporting Standards contains the total income tax expense consisting of the current tax expense and the deferred tax expense. The current tax expense represents the amount of the income tax expense attributable to the reporting accounting period, whereas deferred tax represents the amount of the income tax related to future accounting periods, arising from the recognition of the revenue and expenses in the tax balance in different accounting periods compared to the income statement.

Efficiency of Income Tax Management in Banks

Tax liabilities management is an important category of banking management. M. Scholes, G. Wilson and M. Wolfson (1990) conclude that banks are motivated to take tax-reducing actions if the costs of such activities are lower than potential tax benefits.

Multinational banks, whose subsidiaries dominate the Serbian banking sector, are involved in international tax planning in order to minimize world-wide tax liabilities. E. Thalassinos, B. Venediktova, D. Staneva-Petkova and V. Zampeta (2013) argue that the taxes

levied in the host country are an important factor for multinational banks' decisions to operate in the host country as a branch or as a subsidiary. E. Cerutti, G. Dell'Ariccia and M. Peria (2007) show that banks tend to operate as a branch in countries with high corporate taxes.

Like the real-sector companies, banks can also manage their tax liabilities through leverage adjustment. H. De Angelo and R. Stulz (2015) show that, due to the specific nature of the industry they operate in, banks have higher leverage compared to the real-sector companies. Substituting equity sources with borrowed financing sources increases the interest expenses that are, contrary to dividends paid, a deductible item in the tax balance. Using borrowed sources in order to reduce tax liabilities is known as a debt tax shield mechanism (Pyles, 2014, 262).

Multinational banks manage the leverage of their subsidiaries through intragroup lending transactions. This concept is based on lending to a subsidiary incorporated in a country with a high-income tax rate by a subsidiary of the same banking group incorporated in a country with a low-income tax burden. In this way, the calculated interest incurred on loans is transferred to the country with a favorable tax treatment, thus minimizing the amount of the world-wide income tax paid. A. Demirguc-Kunt and H. Huizinga (2001) conclude that such mechanisms of income shifting to countries with relatively low tax rates are the common practice of multinational banks, which is a significant comparative advantage of these banking groups.

Contrary to the real-sector companies, banks are imposed a considerably higher regulation, so the tax-motivated borrowing of banks should be discussed in parallel with efforts to maintain the regulatory capital level and secure capital adequacy. J. Graham, J. Raedy and D. Shackelford (2012) argue that banks are willing to forgo tax benefits when a reduction in tax liabilities would adversely affect the regulatory position of banks.

Banks may also use the other types of costs in order to minimize income tax liabilities. For instance, banks may contract certain services, such as market

research services or consulting services, with related-party entities. Such transactions increase the bank's costs and decrease its taxable base, thus leading to a reduced income tax liability.

The prior years' tax loss carryforward and the investment tax carryforward are the mechanisms equally available to both real-sector companies and financial institutions. However, unlike real-sector companies, banks are important investors in the shares of domestic organizations and government securities. Income from dividends and interest incurred on such investments is income-tax exempt in RS.

The minimization of income tax liabilities conducted within the legal framework should have positive effects on bank profitability. On the other hand, an increase in the income tax expense does not necessarily have a negative impact on bank profitability if banks are able to shift the tax burden to their customers through increased prices for their banking services. If such a shift is missing, G. Capelle-Blancard and O. Havrylchyk (2014) note that the tax burden is borne by bank shareholders or employees.

Regarding market value, M. Desai (2005) points out the fact that the market does not often award efficient income tax management, suspecting managerial malfeasance or the legality of tax minimization activities. However, the issue of the market reaction to income tax management in banks in the RS is of little importance since the shares of only a few banks are quoted on the Belgrade Stock Exchange.

In the last few decades, a number of income tax management measures have been developed in the literature. J. Slemrod (2004) concludes that an effective tax rate is the key measure for the efficiency of tax department managers in large organizations. M. Hanlon and S. Heitzman (2010) list three most widely used types of effective income tax rates, namely:

- the total effective tax rate (a ratio of the total income tax expense and pre-tax income),

- the current effective tax rate (a ratio of the current income tax expense and pre-tax income), and

- the cash effective tax rate (a ratio of income tax paid and pre-tax income tax).

The current effective tax rate will be used in the paper because the total effective tax rate, inter alia, captures a deferred tax expense as a non-cash income statement position, whereas the cash effective tax rate mixes real categories (an income tax outflow) and accrual categories (pre-tax income).

