

COMPARATIVE ANALYSIS OF SELECTED BUSINESS INDICATORS OF STATE FOREST COMPANIES

KOMPARATIVNA ANALIZA ODABRANIH POKAZATELJA POSLOVANJA DRŽAVNIH ŠUMARSKIH PODUZEĆA

Stjepan POSAVEC¹, Ljiljana KEČA², Sabina DELIĆ³, Makedonka STOJANOVSKA⁴, Špela Pezdevšek MALOVRH⁵

SUMMARY

A company that handles natural resources such as forests is a complex economic entity. In addition to economic performance at annual level, the biological component of sustainable forest management should also be considered. It is therefore extremely important to achieve efficient business performance. Financial analysis is a process of determining important business and financial characteristics of a company from accounting data. It is characterized by a wide use of financial reports and various financial indicators - key figures. The paper presents business indicators of the main state-owned forest companies in selected countries of South East Europe (Croatia, Slovenia, Serbia, Bosnia and Herzegovina, and North Macedonia) using the method of comparative analysis based on financial reports (such as balance sheet and income statement). In countries where there are more than one state-owned forest companies, they were selected according to their importance for forest management and business results (share of forests, number of employees, profit and annual felling). The research results show the revenue and expenditure of the selected companies and profitability indicators such as return on equity (ROE) and return on assets (ROA). According to the annual business reports for 2017 and 2018, the company Croatian Forests Ltd. has the highest number of employees (7787 in 2018). The highest ratio ROA (32.17) and ROE (39.82) were achieved in the Slovenian state forestry company in 2017, which was founded in 2016. For 2018, the best results are achieved in the Slovenian Forest Company (SiDG), while the weakest results are achieved in the State Forest Company in North Macedonia. The profit per employee decreased in 2018 for most companies, but most significantly in North Macedonia, where it was four times lower. On the basis of the comparative analysis presented, all companies have a positive cost-benefit ratio, but long-term planning of forest management should follow biological and economic regulations to be competitive on the free market.

KEY WORDS: sustainable management, state forest companies, business performance, business indicators, profitability

INTRODUCTION

UVOD

Sustainable management of forests is essential for the environmental well-being of the world, as forests have a crucial

role in dealing with challenges of climate change, and in sustaining species and biodiversity conservation (European Commission 2003). Sustainable forest management (SFM) is the central concept of forest management in European

¹ Izv. prof. dr. sc. Stjepan Posavec, University of Zagreb, Faculty of Forestry, Svetošimunska 25, 10000 Zagreb, Croatia

² Prof. dr. sc. Ljiljana Keča, University of Belgrade, Faculty of Forestry, Kneza Višeslava 1, 11030 Beograd, Serbia,

³ Prof. dr. sc. Delić Sabina, University of Sarajevo, Faculty of Forestry, Zagrebačka 20, 71000 Sarajevo, Bosnia-Herzegovina

⁴ Prof. dr. sc. Makedonka Stojanovska, University of Skopje, Faculty of Forestry, 16-ta Makedonska Brigada No. 1, 1000 Skopje, North Macedonia,

⁵ Izv. prof. dr. sc. Špela Pezdevšek Malovrh, University of Ljubljana, Biotechnical University, Department of Forestry and Renewable Forest Resources, Večna pot 83, SI-1000 Ljubljana, Slovenia

countries (Forest Europe 2015) and plays a significant role in European bio-economy policies (Winkel 2017). The concept of SFM was originally developed at the Rio Earth Summit in 1992 where the non-legally binding Forest Principles initiated environmentally appropriate, socially beneficial and economically viable management of world's forests (Rametsteiner and Simula 2003). According to the FAO and UN Resolution (UN 2008), SFM is defined as a *“dynamic and evolving concept, which aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations”*. Therefore, forests and forest lands should be managed in a way that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfill relevant ecological, economic and social functions, at local, national and global levels. In addition, SFM certification was introduced in early 1990s as a voluntary innovative policy instrument to operationalize the concept of SFM and has directly influenced forest management practices (Pezdevšek Malovrh et al. 2019). Forest companies had consequently updated their forest management practices and business performances to meet the requirements of standards in accordance with SFM goals.

Due to the long-term production cycle, low capital turnover (at stand level) and specific products it is important to know the economic viability of forest management (Posavec et al. 2011, Posavec et al. 2012). Economic viability of forest management at the European level has been researched by different authors who used exclusively net present value as the main criterion for elaboration of economic efficiency (Klemperer 1996). Profitability analysis of forest companies in the context of forest management in Czech Republic was carried out by Leva et al. (2016). The aim of the research was to assess the financial situation of the companies (55 forest entities operating throughout the forest sector in Czech Republic) with focus on profitability. Liubachyna et al. (2017) analyzed the current situation of sustainable forest management organizations by grouping them with Cluster Analysis according to indicators reflecting the three pillars of the common understanding of the SFM concept. Toppinen et al. (2006) analyze the financial performance and internationalization of business in Finland with Quick Ratio measures and profitability indicators such as return of investment (ROI).

In selected Southeast European countries (SEE) – (Republic Bosnia and Herzegovina – BiH, Republic of Croatia, Republic of Slovenia, Republic of Serbia and Republic North Macedonia) the economic viability of forest management has been researched. The specifics of business analysis in forestry in Croatia were examined by Posavec (2004), pointing out the importance for the implementation of the economic elements of business indicators in forest management plans. Later, Kuric (2010) proposed a controlling model for the Croatian forest company. The study suggests

that controlling of forest companies is management-oriented and that the orientation of controlling in forest companies in developed market economies is predominantly strategic, whereas in transition economies it is predominantly operational. The cost-benefit analysis and the feasibility of capital investments in poplar short-rotation forests in Serbia were examined by Keča (2010, 2018). Business analysis of performance indicators in forest companies in Bosnia and Herzegovina show different levels of accumulation and reproduction capacity, and they could be useful as a strategic basis for business decisions. Especially those relevant for investments in biological reproduction (Delić et al. 2011; Delić et al. 2006, Delić and Avdibegović 2009). Delić (2017) also analyzes sustainable forest resources development and rural development in Bosnia and Herzegovina, as well as cost management. Baumgartner and Stojanovska (2014) analyze forest strategy in the Republic of North Macedonia, with obstacles for implementation.

