Profitability Analysis of Audit Firms – Evidence from the Republic of Serbia

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Abstract

This paper aims to provide an analysis of the profitability of audit firms in the Republic of Serbia during the period 2016-2018. The analysis is based on the data collected from the financial statements from all audit firms registered in the Republic of Serbia. The profitability analysis includes two goals. This paper will primarily provide a descriptive statistical analysis of the profitability of audit firms measured by return on assets and net income per employee. The following part of the research will answer the question of which factors have a significant impact on the profitability of audit firms. Profitability as a dependent variable is defined as return on assets and net income per employee, while independent variables include market share, current ratio, leverage, size, affiliation to the international network, etc. To answer this question, a regression statistics analysis will be conducted. The research result will indicate which factor can improve the performances of audit firms.

Introduction

Profitability is a matter of survival for any type of business. A simple definition of profitability is that a business's revenue is higher than its expenses. The greater the result, the more profitable the business is. Successful entrepreneurs not only accomplish that, but they also make their companies more profitable over time. However, there are many factors affecting profits which can include demand for products, the cost of making them, the general economy, and competition. Annual financial statements represent a company's financial position and its performance, therefore they become the main sources of information that enable the qualitative analysis of how resources are used during the process of creating value. For a company to run on long-term successful performance, it is necessary to develop, implement and maintain strategies, measures, and coherent policies from an economic and financial point of view. Those policies are a result of well-established internal and external specific conditions in which the company acts.

The aim of an external audit, or financial statement audit, is to examine financial statements and provide the external users with information on whether financial statements represent a true and fair view of a legal entity's financial performance. From the users' view of the audit report, the purpose of an audit is to enhance the degree of confidence of intended users of the financial statements (International Standard of Auditing 200, 2009). From the view of the owner of an audit firm the purpose of the business is long-term operating and net profit earning. This being said, it is necessary for the owner and as well as the management of an audit company to analyze profitability as a key indicator of business success.

Using data collected from financial statements for the period 2016-2018, this paper will provide an analysis of the profitability of audit firms in the Republic of Serbia through two main goals. It will primarily provide a descriptive statistical analysis of the profitability of audit firms measured by return on assets and net income per employee. According to Walsh (2003), Return on assets (ROA) is an indicator of how profitable a company is relative to its total assets. ROA gives a manager, investor, or analyst an idea as to how efficient a company's management is at using its assets to generate earnings. While the net income per employee is calculated as a company's total revenue divided by its current number of employees, it is an important ratio that roughly measures how much money each employee generates for the firm. The second part of the research will answer the question of which factors have a significant impact on the profitability of audit firms. Profitability as a dependent variable is defined as return on assets, while independent variables include market share, current ratio, leverage, size, affiliation to the international network, affiliation to the "Big Four".

Literature review

Hoang et al. (2019) examined the determinants of audit engagement profitability using proprietary data from the national office of a Big 4 public accounting firm in Canada. Authors find that audit realization rate is the primary measure used to assess engagement level profitability, along which they used the former to proxy for engagement profitability in archival analysis. Results show that engagement profitability is positively associated with the firm's assignment of lead senior audit managers as identified by the national office, and its delivery of intangible client service dimensions such as communication, customization, and responsiveness.

Members of accounting firm associations, such as networks or alliances, are provided with numerous benefits, including access to the expertise of professionals from other independent member firms, joint conferences, and technical training,

assistance in dealing with staffing and geographic limitations, and the ability to use the association name in marketing materials. Using hand-collected data on association membership authors, Bills et al. (2015), find that association member firms conduct higher-quality audits than nonmember firms. Results point out that audit fees are higher for clients of member firms than for clients of nonmember firms, suggesting that clients are willing to pay an audit fee premium to engage association member audit firms.

Frecka et al. (2018) are discussing how public accounting firms are regulated in the U.S. Since the investing public can readily access a great deal of information about publicly-traded companies, the large private accounting firms that audit those companies—and that are just as economically significant—provide very little information. In this research, the authors are providing an insight into the audit markets by taking a novel, descriptive approach to exploring the cost of performing audits. Their findings suggest interesting potential differences in audit production functions between the Big Four firms, an important factor when considering the competitiveness of the audit market.

Due to the frequently expressed concern regarding the lack of competitiveness within the audit market, based on trends of increasing concentration of suppliers, authors Ciconte et al. (2012) conducted a study that reports the results of an investigation into the profitability of audit engagements. Results are showing that the local structure has a significant and positive association with audit engagement profitability, providing evidence consistent with either the structuralist or efficiency explanations of the relationship between market concentration (share) and profitability.