Review of the Empirical Research

An interest in income tax management in order to minimize tax liabilities is particularly evident in countries with high statutory income tax rates, often higher than 30%. With the statutory rate of 15%, the Republic of Serbia belongs to the countries with a moderate level of the tax burden.

G. Yin (2003) notes that the effective tax rate of the companies operating in the financial sector which are members of the S&P 500 index is continuously lower than the federal tax rate in the United States (US). Another US research study which tracked a ten-year cash effective tax rate shows that financial institutions are among the companies with the lowest income tax burden. Furthermore, two of the three sampled companies with the lowest ten-year cash rate are financial institutions (Dyreng, Hanlon & Maydew, 2008).

G. Schepens (2016) finds a significant impact of the tax treatment of dividends and interest rates on bank leverage - a reduction in the gap in the tax treatment between these two categories decreases bank leverage. T. Hemmelgarn and D. Teichmann (2014) find a statistically significant impact of the statutory income tax rate on bank leverage. They find that, in the period of three years after an increase in the statutory tax rate, there is an increase in bank leverage. A. Schandlbauer (2017) finds that an increased income tax burden in banks leads to an increase in the leverage of better-capitalized banks, primarily through non-deposit borrowing.

J. Merz and M. Overesch (2016) confirm that bank income taxation may be a significant determinant

of bank profitability. They studied the subsidiaries of multinational banks in 131 countries and found that the subsidiaries operating in the countries with higher statutory income tax rates have a lower level of profitability.

A number of research studies are dedicated to the study of the relation between the effective income tax burden and bank profitability. A research study conducted on Swiss banks shows that the effect of the effective tax rate on bank profitability is negative, though quite weak (Dietrich & Wanzenried, 2011). Another research shows that the effective tax rate negatively affects bank profitability in the middle- and low-income countries (Dietrich & Wanzenried, 2014). On the other hand, C. Gaganis, F. Pasiouras and A. Tsaklanganos (2013) find a positive non-linear correlation between the effective tax burden and bank profitability.

There are also important findings according to which the income tax burden will not derogate bank profitability due to the ability of banks to shift the tax burden to their clients. A. Demirguc-Kunt and H. Huizinga (1999) argue that banks are fully able to shift the tax burden to their clients. U. Albetrazzi and L. Gambacorta (2010) conclude that banks shift at least 90% of the burden to their clients. V. Chiorazzo and C. Milani (2011) conclude that banks can shift the income tax and value added tax burdens to their clients by increasing prices for their banking services.

RESEARCH METHODOLOGY

The research study on income tax management is empirically oriented. Abstracting other microeconomic and macroeconomic determinants, the study will examine how income tax management affects the effective tax rate, leverage, and bank profitability.

For the research purposes, a sample is formulated, comprising each commercial bank active in the territory of the RS in the period 2010-2016, at the end of the sampled years. In this way, the unbalanced panel data that initially consist of 217 observations are

formed, while 131 of the 217 observations recorded pre-tax income. In order to avoid the existence of negative (and unusable) effective tax rates, these rates are calculated for the observations with pre-tax income only. The number of the active banks by years is shown in Figure 1. The list of all the banks included in the research study, presented by years, is given in the Appendix.

There are many arguments for sampling the banks that periodically reported a pre-tax loss during the observed period. First, all banks in the RS file the tax balance and the tax return for income tax regardless of their profitability. Second, it is possible that the banks with an accounting pre-tax loss have taxable income and an income tax liability. Third, it is possible that the banks that were profitable in each of the seven observed years had losses in some of the previous years and reduce their tax liabilities on the basis of the tax losses carryforward.

The research study is conducted by using the publicly available data. The data on the banking sector were retrieved from the official website of the National Bank of Serbia, while the financial data (from statutory financial statements) on the banks were retrieved from the official website of the Business Registers Agency of the RS. The confidence levels $\alpha = 0.10$, $\alpha = 0.05$, and $\alpha = 0.01$ are used to determine statistical significance.