Modern economic activity is characterized by fundamental changes in general conditions. Influence of technology accelerates its development, which brings opportunities, but also threats for some companies (Blagojević et al. 2019, Lemm et al., 2020). Globalization and internationalization open new markets and transfer competition from local or national markets to the world market. After market saturation, new markets and niches will emerge through differentiation, segmentation and innovation. Financial analysis is a process of determining key business and financial company characteristics based on accounting data. It is characterized by a wide use of financial reports and various financial indicators and creates an informative basis for the needs of management and decision making. It should be borne in mind that a financial analysis approach does not cover all elements of decision-making. In the modern business environment, traditional financial indicators are not sufficient to assess overall business performance, and it is recommended to use various non-financial indicators for efficient business decisions. It is particularly important for forest companies to emphasize corporate social responsibility, which is characteristic of forestry management. The main goal of every company is to create profit and conditions for stable business and future business development. Management of a company is based on strategic, tactical and operational business decisions in order to achieve strategically planned goals. The goal of business analysis is continuous business research to find the way to increase business results and performance. Due to the lack of research in the field of financial analysis of forest companies in selected SEE countries, the aim of this paper is to highlight the importance of business analysis and to highlight the main comparative business indicators and trends.

The method of comparative analysis is used to identify business indicators based on financial reports (such as balance

sheet, profit and loss statement) of forest companies operating with state-owned forests in Croatia, Slovenia, Serbia, BiH and North Macedonia. In Croatia, Serbia and North Macedonia state forest companies for this study were selected according to the Forest Law that have defined the responsible subject for the management of the state forests. The same applies for the Republic of Slovenia, where from 2016 there is only one state forest company, established on the basis of the Act on the Management of State Forests. State forest companies in BiH were selected according to their economic importance for forest management and business results (forest management area, growing stock, annual felling, and number of employees).

RESEARCH AREA AND METHODS

OBJEKT ISTRAŽIVANJA I METODA RADA

Research area – *Objekt istraživanja*

BiH's forests covers 3,231,500 ha of forest and other wooded areas (63,0 % of the country's land area) of which 1,652,400 ha are high forests (51.13%) and 1,252,200 ha are coppice forests (38.75%). The remainder is characterized as other wooded land and includes shrubs, barren woodland, and other wooded areas. Deciduous forests cover 70.1% of the area, conifers cover 12.4%, while mixed forests account for 17.5%. The total growing stock is about 453 million m³, the annual increment in all productive forests is 11.25 million m³, with annual felling of about 5.8 million m³. According to the statistical data, about 78% of the forest and forest area is state-owned, the rest is private (Statistical Report BH 2019). The organization of the forest sector in BiH varies across the administrative units (entities). Entities Federation BiH (FBiH) and the Republic of Srpska (RS) are responsible for environmental protection policy and use of natural resources, where forest resources are concerned. For the purposes of forest and forest land ownership rights, the entities are represented through Ministries of Agriculture, Water Management and Forestry. FBiH introduced the decentralized model of management and administration with forest resources while the RS centralized model. The management with the state forests in FBiH is transferred by the agreement to the cantonal level, where 8 cantonal forest companies and 4 independent forest offices are established. In the entity of RS public forest company (JPŠ »Šume RS« a.d. Sokolac) manage with state forests.

According to the Forest Management Plan of the Republic of Croatia from 2016 to 2025 (Hrvatske šume d.o.o., 2017), total forest and forest land coverage is 2,759,039.05 ha (49,3% of the country's land area). Of that number, state property is 2,097,318.16 ha (76%), and private is 661,721 ha (24%). Total growing stock of state and private forests amounts to 418.6 million m³. The annual growth is 10.1

million m³ (7.5 million m³ in state forests and 2.2 million m³ in private forests). Annual felling in state-owned forests is 7,325,000 m³, and 1,087,000 m³ in private forests. The state-owned forest company Croatian forests Ltd (Hrvatske šume d.o.o.) is responsible for the management of most (97%) of the country's state-owned forests and forest areas. The remaining 3% belong to other public institutions such as municipalities, the military, etc. Main tree species are beech (37.2%), common oak (11.6%) and sessile oak (9.4%).

About 38% of the area in North Macedonia is covered by forests, 90% of which belong to state and are managed by state - Public company "National Forests". The total forest area is 1,159,600 ha, of which 947,653 ha are forests. The total growing stock is 74,343,000 m³, and the total annual increment is 1,830,000 m³ with an average annual increment per hectare of 2.02 m³/ha. The main tree species per area in the forests are oak which is present with about 30%, then beech with about 23% from the deciduous trees and coniferous black pine (0.85%) and fir (0.65%).

Slovenia's forest area covers 1,180,281 million ha (58.2 % of the country's land area), with about 6 million m³ harvested annually since 2014 (ZGS 2018). Most of Slovenia's forests are located in the region of beech (44 %), beech-fir (15 %) and beech-oak (11 %) sites, all of which have a relatively high production capacity. The average growing stock is 302 m³/ha and is gradually increasing, while the amount of increment stands at 7.5 m³/ha and is also increasing. At present about 76 % of the forests in Slovenia are privately owned, 21% are state owned and 3% are owned by local communities (ZGS 2018, Živojinović et al. 2015). State forests are managed by the state forestry company "Slovenski državni gozdovi d.o.o." (SiDG). SiDG was established by a Management of the state forests Act approved by the government on 14 October 2015 and subsequently Slovenian Parliament adopted on 2 February 2016 (<https://eustafor.eu/sidg-the-new-slovenian-state-owned-company-joins-eustafor>).