Using a large sample of U.S. firms for the period 2000–2010, Chen et al. (2015) document a strong positive association between the sensitivity of CEO compensation portfolio to stock return volatility and audit fees. In their research, authors demonstrate that the positive association between and audit fees is weaker in the post-Sarbanes-Oxley Act (SOX) period, along with the fact that the relation between volatility and audit fees is stronger for firms with older CEOs and in firms where the CEO is also chairman of the board.

Chen et al. (2013) examine the relations between audit quality, audit firm size, and financial performance. Dividing audit firms into three categories, this study estimate the s audit quality of audit firms from human capital-related factors, such as educational level of auditors, work experience of auditors, and professional training. The empirical results report a positive association between audit firm size and audit quality. The positive relationship of national audit firms is higher than that of regional and local audit firms. The relationship between audit quality and financial performance is positive whereas for the national audit firms it is higher than of regional and local audit firms.

Using a unique set of Korean data for the years 2004–2013, Seunghee et al. (2021) are showing that audit firms' operating leverage is related to lowballing and audit quality. To capture audit firms' operating leverage, authors estimated audit hour elasticity from a regression of changes in logged audit hours on changes in logged audit fees for all audit clients of each audit firm. Their findings show that audit firms with higher audit hour elasticity are more likely to discount fees for new clients, along with the fact that the relation is more salient when the benefits of lowballing are expected to be greater. Concluding that that audit firms with more flexible production structures have a greater ability to implement pricing strategy even without sacrificing production quality.

The influence of audit firms operating years on business success was examined in the Republic of Serbia. Mijic et al. (2014b) represented in their results a statistically significant difference in the performance indicators of audit firms in the Republic of Serbia, older audit firms have achieved a significantly better business performance at the audit market. Along with that, older audit firms achieve a higher level of operating revenue and net income.

Walker et al. (2000) are examining the role of auditee profitability in pricing new audit engagements. Their research is to answer two questions: (1) whether CPA firms still discount fees for new engagements in the current audit environment; (2) whether such fee discounts are dependent upon auditee profitability. Their findings are suggesting that auditors are managing their exposure to audit risk by adjusting audit fees.

Methodology

According to the aim of this paper, two goals are set. Primarily, it will provide the descriptive analysis of audit firms' profitability in the Republic of Serbia during the period 2016-2018. The profitability is measured by two variables such as return on assets (ROA) and net income per employee. Furthermore, it will investigate which factors have a significant impact on the profitability of audit firms. In this section, research profitability is defined as return on assets, while the independent variables are: size, leverage, current ratio, market share, international network and the "Big-four". The following table 1 presents the methodology calculation of variables.

Table 1
Research variables

Variables	Type of variables	Indicator	Calculation
Return on assets (ROA)	Dependent (model 1)	Indicates the company's ability to generate earnings from its assets.	ROA = Net Income / Total Assets
Net income per employee (NIpE)	Dependent (model 2)	Indicates the average share of net income per employee at the audit firm	Net income per employee = Net income / Number of employees)
Size	Independent	Indicates the size the of company	Size = Natural log of Total Assets
Leverage	Independent	Measures the level of debt	Leverage = Total debts / Total assets
Current ratio	Independent	Company`s short-term liquidity indicator	Current ratio = Current assets / Current liabilities
Market share	Independent	Measures company share in revenue from the sales	Market share = Revenue from the sales / Total revenue from the sales
International network	Independent	Part of international audit network	0 – No 1 – Yes
Big Four	Independent	Part of "Big four"	0 – No 1 - Yes

Source: Author`s illustration based on Rodic et al. 2017, Le Vourc`h et al., 2011

According to the second research goal, we define the following hypothesis:
- o H_1 – *The factors such as size, leverage, current ratio, market share, international network, and the "Big Four" have a significant impact on the return on assets of an audit firm.*
- o H_2 - *The factors such as size, leverage, current ratio, market share, international network and the "Big Four" have a significant impact on the net income per employee of an audit firm.*

To test the hypothesis, a regression analysis will be conducted. The following regression models are set (according to Field, 2005):

$$ROAit = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \beta5X5 + \beta6X6 + \varepsilon i \qquad model\ 1$$

$$NIpE = \beta0 + \beta1X1 + \beta2X2 + \beta3X3 + \beta4X4 + \beta5X5 + \beta6X6 + \varepsilon i \qquad model\ 2$$

Where:
- o ROA – return on assets
- o NIpE – net income per employee
- o X1 – size
- o X2 – leverage
- o X3 – current ratio
- o X4 – market share
- o X5 – international network
- o X6 – "Big Four"

To conduct this research, an observation sample of 194 audit companies in the Republic of Serbia was collected. The sample consists of all registered audit firms. At the audit market in Serbia, audit services are provided by the "Big Four" and other international and local audit firms. According to the belonging to the international network, 65% of audit firms are local, while 35% belong to the international audit network. The distribution of the number of audit firms based on the belonging to the international network is presented in table 2.