Apart from descriptive statistics and the tests of normality, the testing of the defined research hypotheses is conducted as follows:

- the first hypothesis is tested by comparing the effective and the statutory income tax rates by using appropriate tests to compare the two dependent groups (i.e. the paired t-test or the Wilcoxon signed-rank test);

- the second hypothesis is tested by comparing the leverage of the banks at the time of the increase in the statutory income tax rate (31 December 2012) and the leverage of the banks at the time one year (31 December 2013), two years (31 December 2014) and three years (31 December 2015) after the increase in the statutory income tax rate by using
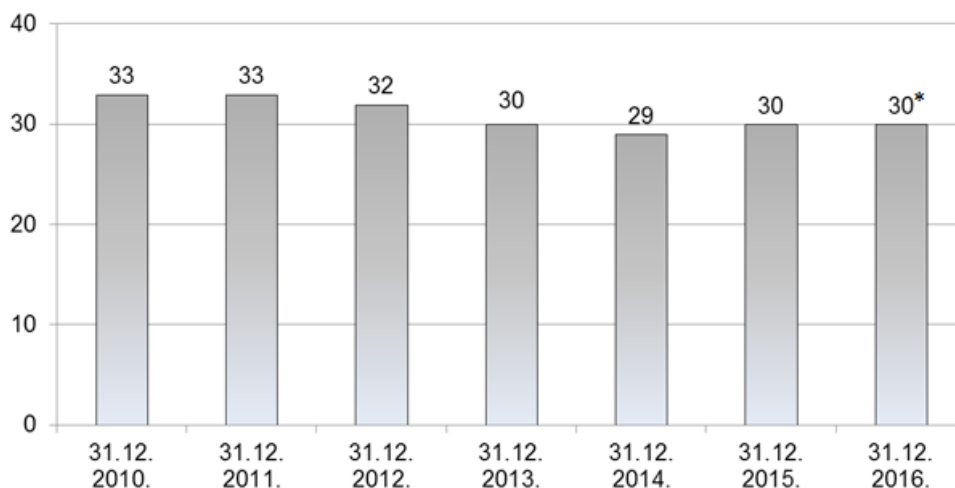
*As at 31 December 2016, a total of 31 banks had a license – however, one of them (Bank of China Serbia) did not actively operate in 2016 (it was established on 22 December 2016), so that bank is not included in the sample.

Figure 1 The number of the active banks in the RS in the period 2010-2016

Source: Authors

appropriate tests to compare the two independent groups (the t-test for the independent samples, or the Mann-Whitney test) - the debt ratio, i.e. the ratio of the total bank liabilities and total assets is used as a leverage proxy, and

- the third hypothesis is tested by applying the Pearson and Spearman correlation coefficients, whereby ROA (the ratio of net income and the total assets of a bank) is used as a profitability proxy.

RESEARCH RESULTS AND DISCUSSION

The obtained research results are interpreted following the defined research hypotheses. For the purposes of testing the validity of the first research hypothesis, Table 1 is formed, with the descriptive statistics of the current effective tax rates and the outcomes of the tests of the difference between the statutory and the effective tax rates.

Since the employed variable, i.e. the effective tax rate, does not follow a normal distribution, the results

are more appropriate to be commented on a median rather than arithmetic mean basis. It is noticeable that the effective tax rate of the average bank in the RS is continuously below the statutory tax rate. The Wilcoxon test outcomes show that the difference between the statutory and the effective tax rate is statistically significant in almost each sampled year. Observed at the whole-sample level, the difference is statistically significant at the 1% level.

The results of the analysis are not quite different if a total of the 33 observations with the effective tax rate of 0% (the observations in which, despite the pre-tax income, not one dinar of the current tax expense was calculated, Panel B) are excluded. It is interesting to note that the two largest effective tax rates in Table 1 (i.e. 112.048% in 2015 and 70.130% in 2014) refer to the one and the same bank - Jugobanka.

There are a number of the reasons why there is a significant difference between the statutory and the effective tax rates in the banks. The banks that invest more than one billion dinars in fixed assets and employ one additional hundred workers are allowed to reduce the income tax liability due to the

Table 1 Testing the statistical significance of the difference between the statutory tax rate and the current effective tax rate

