

# IDENTIFICATION OF THE ASSETS AND CAPITAL STRUCTURE OF FOREST ENTERPRISES IN SLOVAK CONDITIONS

Iveta Hajdúchová, Stanislava Krišťáková

Technical University in Zvolen, Faculty of Forestry, 96001 Zvolen, Slovakia

**Abstract:** Long-term observations indicate that the impact of climate changes is adversely affecting the forest ecosystems, it changes the structure of forest stands, their tree species composition and the quality of wood raw material. Due to this fact, it is also possible to expect a change in the forestry enterprises efficiency. Forest enterprises can increase the efficiency by increasing their profits that is by revenue growth or costs reduction. This is quite problematic due to the high proportion of incidental fellings and the low average monetizing in recent years. The goal of this paper is to clarify some specifics which affect the management efficiency on forest land, assets and capital structure of forest enterprises efficiency and possible increasing of foreign sources funding, to enhance the forest enterprises efficiency. Our research is based on the rules of optimal financing and the relationship between profitability and debt on the principle of decomposition of profitability and leverage effect. The results of the paper identified an issue that forest enterprises losing an opportunity for development and economic growth because of the lack of foreign investments and foreign capital. Furthermore, an implementation of modern technologies is also insufficient, which means enterprises losing a competitive advantage.

**Key words:** Efficiency, Financing, Forest enterprises Debt, Profitability

## Introduction

The main object of forestry is to adopt of innovative bio-based approaches in terms of global changes. Nowadays forestry meet many challenges to deal with. Long-term observations show that the impact of climate change is adversely affecting forest ecosystems and the structure of stands, trees composition and the quality of wood mass are also changing (Andersson, Keskitalo, Lawrence 2017). Moreover, this situation is complicated by the rising intensity of incidental felling due to windthrow (Gejdoš, Potkány 2017). Above all, it is important to mention number of forestry specific features. Especially an extremely long production cycles, relatively short working hours, the seasonal nature of timber harvesting, polyfunctionality of forest production, limitation of natural capital and also forest law enforcement (Alonso-Ayuso et al. 2018, Hajdúchová et al. 2011, Hajjar et al. 2011). One of the most important tasks of the forestry sector in conditions of the green economy in order to maximize the contribution of forests to climate change mitigation and to improve the quality of life, are represented by ecosystems services which should be adequately compensated (Báliková et al. 2019, Neykov et al. 2020a). Another assessing issues in forestry involved macro environment which means social, political, economic and technological contexts (Badini, Hajjar, Kozak 2018, Neykov et al. 2020b). Furthermore, the forestry sector is an important feature

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in sustainable employment in rural areas (Neykov, Antov, Savov 2018). Even though forest enterprises face challenges already mentioned above its objectives are sustainable logging at the maximum possible volume with an effort to maximize profits for a long period. Due to unpredictable circumstances that occur daily, it is also possible to expect a change in the performance of forestry enterprises. Furthermore, the current widespread outbreak of the COVID-19 pandemic posed new challenges to enterprises, recently investigated by Hitka et al. (2021), which made resolving the trivial problems more topical in order to sort out the new ones. The aim of our paper is to contribute to the identification and quantification of assets and capital structure which affect performance of forest enterprises and the effect of financial leverage. Moreover, the findings will contribute to the identification of potential opportunities and reserves for further development and growth, in the context of the green economy principles. An increase in the performance of forestry enterprises will result in the subsequent growth of the entire forest-timber sector.

### **Literature review**

One of the difficult issues that enterprises to meet the challenge is the choice of capital structure. The optimal capital structure of a firm is the best mix of debt and equity financing that maximizes a company's market value while minimizing its cost of capital (Tian 2016). There is no way to discuss optimal firm's capital structure without explaining the MM theorems (Singh 2016). Propositions implied that the weighted average of costs of capital to a firm would remain the same no matter what combination of financing sources the firm actually chose (Modigliani, Miller 1958, Miller 1998). Later research conducted by Brealey et al. (2018) showed, that value of the company is not determined by debt to equity ratio, but with the value of the company. Based on (Abeywardhana 2017) MM is only abstraction. In the real world there are taxes, tax shields, transaction costs, non-public information, and complex patterns of corporate growth that all influence financial value depending on a company's capital structure. Later, the authors themselves recognized the impact of income taxes, i.e., the effect of the tax shield, which reduces the tax burden on the company through interest on foreign capital, which is an accounting and tax-recognized cost. In case of macroeconomic conditions, despite the substantial development of capital structure literature, only little attention has been paid to the effects of macroeconomic conditions on credit risk and capital structure choices (Metel'skaya 2021). Based on research by (Balios et al. 2016) macroeconomic conditions do affect firms' financing choices and firms adjust their leverage toward target faster in good macroeconomic states relative to bad states. Li and Stathis (2017) also indicated that liquidity, profitability, assets structure, and asset size are significant factors which impacts firms' financial leverage. The general result from the various capital structure studies is that the combination of financial leverage related costs and the tax advantage of debt produces an optimal capital structure below 100% debt financing (Nguyen, Nguyen 2020). Furthermore, Rokhayati,