According to the 2009 National Forest Inventory of the Republic of Serbia, the total forest area amounts to 2,252,400 ha, which is 29.1% of the country's total land area. Of this, 1,194,000 ha or 53% is state-owned, and 1,058,400 ha or 47% is privately owned. The total growing forest stock amounts to 362,487,000 m³, and the annual increment is 9,079,000 m³ of timber (Banković et al. 2009). Public forest company "Srbijašume" is responsible for management with state forests and performs professional-advisory service activities in private forests. The share of broadleaves is 81% and conifers 19%. Main tree species in growing stock are beech 62%, oaks 13% and fir and spruce 10%.

Methods – *Metoda rada*

Analysis of financial reports forthcoming to the planning process, which is an integral part of management. Planning

is one of the key factors for good management. The good financial plan should accept good features of the company and also weaknesses. For this reason, the task of financial analysis is to identify good features of the company that could be exploited and also to identify weaknesses of the company that could be corrected. With the aim of ensuring the financial stability of the company, the financial manager should plan its future financial conditions, which should start with the analysis of financial reports as an informative basis for decision-making and management of the company. Business analysis for the needs of managers, from financial aspects, considering the analysis of financial results, financial conditions, financial structure and changes in the financial structure. Financial reports and indicators show the diagnosis of business activities on the basis of data from previous transactions of the previous period. With the help of business analysis, managers look for parameters that will allow them to forecast future trends or parameters that could serve as a basis for selecting investment options. In this context, financial report analysis is a process for implementing various analytical sources and techniques that could help convert useful information from financial reports relevant to management. Various analytical sources and techniques are used in the analysis of financial reports, such as: a) Comparative financial reports, where changes can be observed over time (more accounting periods) and the trend of changes can be observed using index series, b) Structural financial reports, which provide a multi-layered structure, c) Analysis by indicators, d) Specialized analysis

The basic data for the analysis of financial reports are the balance sheet and the profit and loss account. In the horizontal and vertical analysis, the data from the reference date is compared within the same categories. It is very important to analyze different categories, which allows for using cost-effectiveness and profitability indicators (ROI, ROE). Profitability indicators are usually calculated in the same way as the return on property equity (ROE) and return on assets (ROA) indicators. Both indicators are calculated from the data of the profit and loss account and the balance sheet. When calculating the return on equity (ROE), the net profit (NP) is related to the company's equity (capital and reserves).

$$ROE = \frac{NP}{C}$$

For the purpose of calculating the return on assets (ROA) in relation are net profit (NP) and total assets (TA).

$$ROA = \frac{NP}{TA}$$

Profitability is assessed in relation to costs and expenses and analyzed in comparison to assets to see how effectively a company uses its assets to generate sales and ultimately

profits. The profitability indicators also show whether it makes sense for the company to use financial leverage or take out a loan. By definition, if the return on equity is higher than the return on assets, it is profitable to borrow or use external sources of finance.

Cost-effectiveness indicators are calculated on the basis of data from the profit and loss account and the current relationship between income and expenditure, or it is indicated how many units of income are realized by the unit of expenditure. The ratio between total revenue (TR) and total expenditure (TE), results in an indicator of overall cost-effectiveness or cost-effectiveness of the whole activity. It is implied that it is better if this ratio is higher.

$$CE = \frac{TR}{TE}$$

With vertical analysis of annual reports of forestry companies in selected SEE countries, selected business indicators are analyzed.

RESULTS REZULTATI

Business analysis of selected forest companies – *Analiza poslovanja odabranih šumarskih poduzeća*

A cantonal forest company from FBiH (ŠPD »Unsko-sanske šume« d.o.o.) and Public Forest Company "Forests" RS (JPŠ »Šume RS a.d.«) from the Republic of Srpska were selected for the research. Forest Company "Unsko-sanske Šume Ltd. is a company for state forest management, utilization, protection and construction of forest roads. The company manages 179,977 ha in Unsko-Sanski Canton, which is 15% of the total state forest area in FBiH. The share of high forests is about 47% and coppice 48%. The average annual felling is about 400,000 m³. In 2017, annual logging amounted to 392,770 m³, and in 2018 to 386,238 m³. The public forest company JPŠ »Šume RS« a.d. (public limited company - Plc) Sokolac manages forest and woodland areas of 999,649 ha. The share of high forests is about 54%, and coppice about 21%. The volume of realized annual cut in JŠP »Šume RS a.d.« in 2017 was 1,984,778 m³, and in year 2018 was 1,963,551 m³. The data on the realized business results of the forest companies »Unsko-sanske šume d.o.o.« and JPŠ »Šume RS a.d.« in 2017 and 2018 are presented in Table 1. and 2.

Croatian Forests Ltd. is a three-layered trading state company, with its Headquarter in Zagreb, 17 regional forest administrations (subsidiaries) and 169 regional forest offices. The company is being led by the Management Board, its work is controlled by the Supervisory Board (both appointed by the Government of Croatia), while the basic decisions are made by the Assembly. The company has 5 sub-

Table 1. Achieved business results of selected forest companies in 2017 (in EUR)
 Tablica 1. Ostvareni rezultati poslovanja odabranih šumarskih poduzeća u 2017. godini