Year	Statutory tax rate	Current effective tax rate - descriptive statistics					Wilcoxon Z
		n	Arithmetic mean	Median	Minimum	Maximum	
Panel A. The observations with a positive result (income) before tax							
2010	10%	21	8.552%	6.130%	0.000%	65.833%	***-2.834
2011	10%	21	6.827%	5.612%	0.000%	27.167%	**-2.104
2012	10%	21	9.243%	6.948%	0.000%	49.778%	-1.582
2013	15%	15	3.163%	0.130%	0.000%	12.655%	***-3.447
2014	15%	17	7.820%	1.330%	0.000%	70.130%	***-2.726
2015	15%	17	12.490%	1.114%	0.000%	112.084%	**-2.018
2016	15%	19	3.588%	0.194%	0.000%	15.435%	***-3.804
Total		131	7.465%	4.821%	0.000%	112.084%	***-7.281
Panel B. The observations with a positive result (income) before tax and the current effective tax rate higher than 0%							
2010	10%	18	9.978%	7.648%	0.131%	65.833%	**-2.373
2011	10%	17	8.434%	7.571%	0.032%	27.167%	-1.207
2012	10%	18	10.783%	8.526%	0.219%	49.778%	-0.936
2013	15%	8	5.931%	5.793%	0.130%	12.655%	**-2.521
2014	15%	13	10.226%	4.311%	0.011%	70.130%	**-2.132
2015	15%	12	17.694%	8.936%	0.014%	112.084%	-1.177
2016	15%	12	5.681%	4.075%	0.102%	15.435%	***-2.981
Total		98	9.979%	6.857%	0.011%	112.084%	***-5.236

Note: *n* refers to the number of the observations; *, **, *** refer(s) to the statistically significant results at the levels of 10%, 5%, and 1%, respectively.

Source: Authors

investment tax incentive. The largest banks in the RS find these investment criteria relatively easy to meet.

A significant reduction in the income tax liabilities of the banks is a result of a reduction in the current tax expense in the name of the prior years' tax loss carryforward. Banks are allowed to use the tax loss carryforward in a period of five years after the year in which the loss is reported. The importance of the reported losses for a reduction in the tax burden can be illustrated with the fact that out of the 29 banks that continuously operated in the period from 2010 to 2016, only six banks (namely AIK banka, Banca Intesa, Erste Bank, ProCredit Bank, Raiffeisen banka and Unicredit bank Serbia) reported pre-tax income in each sampled year.

It is worth noting that the analysis of the notes to the banks' financial statements (the section on the reconciliation of pre-tax income to taxable income) shows that the adjustment of revenues represents an important and frequent item, particularly so in large banks. Although the notes usually do not state an explicit reason for such an adjustment, it is rational to assume that this is a result of the interest income on the government financial instruments and dividends paid by the legal entities residents in the RS.

On the other hand, there are 27 observations in which the pre-tax loss from the income statement has been transformed into taxable income in the tax balance, so the current tax expense (which is greater than zero) is reported despite the pre-tax loss. Although it is

possible to identify several reasons for this, the key reason is the taxation of the banks' capital gains taxed at the moment of income taxation, but independently of the reported income (a profit or a loss) from the other bank activities.

Previous paragraphs indicate that banks in the RS are relatively efficient in managing income tax as they use legal possibilities of reducing income tax liabilities to a significant extent. Therefore, the first research hypothesis is not rejected.

For the purposes of testing the validity of the second research hypothesis, it is necessary to examine the leverage of the banks in the RS at the end of the sampled years. The descriptive statistics of the banks' debt ratio and the outcomes of the non-parametric Mann-Whitney test (used due to a lack of a normal distribution of the debt ratio variable) are shown in Tables 2 and 3.

Table 2 The descriptive statistics for the debt ratio of the banks in the RS in the period 2010-2016

Year	*n*	Arithmetic mean	Median	Minimum	Maximum
2010	33	0.788	0.806	0.443	0.927
2011	33	0.793	0.807	0.447	1.000
2012	32	0.782	0.813	0.167	0.982
2013	30	0.774	0.820	0.146	0.925
2014	29	0.768	0.820	0.172	0.874
2015	30	0.762	0.803	0.182	0.880
2016	30	0.780	0.812	0.298	0.912
Total	217	0.779	0.807	0.146	1.000

Note: *n* refers to the number of the observations.

Source: Authors

The data in Table 2 show that the banks in the RS are highly leveraged, in line with the specific features of the industry they operate in. In each sampled year, the debt ratio median is higher than 80%. However, there are important extreme values in the leverage of the banks, primarily in smaller banks. The minimum

values of the debt ratio in the period 2010-2011 relate to JUBMES bank, and in the period 2012-2016, to Jugobanka. The only observation with a debt ratio of 1.000 refers to Agrobanka, which, at the end of 2011, reported a loss above the owners' equity, only to have its license revoked in 2012.