Pramuka and Sudarto (2019) state that the optimal capital structure is achieved when there is a balance between the benefits of using debt with the cost of using debt as a proxy for financial leverage. By making financial decisions require to respect balance rules. One of them the Golden rule of financing. Besides this rule also should be followed the Current Ratio Rule and One to One Rule which are used to assess assets and capital structure (Konečný 2013). One of possible approach how to investigate the relationship between leverage and firm performance on firms' financial leverage is to evaluate the ratios of financial leverage effect. If the ratio's value  $> 1$  meaning that  $ROE/ROA > 1$ , then positive financial leverage effects occur; in other words, the increase of debt will lead to the improvement of equity's profitability. If the ratio's value  $< 1$  meaning that  $ROE/ROA < 1$ , then negative financial leverage effects occur (MacCarthy, Ahlu 2019).

## Methodology

This research estimated the efficiency of 8 forest enterprises in Slovakia by an application of basic rules of financing and their effect on firms' financial leverage. These companies are differed from each other in the form of ownership, organizational structure, size of the company, as well as the size of the managed space. Furthermore, the level of reporting and accounting of companies as well as their access to information is also different. Eight particular companies were selected on basis of the managed forestry space and the size of revenues. In our research the selected period for the research was for the 5 years from 2015–2019 due to the availability of economic and financial data. According to the focus of this article the primary sources of information about the financial and economic situation were the financial statements of the selected companies as well as the information contained in the annual reports, published on the internet ([www.finstat.sk](http://www.finstat.sk)). It is based on the requirement for comparability of the business activities through the years and the last available published accounting reports. Some of the basic activities of the above mentioned enterprises included timber harvesting, cultivation activities, afforestation and other specific services. One of possible approach how to investigate the relationship between leverage and firm performance on firms' financial leverage is to evaluate the ratios of financial leverage effect. Enterprises performance is represented by accounting performance measures, the return on assets - ROA ( $EBIT/\text{total assets}$ ), and ROE is the return on equity ( $EAT/\text{equity}$ ). Method of calculation for leverage effect is represented by formula  $ROE/ROA$ .

## Results and discussion

First part of the paper compares the assets and capital structure in selected forest enterprises for the period from 2015 to 2019. In case of recommended values, the assets side, the ratio between long-term and short-term assets is 50 to 50. On the liabilities side, the recommended values are 40% equity, 40% long-term liabilities and 20% short-term liabilities.

**Table 1. Asset and capital structure in selected forest enterprises**

Ø	Asset and capital structure [%]				
	Equity	Long term liabilities	Short term liabilities	Long term assets	Short term assets
Forests Slovakia	85%	9%	6%	90%	10%
Military Forests	77%	16%	7%	96%	4%
Town Forests Kremnica	80%	12%	8%	59%	41%
Town Forests Kosice	72%	16%	13%	67%	33%
Forest Community PL	65%	20%	15%	32%	68%
Forest Community Stiavnik	28%	5%	67%	71%	29%
LES-WOOD	42%	22%	36%	49%	51%
DI MIHALIK	56%	5%	39%	57%	43%

Source: Our own work

The average values of assets and capital structure in selected forest enterprises is shown in *Table 1*. Not only there are differences between the individual enterprises assets and capital structure as well as derogations from the recommended values. While the assets side, the recommended values are most closely approached by the private companies Town Forests Kremnica, LES-WOOD and DI-MIHALIK. A significant share of long-term assets 90% in the Forests Slovakia and Military Forests, where the share reaches 96%. In addition, the only forest enterprise that had a significant share of short-term assets nearly 68% was Forest Community PL. Likewise the capital structure reflects derogations. A significantly higher share of equity is in the Forests Slovakia 85%, Military Forests almost 77%, Town Forests Kremnica 80% and Town Forests Kosice nearly 72%. On the contrary Forest Community Stiavnik, as the only one, reached the amount of equity below the recommended value less than 28%. Table 1 also shows low share of long-term liabilities in all of the selected enterprises.