Company	PC Srbija forests, JP Srbijašume	Croatian Forests Ltd., Hrv.šume d.o.o.	PC National Forests, JP Nacionalne šume	Unsko-sanske forests Ltd., ŠPD Unsko sanske šume d.o.o.	PC Forests RS plc., JPS Šume RS a.d.	Slovenian State Forests Ltd., SIĐG d.o.o.
Year 2017	EUR	EUR	EUR	EUR	EUR	EUR
Total revenues	63,340,058	280,597,181.46	27,832,355	16,407,142.75	99,318,319	58,212,816
Ukupan prihod						
Total expenditures	55,768,202	261,305,471.42	26,603,696	16,235,648.80	96,626,098.89	41,333,548
Ukupan rashod						
Profit before tax (bruto)	5,081,104	19,291,710.04	1,228,659	288,114.00	2,692,220.69	16,879,268
Dobit prije oporezivanja						
Loss before tax	–	–	–	–	–	–
Gubitak prije oporezivanja						
Profit tax	1,387,513	3,903,669.09	126,518	30,053.74	287,408.41	3,238,212
Porez na dobit						
Profit after tax (neto)	3,693,590	15,388,040.94	1,102,141	258,060.26	2,404,812.27	13,276,653
Dobit nakon poreza (neto)						
Loss after tax	–	–	–	–	–	–
Gubitak nakon poreza						
Number of employees	3033	7 341	2.220	568	4 847	168
Broj zaposlenih						
Total revenue per employee	2,088.36	38,223.29	12,537	28,885.81	20,490.68	139.372
Ukupan prihod po zaposlenom						
Profit after tax per employee	1,217.8	2,096.17	496	454.33	496.14	79.027
Dobit nakon oporezivanja po zaposlenom						
Total assets	1,126,084,657	328,759,067.49	966,707,974	20,062,066.74	65,293,263.22	46,518,547
Ukupna imovina						
Assets per employee	365.389	44,783.96	432,526	35,320.54	13,470.86	276.896
Imovina po zaposlenom						

1 EUR = 7,392207 HRK, 1 EUR = 120,45 RSD, 1 EUR = 61.6407 Denars, 1 EUR = 1,95 KM

sidiaries of the company for wood processing, quarrying, tourism and consulting. They will be abolished in 2020 and integrated into the main structure of the company. The main objective of the company is to manage forest and woodland in state ownership, which represents 2,018,987 ha or 75% of the total forest area of the country. Besides the forest and woodland, the company also manages significant hunting and tourist resources. The company's main source of income is the sale of forest timber assortments, work on biological resources and other income. According to the Forest Law, dated April 8, 2002, the company has not presented the forest and woodland property as property and capital. Only building land with an estimated value is included in the asset. The average annual harvest is 5.5 million m³.

The Public Company for Forests Management »National Forests« was established in North Macedonia on 1 July 1998 as the legal successor of 30 forest economic entities that had managed forests until then. In order to carry out its activities successfully and efficiently, the company is organized into a central office and thirty branch offices with a centralized budget and decision-making system. The company manages 859,427 ha of state forests and fells 1,200,000 m³ annually. For efficient and rational management, the forests have been divided into commercial forest units. The management of private and state forests, regardless of their purpose, is now carried out in accordance with the general management plans adopted by the Government of the Republic North Macedonia for a period of twenty years.

Comparative analysis of selected business indicators for different forest companies for year 2017, is presented in table 1, and for year 2018 in table 2.

Table 2. Achieved business results of selected forest companies in 2018 (EUR)
 Tablica 2. Ostvareni rezultati poslovanja odabranih šumarskih poduzeća u 2018. godini

Company	PC Srbija forests, JP Srbijašume	Croatian Forests Ltd., Hrv.šume d.o.o.	PC National forests, JP Nacionalne šume	Unsko-sanske forests Ltd., ŠPD Unsko sanske šume d.o.o.	PC Forests RS plc., JPŠ Šume RS a.d.	Slovenian State Forests Ltd., SiDG d.o.o.
Year 2018	EUR	EUR	EUR	EUR	EUR	EUR
Total revenues Ukupan prihod	68,786,260	301,625,347	27,238,787	16,983,855	103,888,529.17	76,902,107
Total expenditures Ukupan rashod	61,324,901	292,318,925	26,942,478	16,689,622.82	101,473,679.21	62,745,479
Profit before tax (bruto) Dobit prije oporezivanja	8,633,559	9,306,422	296,309	294,232.12	2,414,849.45	14,156,628
Loss before tax Gubitak prije oporezivanja	-	-	-	-	-	-
Profit tax Porez na dobit	1,784,688	2,287,950	35,544	37,557.46	362,157.75	2,410,699
Profit after tax (net) Dobit nakon poreza (neto)	7,252,380	7,018,472	260,765	256,674.66	2,052,691.70	11,899,462
Loss after tax Gubitak nakon poreza	-	-	-	-	-	-
Number of employees Broj zaposlenih	3 270	7787	2.250	557	4,969	239
Total revenue per employee Ukupan prihod po zaposlenom	21.036	38,734.47	12.106	30,491.66	20,907.00	106.353
Profit after tax per employee Dobit nakon oporezivanja po zaposlenom	2.218	901.31	116	460.82	413.10	49,788.54
Total assets Ukupna imovina	1,135,509,800	335,051,765	968,422,821	20,096,724.66	70,492,769.31	49,105,525
Assets per employee Imovina po zaposlenom	347.251	43.027	426,019	36,080.30	14,187.51	205.462

Until 1 July 2016, Slovenia's state forest, had been managed by the Farmland and Forest Fund. In 1996, the State of Slovenia had granted concessions for twenty years to 14 former forestry companies that had already managed state forests before 1996, without a public tender. The management of Slovenian state forests was transferred from Farm land and Forest Fund to SiDG as of 1 July 2016. Within the framework of the management of state forests, SiDG is now responsible for timber harvesting, sale of timber, transport of timber assortments, maintenance of forest infrastructure (with the exception of forest roads), forest protection and silvicultural works, all other works necessary for fulfilling social and ecological functions, and other activities directly or indirectly related to the State Forests. In 2018 the annual felling amounted to 1,389,038 m³ in an area of 235,000 ha of forest. The main difference in today's forest management compared to the previous system concern the procedures for selling timber (timber is now sold directly by SiDG to consumers and no longer indirectly through concessionaires) and the system of public tendering, which is the basis for selecting contractors for the implementation of timber harvesting and forestry measures in the state forests.