The outcomes of the Mann-Whitney test, presented in Table 3, show that there is no statistically significant increase in bank leverage in the RS in any one observed period. In the next paragraphs of the research study, the two additional tests that were conducted - the one only including the banks that continuously operated in the period from 2012 to 2015 (Panel B) and the other only including the banks with the lowest debt ratios, i.e. the largest additional borrowing capacity (Panel C) - are presented. The results of these tests are not quite different from the original results.

It is obvious that bank managers in the RS did not incorporate the effects of the increasing statutory income tax rate in their financial decisions, expressed as an increase in the tax shield benefits. One of the reasons explaining why the bank managers failed to pay attention to the increase in the statutory rate rests on the fact that the Serbian banking system is dominated by the subsidiaries of foreign banks headquartered in the countries with quite higher statutory tax rates. At the time of the increase in the statutory tax rate (1 January 2013), the largest number of the Serbian banks were the subsidiaries of Greek, Austrian, French, and Italian multinational banking groups. According to Ernst & Young (2013), in 2013, corporate income in these countries had the following tax burdens:

- in Greece, the statutory tax rate was 26%,

- in Austria, the statutory tax rate was 25%,

- in France, the statutory tax rate was 33.33%, increased by the variable additional tax, and

- in Italy, the statutory tax rate was 27.5% plus additional regional income tax.

An important number of managers from the mentioned countries are on the boards of directors

Table 3 Testing the statistical significance of the difference in the leverage of the banks in the RS in different years

Year 1	n	Year 2	n	Mann-Whitney U	Z
Panel A. All the banks that operated in the sampled years					
2012	32	2013	30	472.000	-0.113
2012	32	2014	29	449.000	-0.217
2012	32	2015	30	437.000	-0.606
Panel B. The banks that operated in the period 2012-2015					
2012	29	2013	29	408.000	-0.194
2012	29	2014	29	418.000	-0.039
2012	29	2015	29	411.000	-0.148
Panel C. A total of 10 banks with the lowest debt ratio on 31 December 2012					
2012	10	2013	10	46.000	-0.302
2012	10	2014	10	50.000	0.000
2012	10	2015	10	50.000	0.000

Note: *n* refers to the number of the observations; *, **, *** refer(s) to the statistically significant results at the levels of 10%, 5%, and 1%, respectively.

Source: Authors

and executive boards of the Serbian subsidiaries of multinational banks. Given the fact that the income tax burden is significantly higher in these countries, the increase in the statutory income tax rate in the RS from 10% to 15% is obviously not seriously discussed by the managers of those banks.

Using borrowed financing sources implies the existence of the fixed maturity dates of liabilities and, in general, a priority in payment compared to equity financing sources. Such negative effects are obviously more valued by bank managers in the RS than the positive tax effects of additional borrowing. Since there has been no significant increase in bank leverage after the increase in the statutory tax rate, the second research hypothesis is rejected.

For the purposes of testing the validity of the third research hypothesis, the descriptive statistics for the banks' ROA in the sampled period are given in Table 4 below. Unlike moderate positive returns, there is an observation with an extremely negative rate of net return on total assets in almost every sampled year.

It is interesting that the minimum value of ROA (-142.145%) refers to Srpska Banka in 2014, whereas

the maximum value (5.222%) refers to the same bank in 2015. The case of Telenor Bank is also interesting, this bank having the lowest ROA in 2013. After the losses incurred in the following two years and the ownership changes, this bank had the lowest ROA in 2016.

In Table 5, the results of the correlation analysis between the current effective tax rate and the ROA of the banks in the RS are shown. The Pearson *r* coefficient and the Spearman *rho* coefficient are presented; according to the outcomes of the normality tests (showing a lack of a normal distribution in the majority of the observed variables, both by years and in total), it is more appropriate to rely on the Spearman *rho* coefficient. The interpretation of the correlation coefficients is performed in line with the Cohen criteria (Hemphill, 2003), according to which the coefficient of correlation:

- between 0.10 and 0.29 indicates a weak correlation;

- between 0.30 and 0.50 indicates a moderate correlation, and

- higher than 0.50 indicates a strong correlation.