Table 2
Distribution of audit firms based on the international network

International network	2016	2017	2018
Yes	23	24	23
N0	39	42	43
Total	62	66	66

Source: Authors calculation based on Chamber of Authorized Auditors, 2019 and The Serbian Business Registers Agency, 2019.

Research is based on the data from the financial statements which are collected from the database Scoring (Scoring, 2019). Descriptive statistical analysis and regression analysis was conducted in the statistical software IBM SPSS v 22.

Results
The results of descriptive statistics of audit firm`s profitability measured as return on assets and net income per employee are presented in table 3.

During the period 2016-2018, return on assets increased from -0.091 in 2016 to the level of 0.076 in 2018. According to this, it can be concluded that audit firms in Serbia had an average of a negative return on assets in 2016 and 2017. In 2018 audit firms

have a positive average net income, and they earn a net income of 7.6% of total assets. If we observe the nature of a net income in 2016, we have five audit firms with net loss, in 2017 we have seven audit firms with a net loss, while that number is decreasing in 2018 where we have only two audit firms with a net loss and one audit firm with a neutral financial result.

The results of descriptive statistics of net income per employee show that there is a significant increase of this variable during the observed period. In 2016 the average value of net income per employee was 136.58 thousand RSD (which is approximately 1.13 thousand EUR). In 2018 the average value of net income per employee was 1,442.69 thousand RSD (which is approximately 12.02 thousand EUR). The increase in profitability is a result of increasing operating revenue. The number of employees did not decrease, contrary the number of employees increased from 1,291 in 2016 to the level of 1,426 in 2018.

Table 3
Descriptive statistics of profitability of audit firms

	N	Minimum	Maximum	Mean	Std. Deviation
2016					
ROA	62	-5.19	0.85	-0.091	0.93
Net income per employee	62	-3,017.50	1,354.00	136.58	549.30
2017					
ROA	66	-5.79	1.12	-0.017	0.82
Net income per employee	66	-1,337.00	1,207.00	154.25	343.57
2018					
ROA	66	-0.94	0.73	0.076	0.24
Net income per employee	65	-210.56	33,333.25	1,442.69	4,339.68

Source: Authors calculation base on the Scoring, 2019.

To investigate which factors have a significant impact on the profitability of audit firms in the Republic of Serbia regression analysis was conducted. Profitability being a dependent variable is measured as ROA, while the independent variables are the following: size, leverage, current ratio, market share, international network and the „Big four". The results of descriptive statistics of dependent and independent variables for the period 2016-2018 are presented in Table 4.

The average level of leverage for audit firms in the Republic of Serbia is 0.81. According to this 81% of total assets are financed by debt. One of the reasons for a high level of leverage is the fact that audit firms can be established with only 100 RSD of capital (which is approximately 0.84 EUR). According to the level of current ratio, it can be concluded that audit firms do not have a problem with liquidity. The average level of the current ratio is 2.92, which is much higher than the referent value of 2.0 (see more: Rodic et al., 2017). This means that audit firms in the Republic of Serbia do not have a problem servicing short-term debt within maturity. The highest level of market share measured as concentration ratio is 0.25. This value indicates that the audit firm KPMG collected 25% of revenues from the sale of products and services in 2016. Audit market share can be described as a highly concentrated, or oligopolistic market, where the leading position belongs to the "Big-four". The level of CR4 during the observed period is relatively constant and it is at the level of 0.75. In the Republic of Serbia, there is an increasing number of audit firms, but even with that being said, the "Big-four" are increasing their market share.

Market share of the "Big-four" in 2011 according to revenue from the sale of products and services was 0.65 (see more: Mijic et al., 2014a).

Table 4
Descriptive statistics of dependent and independent variables

Variables	N	Minimum	Maximum	Mean	Std. Deviation
ROA	194	-5.79	1.12	-0.01	0.72
NIpE	193	-3.017,50	33.333,25	582,51	2.605,99
Ln NIpE*	193	1.05	10.41	5.02	1.70
Size	194	3.78	13.76	9.26	1.91
Leverage	194	0.01	6.89	0.81	1.06
Current ratio	194	0.03	122.00	2.92	10.30
Market share	194	0.00	0.25	0.015	0.047
International network	194	0	1	0.36	0.48
Big four	194	0	1	0.06	0.24

Source: Authors calculation based on IBM SPSS
* Natural log of Net income per employee

The results of the correlation matrix and vif show that there is no multicollinearity in both models. The results of regression analysis of model 1 are presented in Table 5. The R^2 is 0.674 which indicates that 67,4% variance in the dependent variable can be predictable from the independent variable. The results indicate that a significant impact on return on assets has the following variables: size, leverage and international network. Size and leverage are significant at level 0.05, while the international network is significant at level 0.10. Variable size and leverage have a negative significant impact, which indicates that the larger audit firms and audit firms with the higher level of debt ratio reach the lower level of return on assets. On the other hand, a variable international network has a positive significant impact on the return on assets. According to this result, it can be concluded that belonging to the international network can increase the level of return on assets of audit firms in the Republic of Serbia.