The public state company Serbian Forests (JP »Srbijašume«) manages state forests and forest areas on an area of 892,073 ha and carries out professional advisory services in private forests on an area of 1,223,627 ha. The company commenced its activities on October 1, 1991 in accordance with the Forestry Act, with the aim of managing forests, protected natural values and hunting grounds in an integrated manner and according to the principles of sustainable forestry and profitability, as well as increasing forest cover and improving the existing forest fund of the Republic of Serbia. The company fulfills both its public and business mission through 19 divisions (17 Forest Estates, Bureau of Planning and Design in Forestry and Protection Work Office). It consists of 67 Forest Administrations and 15 working units.

The annual cut is 1,450,000 m³ of net timber assortments, of which 530,000 m³ are round timber and other technical timber and 920,000 m³ of cordwood.

Comparative analysis of selected business performance indicators – *Komparativna analiza odabranih pokazatelja poslovanja*

Vertical analysis or analysis of the structure, take as reference the main financial data, and all other data is taken in comparison with the referent data. It is applicable for revealing the internal structure in the individual company. It shows the current relationship between each category in the balance sheet and the total net revenue. It also shows the mix of assets that allow for certain total net revenues and the mix of capital sources or long-term commitments or share capital that allow for precise net revenues. Following the vertical analysis of the business activities of selected companies, Table 3 shows the main business indicators for the years 2017 and 2018 from the annual reports. The best results were achieved by state-owned company SiDG Ltd. from Slovenia, which has the best ROA indicator (32.02), ROE (39.82) and income per employee. The lowest indicators ROA and ROE are in the state-owned forest company »National Forests« (0.03), which indicates low realized profit and high value of capital with reserves and total company assets used in the calculation of the indicators.

All analyzed forest companies are cost effective, or the ratio of input to output is higher than 1, but this ratio is most favorable in Slovenia with 1.28 and Serbia with 1.14, which means high cost effectiveness in 2017. The business results of Slovenian state forest company are much better compared to other analyzed forest companies. Profit per employee has decreased for most analyzed forest companies in 2018, except Unsko-sanske forests Ltd. and has significantly decreased in case of North Macedonia where it is four times lower in 2018 compared to 2017. Although the

company Croatian Forests Ltd., which works with the largest forest and woodland area and has the highest annual harvesting rate, does not have such good business indicators compared to other selected state forest companies. The reduced profit, but still a high number of employees in the company (more than 7000, the highest compared to other analyzed forest companies), was influenced by a three times lower profit per employee in 2018. The Slovenian state forestry company - SiDG has the lowest number of employees (only 168 in 2017), which certainly creates the opportunity for the best realized profit per employee, which was EUR 79,027 in 2017.

The Public enterprise National forests is established as a public company, and according to that is not profit oriented, its main activity is forest management. In business reports, the company shows low level of profit per employee in 2018 (Table 3). The main reason for the big differences in ROE and ROA in analyzed years are provision of tenders for forest exploitation. Another significant issue, which also affects business results of the company, is increasing the number of employees, and increase of expenses for forest management.

Analysis of the business results in company Unsko-Sanske Forests Ltd. does not show significant differences in two years results. In public enterprise Forests RS, indicators show lower values for the ROE, ROA, and profitability in 2018. One of the reasons is the decrease of the total harvesting rate with an increased share of the sanitary cuttings, because of the snow brake. Besides that, total realized revenue is higher in 2018, particularly due to the higher prices for the wood assortments. Exploitation costs were higher because of the increase of the prices for the external contractor's service. Total operating expenses were higher, principally because of the higher investments (about 15% more than in year 2017), and higher number of employees, which caused profit decrease. Although, total assets value is increased in 2018, changes in structure of assets and liability,

Table 3. Comparative view of business results of selected forest companies

Tablica 3. Usporedni prikaz poslovnih rezultata odabranih šumarskih poduzeća

Indicators Pokazatelj	PC Serbian Forests Ltd.		Croatian Forests Ltd.		PC National Forests		Unsko-Sanske forests Ltd.		PC Forests RS		Slovenian State Forest Company Ltd.	
	JP Srbija šume		Hrvatske šume d.o.o.		JP Nacionalne šume		ŠPD Unsko-sanske šume d.o.o.		JPŠ Šume RS a.d.		SIDG d.o.o.	
	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
Return on Equity ROE Povrat na kapital	0.34	0.65	7.1	3.28	0.12	0.03	1.54	1.56	8.11	6,67	39.82	31.03
Return on Assets ROA Povrat na imovinu	0.32	0.64	4.68	2.09	0.11	0.03	1.29	1.28	3.68	2.92	32.17	24.89
Cost effect. Ekonomičnost	1.14	1.12	1.07	1.03	1.05	1.01	1.01	1.02	1.03	1.02	1.28	1.20
Profit/Employee Dobit/Zaposlenom	1218	2218	2096	901	496	116	454	461	496	413	79027	49788

and increase of short time indebtedness results with distortion of company financial stability, what is visible from the presented business indicators. Like other analyzed forest companies, the main income is realized from the selling of the wood assortments (about 90%).

Favorable financial results in Public Enterprise Srbijašume in 2018 are mainly due to the increase of the income from the wood assortments with higher production volume in 2018. In favor of that, increase of demand for the fuel wood as a result of the new installed factories for the wood pellet production. Improvement of the business results also contribute company measures which are restoration and improvement of the forest condition, forest care and protection, increment of forest area, afforestation of areas without vegetation, conversion of the low-quality forests to the high value forest stands seedling origin. In this way the company increases demand quality, which creates market conditions for realization of higher prices and better business results with regard to that.