Table 4 The descriptive statistics for the banks' ROA in the RS in the period 2010-2016

Year	n	Arithmetic mean	Median	Minimum	Maximum
Panel A. All observations in the sampled years					
2010	33	-0.447%	0.325%	-8.539%	3.949%
2011	33	-1.314%	0.375%	-47.833%	3.062%
2012	32	-2.130%	0.144%	-55.737%	2.898%
2013	30	-6.492%	-0.105%	-141.310%	3.158%
2014	29	-6.697%	0.126%	-142.145%	2.735%
2015	30	-1.867%	0.105%	-17.186%	5.222%
2016	30	-0.956%	-0.396%	-11.851%	2.579%
Total	217	-2.765%	0.217%	-142.145%	5.222%
Panel B. The observations with a positive result before tax					
2010	21	1.235%	1.081%	0.001%	3.949%
2011	21	1.458%	1.448%	0.217%	3.062%
2012	21	1.116%	1.195%	0.019%	2.898%
2013	15	1.224%	1.082%	0.047%	3.158%
2014	17	0.903%	0.392%	0.031%	2.735%
2015	17	1.365%	1.012%	0.001%	5.222%
2016	19	1.225%	1.368%	0.050%	2.579%
Total	131	1.223%	1.095%	0.001%	5.222%

Note: *n* refers to the number of the observations.

Source: Authors

Observed at the total level (131 observations), it can be concluded that there is no strong negative correlation between the effective tax rate and ROA. The Spearman *rho* correlation coefficient indicates a weak and significant positive correlation between the observed variables. Observed by years, a significant and strong, though positive, correlation is only found in 2013.

The main reason for the absence of a strong significant correlation at the whole-sample level should be found in the fact that 25.19% of the observations (33 out of 131 observations) have an effective tax rate equal to zero. Therefore, in the next paragraph, these 33 observations are removed, so the correlation analysis is conducted with the remaining 98 observations (Panel B).

At the level of 98 observations, there is a statistically significant negative correlation between the employed variables in two years. However, such a negative correlation is not strong in either year. At the total level, only the Pearson r correlation coefficient is significant, though indicating a low correlation. Since it is concluded that there is no statistically significant strong negative correlation between the effective tax rate and ROA in the banks in the RS, the third research hypothesis is rejected.

CONCLUSION

The conducted research study presented in this paper included 34 banks having operated in the RS in period from 2010 to 2016 in order to examine the efficiency of income tax management in the banking sector.

The paper has shown that the effective income tax burden in an average bank in the RS is continuously below the statutory burden. Furthermore, as much as 25% of the observations with reported pre-tax

Table 5 The results of the correlation analysis of the current effective tax rate and the ROA of the banks in the RS in the period 2010-2016

Year	n	Pearson r	Spearman rho
Panel A. The observations with a positive result (income) before tax			
2010	21	-0.145	0.192
2011	21	-0.039	0.190
2012	21	-0.250	-0.095
2013	15	***0.774	***0.674
2014	17	-0.098	0.153
2015	17	-0.247	0.109
2016	19	0.365	0.349
Total	131	-0.088	***0.275
Panel B. The observations with a positive result (income) before tax and the current effective tax rate higher than 0%			
2010	18	-0.158	0.183
2011	17	**-0.496	*-0.426
2012	18	**-0.472	*-0.439
2013	8	**0.774	*0.667
2014	13	-0.186	0.066
2015	12	-0.358	-0.021
2016	12	***0.721	**0.692
Total	98	**-0.221	0.088

Note: n refers to the number of the observations; *, **, *** refer(s) to the statistically significant results at the levels of 10%, 5%, and 1%, respectively.

Source: Authors

income reduced the effective tax rate to 0%. The research results are consistent with the conclusions of a previous research study (Yin, 2003; Dyreng *et al*, 2008) on the ability of financial institutions to efficiently manage their income tax.

The latest increase in the statutory tax rate in the RS from 10% to 15% has not had an impact on the financial structure of the banks. The analysis has shown that the share of liabilities in the total financing sources of the banks has not statistically significantly increased after the increase in the statutory rate, regardless of the capitalization of the banks. This finding is contrary to prior research findings (Hemmelgarn

& Teichmann, 2014; Schandlbauer, 2017). When comparing the obtained results with the results of prior research, the fact that the effective tax burden of the banks in the RS is significantly lower than the effective tax burden in prior research should be taken into consideration.

According to the analysis carried out in this paper, it is clear that there is no strong correlation between the effective tax rate and bank profitability. Such a finding indicates the fact that taxation is not an important determinant of the profitability of the banks in the RS. It is important to note that the previous research study (Demirguc-Kunt & Huizinga, 1999; Albetrazzi & Gambacorta, 2010; Chiorazzo & Milani, 2011) showing that the tax burden does not necessarily negatively impact bank profitability is based on quite different statistical methods.