Table 5
The results of regression analysis (Model 1)

Model 1	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.905	0.228		3.965	0.000
Size	-0.052	0.025	-0.138	-2.111	0.036**
Leverage	-0.591	0.033	-0.871	-17.927	0.000***
Current ratio	-0.004	0.003	-0.052	-1.230	0.220
Market share	0.698	2.065	0.045	0.338	0.736
International network	0.147	0.079	0.097	1.845	0.067*
Big four	-0.008	0.390	-0.003	-0.020	0.984

Note: Dependent Variable: ROA; *** statistically significant at 1%; ** 5%; *10%
Source: Authors calculation based on IBM SPSS

The results of regression analysis of model 2 are presented in Table 6. The R^2 is 0.127. The results indicate that significant impact on profitability measured as net income per employee have the following variables: leverage and market share both at the level of 0.05. According to these findings, it can be concluded that the audit firms with a higher level of leverage have a lower level of net income per employee.

Furthermore, a higher level of the market share provides a higher level of net income per employee.

Table 6
The results of regression analysis (Model 2)

Model 1	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
(Constant)	0.714	1.958		0.365	0.716
Size	0.168	0.102	0.179	1.644	0.102
Leverage	-0.744	0.316	-0.187	-2.356	0.020**
Current ratio	-0.013	0.012	-0.085	-1.119	0.265
Market share	15.629	7.981	0.454	1.958	0.052*
International network	-0.236	0.316	-0.067	-0.746	0.456
Big four	3.312	1.505	0.294	1.200	0.129

Note: Dependent Variable: Net income per employee; *** statistically significant at 1%; ** 5%; *10%
Source: Authors calculation based on IBM SPSS

Discussion

The results of a descriptive statistical analysis of the profitability of audit firms indicate that profitability has a positive trend from 2016 to 2018. This positive trend is the result of a significant increase in operating revenue. Operating revenue increased by 14% in the observed period, and the net income per employee increased by more than ten times. The audit sector in the Republic of Serbia can be defined as a well profitable sector and it is of great interest for the establishment of new audit firms as a part of the international network. The average rate of ROA in 2018 indicates that audit firms on average achieve a net income of 7,6% of total assets. With the development of other audit and non-audit services, audit firm can increase their profitability.

According to the second goal, it can be concluded that research hypothesis 1 is partially confirmed based on the research results. Research results indicate that large audit firms and audit firms with a higher level of debt ratio have a lower level of return on assets. On the other side, affiliation to the international network has a significant positive impact on profitability, measured as return on assets. Local audit firms achieve a lower rate of ROA, while audit firms that are operating as a part of an international network achieve a higher rate of ROA. These findings are according to previous research (see more: Mijic et al., 2019; Bills et al., 2015). The results of model 2 indicate that leverage has a negative effect on net income per employee. These results are the same as in model 1. On the other hand, regression analysis in model 2 provides that the level of the market is in positive relation to the net income per employee. Different results indicate that the profitability analysis is very complex and has to be done by several indicators. According to these findings, it can be concluded that hypothesis 2 is also partially confirmed.

Conclusion

The profitability of audit firms in the Republic of Serbia during the period of 2016-2018 has an increasing trend. Return on assets was negative at an average level in 2016 and 2017, while in 2018 it has increased at the level of 7,6%. Besides this indicator of profitability, the net income per employee has a significant increase in the observed

period. In 2018 the average net income per employee is more than ten times higher than in 2016.

To investigate which factors have a significant impact on the profitability of audit firms the regression analysis based on two models was conducted. According to the research results of regression model 1, the factors such as size and leverage have a significant negative impact on profitability, while the international network has a significant positive impact on profitability. Small audit firms reach a higher level of return on assets. Larger audit firms earn a greater amount of net income, but the profitability ratio (ROA) is on a smaller level because of their significant level of total assets. Audit firms with a higher level of debt ratio have a lower return on assets. These results should be investigated to use their debt, whether the debt is being used for business or for servicing the existing debt. Belonging to the international network can lead to a higher level of return on assets. The results of the second model of regression analysis provide that significant impact on net income per employee have leverage and market share. Leverage has a negative influence on the net income per employee, while the market share has a positive impact on the net income per employee. These indicate that the audit firm with a higher market share reaches a higher value of net income per employee.

The limitation of this research is a focus on one audit market. Future analysis should include similar audit markets and audit markets in the EU to investigate similarities and differences in profitability. The research results provide information about the profitability of audit firms in the Republic of Serbia and it can be of interest for management and the audit profession to improve the performance of audit firms and the audit market.

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