Business results in Slovenian state forest company SiDG Ltd. in 2018 shows some changes in business performance compared to year 2017. In 2018, the company sold 1.451.694 m³ of forest wood assortments at an average price of 50.09 EUR/m³. Therefore, revenues from sales mainly refer to revenues from the sale of forest wood assortments – in 2018 they amounted EUR 72.721.341 and were for 27% higher compared to the year 2017. On the other hand, operating expenses increased in 2018 compared to 2017. Cost of material and services, which have the largest share in the structure of operating expenses were 65.9% higher in 2018. Moreover, labor costs were for 37.7% higher due to 71 new employees (these have also affected lower profit per employee) and other operating expenses for 27,7 % due to higher sales revenues from wood assortments and consequently higher compensation for forest management. Business performance in 2018 was significantly affected by increased harvesting and logging costs (the increase of the prices for the external contractor's service). They increased because of the extremely increased hazard of work in damaged forests after windbreaks and the situation on the market of harvesting and logging services in Slovenia and in the surrounding countries. Due to the natural disasters and bark beetle attack after that demand for services significantly exceeded the supply. The total costs of production of forest wood assortments were on average 23.98 EUR /m³, which is 19% above the planned value. In 2017, the costs amounted to 18.72 EUR/m³.

In forest company Croatian Forests, business results in 2018 show significant change from 2017. According to the new Forest Law (NN 68/2018), the company should increase the assignment of the forest levy for the local municipalities in amount of 10% from the stumpage price in mountain areas and 5% in other counties. That caused additional costs of 5.3 mil EUR in 2018 for the company. Also, in 2018, the

company continued with higher investments in forest machinery, which was postponed in previous years. Because of that, depreciation costs increased for 12%. In total costs salaries participated with 11%, because of the increased number of full-time employees (6% more than year 2017) and average salary value (2% more than average net salary on the country level). In comparison with year 2017, total costs for employees increased 12%. Other business expenses increased for 16% from year 2017 (especially insurance premium increased for 29%). In 2018 the company increased service for the forest exploitation for 31% from year 2017, mainly for the cut and production of wood assortments.

DISCUSSION AND CONCLUSIONS RASPRAVA I ZAKLJUČCI

The paper presents the role of the company in the management of sustainable natural resources. Although forestry accounts for an average of 2% of the gross domestic product of each country in all selected countries, this industry plays a key role in achieving strategic goals for development of bio-economy and rural areas in Europe. The analyzed results of the forestry companies indicate good business results and indicators. However, there is room for improvement in the area of governance and implementation of economic regulations in management plans.

The overall prerequisite for long-term business activity is expansion of the value or corporate target function is value enhancement. With regard to the validity of the long-term existence of a company and legitimacy of value enhancement, it represents the right nature of a company's complexity (Tintor, J., 2009). Management cycle with forest resources is longer than a business entity's fiscal year. Forest planning develops in accordance with short- and long-term goals (10-20 years). The main question is how biological parameters should be included in the normative part, or what tax policy should look like at the level of an annual report of the financial sector. For the time being, the relevant and basic indicators for a business analysis of a forest company are cost efficiency, profitability and return on investment. They are developed as a result of implementing international accounting standards and predicting future profitability of a business unit in managing forest resources. The future impact and understanding of the value of this resource will change many parameters of the business analysis.

In order to improve a forest company's business results, there is a need to estimate development potential, based on the growing stock quality and quantity in relation to the wood assortments structure, annual cut and value. Because of these constraints, realization of higher revenues from the wood assortment sale could be achieved with implementation of innovation in forest exploitation, better sales models

of forest products, better organization of commercial and marketing departments, some of which are missing in most of the analyzed countries.

Respecting the multifunctionality role of forest resources, there are objective possibilities for use of other forest functions, as a basis for extension of production-business portfolio. That belongs especially to the non-wood forest products (forest fruits, mushrooms, game management etc.), and development of new products and services in relation with socio-economic forest functions. Based on these available potentials, it is possible to define business policy and make a strategic decision in forest companies. Implementation of controlling in a forest company means coordinative and integral approach in planning, monitoring and control of business processes from the view of the harmonization of forest management goals with annual business plan of a company, including reporting and informing about the strategic goal's achievement. Harmonization of biological (natural) business component and economic component (which provide company existence as economic subject), demand high level of coordination on different decision-making levels in a company. Balanced Scorecard (BSC) is a popular methodology proposed by Kaplan and Norton (1992), to integrate financial and nonfinancial aspects with general management of a company. The BSC assists in the identification and management of improvements in financial and nonfinancial business goals simultaneously (Figge et al, 2002). Sustainability Balanced Scorecard (SBSc) could serve as an instrument for strategic and operative governance as an integral part of a controlling system. It consists of conceptual, structural, environmental, social, and economic aspects with objectives and key performance indicators for each aspect (Hristov, I., et al., 2019). Analyzed companies implement International Accounting Standards in reporting, but implementation of additional tools like controlling and sustainable balanced scorecard is missing. Implementation of key performance indicators is missing in business reports of the analyzed forest companies. They need to express strategic tasks about what organization is trying to do. According to the OECD report (OECD, 2000), sustainable development indicators are needed to inform decisions and raise awareness. There is still a gap between the demand for sustainable development indicators and the actual use of such indicators. Whereas economic, social and environmental indicators have individually proven their value in policy formulation, the use of combined sets of sustainable development indicators in the overall policy debate needs to be further strengthened.

Acknowledgments: Each author is responsible for their country data, and all authors have read and agreed to the published version of the manuscript.