There are, however, certain limitations pertaining to the presented results. The research study is based on the sampling method in a period longer than seven years. Also, only one measure for each (the efficiency of income tax management, the financial structure and profitability) are employed. It is possible that the research results would be different in the case of a different time period or the employment of different measures.

We believe that many interested groups may benefit from the results of this research study. When deciding on the future banking activities of their banks, the owners and managers of banks in the RS may benefit from the information on the impact of income tax on banks' operations. In addition, the national tax authorities may benefit from the research study when making decisions on the modality of the taxation of the banking sector in the RS.

Future research in this area could include the other measures for the efficiency of income tax management, such as the total or cash effective tax rate. It would be interesting to employ multiple regression analysis in order to examine the effect of the effective tax rate on banks' ROA, ROE and net interest income. In addition, the methodology of future research may include interviewing bank managers about the methods for income tax management.

ACKNOWLEDGEMENT

REFERENCES

Albetrazzi, U., & Gambacorta, L. (2010). Bank profitability and taxation. *Journal of Banking & Finance, 34*(11), 2801-2810. doi:10.2139/ssrn.1075243

Caminal, R. (2003). Taxation of banks: modeling the impact. In P. Honohan (Ed.). *Taxation of Financial Intermediation: Theory and Practice for Emerging Economies* (pp. 81-126). Washington, DC: The World Bank.

Capelle-Blancard, G., Havrylchyk, O. (2014). The ability of banks to shift corporate income taxes to customers. In: R. de Mooij & G. Nicodeme (Eds.). *Taxation and Regulation of the Financial Sector* (pp. 253-278). Cambridge, MA: The MIT Press.

Cerutti, E., Dell'Ariccia, G., & Peria, M. (2007). How banks go abroad: Branches or subsidiaries? *Journal of Banking & Finance, 31*(6), 1669-1692. doi:10.1016/j.jbankfin.2006.11.005

Chiorazzo, V., & Milani, C. (2011). The impact of taxation on bank profits: Evidence from EU banks. *Journal of Banking & Finance, 35*(12), 3202-3212. doi:10.1016/j.jbankfin.2011.05.002

DeAngelo, H., & Stulz, R. (2015). Liquid-Claim production, risk management, and bank capital structure: Why high leverage is optimal for banks. *Journal of Financial Economics, 116*(2), 219-236. doi:10.1016/j.jfineco.2014.11.011

Demirguc-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: Some international evidence. *World Bank Economic Review, 13*(2), 379-408.

Demirguc-Kunt, A., & Huizinga, H. (2001). The taxation of domestic and foreign banking. *Journal of Public Economics, 79*(3), 429-453. doi:10.1016/s0047-2727(00)00071-2

Desai, M. (2005). The degradation of reported corporate profits. *Journal of Economic Perspectives, 19*(4), 171-192. doi:10.2139/ssrn.758144

Dietrich, A., & Wanzenried, G. (2011). Determinants of bank profitability before and during the crisis: Evidence from Switzerland. *Journal of International Financial Markets, Institutions and Money, 21*(3), 307-327. doi:10.5923/j.ijfa.20180705.02

Dietrich, A., & Wanzenried, G. (2014). The determinants of commercial banking profitability in low-, middle-, and high-income countries. *The Quartely Review of Economics and Finance, 54*(3), 337-354. doi:10.1016/j.qref.2014.03.001

Dyreng, S., Hanlon, M., & Maydew, E. (2008). Long-Run corporate tax avoidance. *The Accounting Review, 83*(1), 61-82. doi.org/10.2308/accr.2008.83.1.61

Ernst & Young. (2013). *Worldwide Corporate Tax Guide 2013.* Retrieved Oktober 18, 2019, from www.ey.com/publication/vwluassets/ey-worldwide-corporate-tax-guide-2013/$file/ey-worldwide-corporate-tax-guide-2013.pdf

Gaganis, C., Pasiouras, F., & Tsaklanganos, A. (2013). Taxation and bank efficiency: Cross-country evidence. *International Journal of the Economics of Business, 20*(2), 229-244. doi:10.2139/ssrn.2167725

Graham, J., Raedy, J., & Shackelford, D. (2012). Research in accounting for income taxes. *Journal of Accounting and Economics, 53*(1-2), 412-434. doi:10.2139/ssrn.1312005

Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics, 50*(2-3), 127-178. doi:10.1016/j.jacceco.2010.09.002

Hemmelgarn, T., & Teichmann, D. (2014). Tax reforms and the capital structure of banks. *International Tax and Public Finance, 21*(4), 645-693. doi:10.2139/ssrn.2265424

Hemphill, J. (2003). Interpreting the magnitudes of correlation coefficients. *American Psychologist, 58*(1), 78-79. doi.org/10.1037/0003-066X.58.1.78

Huizinga, H. (2004). The taxation of banking in an integrating Europe. *International Tax and Public Finance, 11*(4), 551-568. doi:10.1023/b:itax.0000033992.53339.6c

Keen, M. (2011). Rethinking the taxation of the financial sector. *CESifo Economic Studies, 57*(1), 1-24. doi.org/10.1093/cesifo/ifq019

Manzon, G., & Plesko, G. (2002). The relation between financial and tax reporting measures of income. *Tax Law Review, 55*(2), 175-214. doi:10.2139/ssrn.264112

Masiukiewicz, P., & Dec, P. (2012). Special taxes in banking. *Perspectives of Innovations, Economics & Business, 11*(2), 61-68. doi:10.15208/pieb.2012.06

Merz, J., & Overesch, M. (2016). Profit shifting and tax response of multinational banks. *Journal of Banking & Finance, 68*(1), 57-68. doi:10.1016/j.jbankfin.2016.03.015

Pyles, M. (2014). *Applied Corporate Finance: Questions, Problems and Making Decisions in the Real World*. New York, NY: Springer.

Schandlbauer, A. (2017). How do financial institutions react to a tax increase? *Journal of Financial Intermediation, 30*(1), 86-106. doi:10.1016/j.jfi.2016.08.002

Schepens, G. (2016). Taxes and bank capital structure. *Journal of Financial Economics, 120*(3), 585-600. doi:10.2139/ssrn.2519533

Scholes, M., Wilson, G., & Wolfson, M. (1990). Tax planning, regulatory capital planning, and financial reporting strategy for commercial banks. *The Review of Financial Studies, 3*(4), 625-650. doi.org/10.1093/rfs/3.4.625

Slemrod, J. (2004). The economics of corporate tax selfishness. *National Tax Journal, 57*(4), 877-899. doi:10.17310/ntj.2004.4.06

Službeni glasnik Republike Srbije. (2017). *Zakon o porezu na dobit pravnih lica*. Službeni glasnik RS, br. 113/17.

Thalassinos, E., Venediktova, B., Staneva-Petkova, D., & Zampeta, V. (2013). Way of banking development abroad: branches or subsidiaries. *International Journal of Economics & Business Administration, 1*(3), 69-78.

Yin, G. (2003). How much tax do large public corporations pay? Estimating the effective tax rates of the S&P 500. *Virginia Law Review, 89*(8), 1793-1856. doi:10.2139/ssrn.390260

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APPENDIX

The list of the active banks in the RS in the period 2010-2016

Bank	Sampled period	Bank	Sampled period
Addiko Bank	2010-2016	MTS banka	2010-2016
Agrobanka	2010-2011	NLB banka	2010-2016
AIK banka	2010-2016	Opportunity banka	2010-2016
Banca Intesa	2010-2016	OTP banka Srbija	2010-2016
Banka Poštanska štedionica	2010-2016	Piraeus Bank	2010-2016
Credit Agricole banka Srbija	2010-2016	Privredna banka Beograd	2010-2012
Direktna banka	2010-2016	ProCredit Bank	2010-2016
Expobank	2010-2016	Raiffeisen banka	2010-2016
Erste Bank	2010-2016	Razvojna banka Vojvodine	2010-2012
Eurobank	2010-2016	Sberbank Srbija	2010-2016
Findomestic banka	2010-2016	Societe Generale banka	2010-2016
Halkbank	2010-2016	Srpska banka	2010-2016
Jubanka	2010-2016	Telenor banka	2010-2016
JUBMES banka	2010-2016	Unicredit bank Srbija	2010-2016
Jugobanka Jugbanka	2010-2016	Univerzal banka	2010-2013
Komercijalna banka	2010-2016	Vojvođanska banka	2010-2016
Mirabank	2015-2016	VTB banka	2010-2016

Source: Authors