**Table 2. Basic rules of financing in selected forest enterprises**

Ø	Basic rules of financing		
	Golden rule of financing [%]	Current Ratio Rule [coeff.]	One to One Rule [%]
Forests Slovakia	105%	1.71	17%
Military Forests	97%	0.56	30%
Town Forests Kremnica	157%	5.28	25%
Town Forests Kosice	131%	2.62	39%
Forest Community PL	269%	4.54	56%
Forest Community Stiavnik	47%	0.43	265%
LES-WOOD	135%	1.62	151%
DI MIHALIK	108%	1.10	82%

Source: Our own work

In the context of application of basic financing rules *Table 2* shows that almost all forest enterprises were overcapitalised during the selected period, that means they have no problems paying short-term liabilities as Golden rule explain. On the other side, it shows that Forest Community Stiavnik has significant liquidity problems, that means it is significantly undercapitalized. The findings of the Current ratio rules that is comply with principle when the coefficient is greater than 1.0, thus the value of the Golden rule critical situation in Forest Community Stiavnik and Military Forests, which results into difficulties with maturity of short-term liabilities. However, the One to One rule recommend the volume of liabilities should not exceeded 70%, Forest Community Stiavnik and LES-WOOD achieved significant high values which reported to a large proportion of foreign resources.

**Table 3. Ratios and Financial leverage in selected forest enterprises**

Ø	Financial leverage effects		
	ROE [%]	ROA [%]	Financial leverage [coeff.]
Forests Slovakia	0.85%	0.88%	0.95
Military Forests	0.26%	0.31%	0.88
Town Forests Kremnica	7.89%	8.02%	0.98
Town Forests Kosice	6.75%	6.15%	1.12

Forest Community PL	7.79%	5.70%	1.33
Forest Community Stiavnik	-0.04%	0.17%	-0.53
LES-WOOD	31.75%	16.92%	1.76
DI MIHALIK	19.25%	16.37%	1.20

Source: Our own work

From the above *Table 3* the results show the average values of analysed ratios and financial leverage. Referring to assets structure, companies owning a large proportion of fixed assets register lower ROE ratio. Therefore, it can be assumed that the more debt firms employ the less profitable they are. Due to specifics of forestry, enterprises do not use their assets effectively. Which means managerial decisions, about the capital structure tends to be affected by the characteristics of forestry. Furthermore, based on the result the ROE, the best achieved profitability was in private enterprises LES-WOOD and DI MIHALIK. Simultaneous these two mentioned enterprises were able to capitalised the best way. The ratio between ROE and ROA reached the highest value in LES-WOOD, which is proof by the financial leverage. Consistent with financial leverage ratio's if value is above 1.0 is indicates the potential of enterprises to use positive financial leverage effects.

These results explain that forest enterprises with high levels of asset structure tend to use low levels of debt, and this implies that companies that have a lot of assets, especially current assets, will tend to reduce the use of debt. The results of this paper are in line with previous research which explains that asset structure has a negative and significant influence on leverage (Newman, Gunessee, Hilton 2010). Furthermore, enterprises with high levels of ability to meet short-term liabilities will tend to use more debt to meet their capital needs (Raude et al. 2015). It can be assumed that equity has a positive impact on performance indicators, while total debt and short-term debt have negative relationships with ROA and ROE. The findings of Vízslai (2015), who analysed state-owned forest enterprises in Slovakia researched to analogous conclusions, that forest enterprises use external sources for financing in a very low proportion. Research of Neykov et al. (2021) also emphasized that the Slovak forest enterprises rely on their own resources, which is the reason for the lower efficiency of labour and material costs. As foreign authors pointed out (Badini, Hajjar, Kozak 2018), small and medium-sized forestry enterprises are considered by banks to be risky, due to seasonality (Humphries et al. 2012), due to insufficient financial history or lack of appropriate liabilities (Tomaselli, Timko, Kozak 2013).

## Conclusion

Results of the paper point out on differences between forest enterprises. The assets and capital structure is not optimal. The analysis of the assets and capital structure according to the rules of financing find out some issues connected mostly with the lack of foreign investments and foreign capital. The results of the present paper pointed out the fact that forest enterprises losing the opportunity for development and economic growth. On the historical ground forest enterprises were financed their business activities mainly by own equity. Furthermore, production efficiency and competitive advantage in forest enterprises can be achieved by implementation of modern technologies. The outcome of this effect can generate energy savings, repair work and renovation saving, as well as the effect of the tax shield. It is also necessary to mention the positive impact on the environment and other ecological factors. In addition, there is another opportunity in assets structure, where the dominant position is represented by long-term assets. Therefore, the analysed forest enterprises should increase a share of the short-term assets in order to keep it in optimal balance. Likewise, in view of the need to identify a non-commercial activities by forests enterprises and to ensure the participation of government grants. Securing sufficient capital for a company's operations in such a rapidly changing environment is complicated and problematic for many enterprises. However, given the uncertain economic and political environment, micro and small enterprises tend not to be exposed to excessive risk in the event of insufficient corporate liquidity. As a result of the providing analysis, it is necessary, in order to enable the assets and capital restructuring in the forest enterprises. This research has limitations that should be considered. This paper does not consider other factors that may affect leverage and performance such as corporate governance and market competition. For a better understanding of how capital structure and financing decisions influence the financial performance of forest enterprises, future research should refer to various performance indicators.

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