REFERENCES LITERATURA

- Banković S., M. Medarević, D. Pantić, N. Petrović, B. Šljukić, S. Obradović, 2009: The growing stock of the Republic of Serbia - state and problems. *Bulletin of the Faculty of Forestry* 100: 730.
- Baumgartner, J., M. Stojanovska, 2014: Forest Strategy in Republic of Macedonia: Barriers to Effective Implementation, *South-east European forestry, SEEFOR*, Vol. 5 No. 1, pp 23-33
- Blagojević et al. 2019: Multi-Criteria Decision Analysis (MCDA) in Forest Operations – an Introduction Review. *Croatian Journal of Forest Engineering* 40(1): 191–205.
- Delić, S., Lj. Keča, A. Ibrahimspahić, A. Čabaravdić, D. Behlulović, 2017: Value chain analysis of non-wood forest products in function of sustainable development of forest resources and rural development in Bosnia and Herzegovina, *Agriculture&Forestry/Poljoprivreda i Šumarstvo*, 2017, 63 (1)
- Delić, S., M. Avdibegović, 2009: Prihodi i troškovi proizvodnje u šumarstvu Federacije Bosne i Hercegovine (Revenues and cost of forestry production in Federation of Bosnia and Herzegovina), *Radovi Šumarskog fakulteta*, Vol. XL, No. 2, Šumarski fakultet Univerziteta u Sarajevu, Sarajevo, str. 71–82,
- Delić, S., M. Avdibegović, D. Bećirović, B. Marić, S. Mutabdžija, A. Brajić, E. Pružan, 2011: Forest management costs in the Federation of B&H and cost management. *Radovi Šumarskog Fakulteta*, Vol. 41 (1), Šumarski fakultet Univerziteta u Sarajevu, Sarajevo, str. 59-71
- Delić S, Š. Šaković, M. Avdibegović, 2006: The Characteristics and Preliminary Analysis of Forest management Costs, *Works of the Faculty of Forestry University of Sarajevo XXXVI* 1:p.13.
- European Commission, 2003: Sustainable Forestry and the European Union, Initiatives of the European Commission, Office for Official Publications of the European Communities, Luxembourg
- Figge, F., Hahn, T., Schaltegger, S., & Wagner, M. (2002). The sustainability balanced scorecard—Linking sustainability management to business strategy. *Business Strategy and the Environment*, 11(5), 269–284.
- FIRMA, 2012: Izgledi bh. industrije za 2012. godinu, drvoprerađivački i metaloprerađivački sektor
- Food and Agriculture Organization FAO, 2015: Analiza sektora šumarstva u Bosni i Hercegovini, Projekat »Priprema analiza sektora šumarstva i ribarstva u Bosni i Hercegovini u svrhu IPARD-a«, Regionalna kancelarija za Evropu i centralnu Aziju, FAO (dostupan na <http://www.fao.org/3/a-au015o.pdf>)
- Forest Europe, 2015: State of Europe's Forests 2015. Ministerial Conference on the Protection of Forests in Europe, Madrid, p. 314.
- Hanewinkel, M. 2002: Comparative economic investigations of even-aged and uneven-aged silviculture systems: a critical analysis of different methods. *Forestry*, 75 (4): 473-481.
- Hristov I., A. Chirico, A. Appolloni, 2019: Sustainability Value Creation, Survival, and Growth of the Company: A Critical Perspective in the Sustainability Balanced Scorecard (SBSC), *Sustainability* 2019, 11, 2119, pp 1-29
- Hrvatske šume d.o.o., 2017: Šumskogospodarsko područje Republike Hrvatske, Šumskogospodarska osnova, uređani zapisnik, od 2016. do 2025. godine, Zagreb

- Hrvatske šume d.o.o., 2018: Godišnje izvješće za 2017 godinu, Hrvatske šume d.o.o., Zagreb
- Hrvatske šume d.o.o., 2019: Godišnje izvješće za 2018 godinu, Hrvatske šume d.o.o., Zagreb
- Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard—Measures that drive performance. *Harvard Business Review*, 70, 71–79.
- Keča, Lj., 2010: Estimation of cost-effectiveness of poplar wood production in Ravni Srem by applying the net present value method - *Glasnik Šumarskog fakulteta*, 2010, br. 101, str. 81–100
- Keča, Lj., 2018: Capital Budgeting Applied to Serbian Poplar Plantations, *South-east European forestry : SEEFOR*, Vol. 9 No. 2, 2018.
- Klemperer, D. W., 1996: *Forest Resource Economics and Finance*, Columbus, McGraw-Hill, 551 str.
- Kuric, D., 2010: Istraživanje obilježja kontrolinga u državnim šumarskim poduzećima, *Zbornik Ekonomskog fakulteta u Zagrebu*, godina 8, br. 1., 2010.
- Lemm et al., 2020: Improving Economic Management Decisions in Forestry with the SorSim Assortment Model. *Croatian Journal of Forest Engineering* 41(1): 71–83.
- Levá, M., H. Čermáková, M. Stárová, H. Vostrovská, 2016: The assessment of forestry companies in the Czech Republic with focus on profitability, *Journal of Forest Science*, 62, 2016 (3): 116–125
- Liubachyna, A., A. Bubbico, L. Secco, D. Pettenella, 2017: Management Goals and Performance: Clustering State Forest Management Organizations in Europe with Multivariate Statistics, *Forests*, 2017, 8, 504
- Organization for Economic Co-operation and Development (OECD), 2000: *Towards Sustainable Development, Indicators to measure progress*, Proceedings of the OECD Rome Conference, Rome, Italy
- Pezdevšek Malovrh, Š., D. Bećirović, B. Marić, J. Nedeljković, S. Posavec, N. Petrović, M. Avdibegović, 2019: Contribution of Forest Stewardship Council Certification to Sustainable Forest Management of State Forests in Selected Southeast European Countries, *Forests* 10 (8), 648
- Posavec, S., K. Beljan, S. Krajter, D. Peršun, 2012: Calculation of economic rotation period for even-aged stand in Croatia, *South-east European forestry* 2 (2), 109–113
- Posavec, S., 2004: Specifičnosti poslovne analize entiteta za gospodarenje šumom i šumskim zemljištem, *Šumarski list*, 2004 (5–6).
- Posavec, S., J. Zelić, I. Fliszar, K. Beljan, 2011: Primjena modela izračuna troškova u vrednovanju šuma UŠP Požega. *Croatian journal of forest engineering*, 32 (1): 457–467.
- Rametsteiner, E., M. Simula, 2003. Forest certification—an instrument to promote sustainable forest management?, *Journal of Environmental Management* 67, 87–98.
- Statistički bilten, 2019: Šumarstvo, Federalni zavod za statistiku FBiH, Sarajevo (<http://fzs.ba/index.php/publikacije/godisnji-bilteni/sumarstvo/>)
- Statistički bilten, 2019: Šumarstvo, Republički zavod za statistiku RS, Banja Luka (https://www.rzs.rs.ba/static/uploads/bilteni/sumarstvo/Bilten_Sumarstva_2019_WEB.pdf)
- Tintor, J., 2009: *Poslovna analiza*, Masmedia, Zagreb, ISBN 978-953-157-528-7
- Toppinen, A., K. Lähtinen, S. Laaksonen-Craig, 2006: Financial Performance and Internationalization of Operations: Evidence from Finnish Forest Industry Companies, *Journal of Forest Products Business Research*, Volume No. 3, Article No. 2
- UN Resolution adopted by the General Assembly, 2008: Non-legally binding instrument on all types of forests, UN 2007 Sixty-second session Agenda item 54, 62/98.
- Winkel, G., 2017: Towards a sustainable European forest-based bioeconomy – assessment and the way forward, in: Winkel, G. (Ed.), *What Science Can Tell Us* 8. European Forest Institute, p. 162.
- ZGS, 2018: Poročilo Zavoda za gozdove Slovenije o gozdovih za leto 2017. Zavod za gozdove Slovenije, Ljubljana.
- Živojinović, I., G. Weiss, G. Lindestav, D. Feliciano, T. Hujala, Z. Dobšinska, A. Lawrence, E. Nybakk, S. Quiroga, U. Schraml, 2015: Forest Land Ownership Change in Europe. COST Action FP1201 FACESMAP Country Reports. University of Natural Resources and Life Sciences (BOKU), Vienna, Austria, p. 693.
- Informacije o gospodarenju šumama u Federaciji Bosne i Hercegovine (<http://fmpvs.gov.ba>)
- Izvještaj o izvršenju proizvodno-finansijskog plana, JPŠ »Šume Republike Srpske«, 2018 (<http://sumerepublikesrpske.org/>)
- Izvještaj o radu i poslovanju ŠPD »Unsko-sanske šume« d.o.o. Bosanska Krupa za period 01.01.-31.12.2018.godine (http://www.ussume.ba/dokumenti/izv_o_radu_2018.pdf)
- Godisni Izvještaji o izvršenju proizvodno finansijskih planova, 2017: JP »Nacionalni šume« (http://www.mkdsumi.com.mk/index_mkd_sumi_en.php?page=1).
- Godisni Izvještaji o izvršenju proizvodno finansijskih planova, 2018: JP »Nacionalni šume« (http://www.mkdsumi.com.mk/index_mkd_sumi_en.php?page=1).
- Srbijašume, 2018: Godišnji izveštaj o poslovanju javnog preduzeća za gazdovanje šumama, 2017 godina, Srbijašume

SAŽETAK

Poduzeće koje upravlja prirodnim resursom, šumom, predstavlja kompleksnu ekonomsku cjelinu. Osim ekonomskih pokazatelja na godišnjoj razini, dugoročno se mora voditi računa i o biološkoj komponenti potrajnog gospodarenja šumom. Dakle, iznimno je važno, učinkovito poslovanje. Financijska analiza je postupak utvrđivanja značajnih poslovnih i financijskih karakteristika poduzeća iz računovodstvenih podataka. Karakterizira je široka uporaba financijskih izvješća i raznovrsnih financijskih indikatora – pokazatelja. U radu će se pomoću metode komparativne analize prikazati pokazatelji poslovanja u poduzećima koji gospodare šumama u državnom vlasništvu Republike Hrvatske,

Republike Slovenije, Republike Srbije, Bosne i Hercegovine te Sjeverne Makedonije, na temelju financijskih izvješća (kao što su bilanca, račun dobiti i gubitka). Kako neke zemlje posjeduju više državnih šumarskih poduzeća, odabrana su ona koja gospodare većom površinom šume, brojem zaposlenih, profitabilnošću i godišnjim etatom. Korištenjem analize poslovanja, analizirati će se parametri koji predviđaju buduće trendove poslovanja. U radu su izračunati prihodi i rashodi odabranih poduzeća, ekonomičnost, te pokazatelji profitabilnosti, koji se najčešće izračunavaju kao pokazatelji povrata na vlasničku glavnica (ROE) i pokazatelji povrata na ukupnu imovinu (ROA). Na temelju poslovnih izvješća za 2017. i 2018. godinu, najveći broj zaposlenih ima tvrtka Hrvatske šume d.o.o. (7787 u 2018. godini). Najviši pokazatelj ROA (32,17), i pokazatelj ROE (39,82) ostvaren je u tvrtki Slovenske državne šume 2017. godine, koja je osnovana 2016. godine. U 2018. godini, najbolje poslovne rezultate ostvarila je tvrtka iz Slovenije (SiDG d.o.o.), dok su najslabiji rezultati šumarskog poduzeća iz Sjeverne Makedonije. Dobit po zaposlenom se za većinu poduzeća smanjila u 2018. godini, a najznačajnije upravo u Sjevernoj Makedoniji gdje je četiri puta niža. Na temelju provedene usporedne analize, iako sva poduzeća posluju ekonomično, vidljivo je da dugoročno planiranje u šumarstvu treba osim bioloških slijediti i ekonomske zakonitosti, kako bi bili uspješni na slobodnom tržištu.

KLJUČNE RIJEČI: potrajno gospodarenje, državna šumarska preduzeća, pokazatelji poslovanja, profitabilnost poslovanja