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RAMUNĖ BUDRIONYTĖ

THE FINANCIAL ACCOUNTING MODEL FOR FORESTS MANAGED BY BUSINESS  
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## INTRODUCTION

**Relevance of the topic.** Today's business success of enterprises, exposed to modern business management, changing competitive markets and abundant flows of information, can only be enhanced by the availability of the *relevant, reliable, comparable, understandable and timely provided* financial information, on the basis of which rational and effective economic decisions in business management, finance, investment and other fields can be made. Full-blown globalisation in recent decades has increased the need for information users to obtain comparable information on the processes of corporate economic performance *at the global level*, where the new issues of harmonisation and standardisation in the field of financial accounting have emerged, which have been addressed by regulating the accounting processes internationally for more than 40 years. However, not all the areas have received sufficient attention over this period. One of them is the financial accounting of forests, which is not only of particular importance to the society, but also the main resource for forestry enterprises in terms of presentation of information on forests in financial statements issued by business entities.

Forestry is a priority sector of the economy, encompassing multiple biotechnical and economic measures for the afforestation, maintenance, development, use and protection of forests. Timber and other forest products and services meet the ecological, economic and social needs of the society. The importance of forests is increasing growing due to the recognition of multifold benefits they provide to the state, society, economy and people. The accelerating interest in forestry activities, observed in the last decade, has increased the need for reliable, relevant and comparable financial information on the performance of these enterprises. Meanwhile, the financial accounting of forests, as a specific area of financial accounting of forestry entities, can vary widely by company from country to country. On the one hand, ignoring the financial accounting for forests may lead to incomplete, incorrect and potentially misleading financial data on the corporate performance, on the other hand, the financial statements are prepared and presented at the fair value of forests, largely based on subjective assessments and assumptions, therefore, provide opportunities for the management to manipulate financial information. Forests can also be managed by business

entities, not involved in forestry activities, but entitled to provide recreational, hunting services, for lease or investment purposes. In these cases, the financial accounting aspects are not regulated by law.

The economic decision making process is hindered by inappropriate information found in financial statements of business entities. Diverse financial accounting practices applied for forests and lack of regulations result in *unreliable, incomparable, incomprehensible* information presented by financial statements. Only the harmonisation of forest recognition and classification principles, subsequent accounting and valuation methods may generate financial statements with relevant, reliable, comparable and understandable information on the activities of business entities involved in managing forests. The financial statements with appropriate information will serve as the basis for decision-making processes in management, investment and other fields of economics.

**The scientific problem and the level of its research.** In terms of forest economics, three major research directions can be distinguished in the works published by the Lithuanian scholars: 1) development of the forest sector and effective forest management; 2) research on the efficiency of the performance of state forestry enterprises; 3) identification of the economic value of forests. These issues were examined by G. Činga, R. Deltuvas, E. Laurinavičius (2001), G. Činga, A. Deltuvas, J. Mažeika (2002), R. Deltuvas (2006), A. Gaižutis (2005), V. Domarkas and V. Varapnickas (2006), S. Mizaras (2006, 2012, 2013), A. Gaižutis and J. Kurtinaitienė (2007), R. Deltuvas et al (2010), M. Kavaliauskas, R. Deltuvas, G. Činga (2011), M. Kavaliauskas (2012), B. Galinienė, A. Gaižutis, S. Deveikis, A. Tumelionis, I. Kučinskienė (2012), S. Mizaras and D. Mizaraitė (2014), S. Mizaras and D. Lukminė (2016). However, *the system of the financial accounting for forests* managed by business entities, so far, has not been investigated in Lithuania.

The foreign authors examine the financial accounting for forests, largely in the context of the International Accounting Standard IAS 41, Agriculture. Thus, the financial accounting for forests is closely linked with the issues of financial accounting of biological assets and the determination of fair value. In Lithuania, the accounting of biological assets was examined by D. Zinkevičienė ir N. Stončiuvienė (2004, 2006), D. Zinkevičienė (2009),

R. Paliulienė (2012), A. Amelevič (2013), N. Stončiuvienė, D. Zinkevičienė, L. Martirosianienė (2016), aspects related to determining the fair value and applying it in accounting were investigated by K. Rudžionienė (2008, 2009). However, the mentioned authors were examining the financial accounting aspects associated with the producers of the traditional biological assets - livestock and crop enterprises, while the financial accounting system of forests and the aspects related to the financial accounting system of forests, so far, have not been examined.

The issues of the financial accounting for forests received a broader scholarly attention from foreign scientists. The issues of forest assets recognition and inclusion in the accounting system and financial statements of forestry entities were raised by H. Lemmel (1956), K. Abetz (1957), H.D. Brabander (1965), K. Openshaw (1980), J. Borchers (1997), A.S. Hyder, L. Lönnstedt, M. Penttinen M. (1999), J.N. Hogg ir H.A. Jöbstl (2009 a), W. Tzschupke (2009 b), D. Dvořáková (2011b), Stárová, Čermáková, Hlavsa, Vostrovská, Levá (2016). Although the forest classification, another important area of the financial accounting for forests was given less scholarly attention, it was examined by J. Borchers (1997), G. Bright (2001), M. Penttinen, A. Latukka, H. Merilainen, O. Solminen (2004), Iesalnieks (2005), W. Sekot (2007), H.A. Jöbstl (2009 b), E. Grege – Staltmane (2010), D. Dvořáková (2011), I.V. Zamula, O.V. Shavurska (2015). Nonetheless, the issues of the compliance of forests with the criteria for the recognition of assets in the financial accounting system in general and in the cases of limited business activities in forests, as well as the system of criteria for the classification of forests managed by business entities have not attracted sufficient attention of researchers.

It should be noted, that two areas related to the financial accounting for forests have attracted the greatest scholarly attention: 1) selection of suitable accounting methods for forests and 2) forest valuation. Most of the scholarly studies and the largest numbers of publications are available in support of or criticising the compulsory accounting of biological assets at fair value, as specified in IAS 41 Agriculture. The scientific literature has been broadly analysing the concept of fair value – both, in terms of its theoretical and conceptual aspects and its practical application. M.P. Bolivar and N.A. Galera (2007, 2012),

F. Allen and E. Carletti (2008), G. Whittington (2008, 2015), J.V. Curtis (2009), D. Dvořáková (2009), M. L. Magnan (2009), M. Ristea and I. Jianu (2010), R. Lambert (2010), J. M. Argiles, J.G. Garcia-Blandon, T. Monllau (2011), C. Bonaci and J. Strouhal (2011), E. Bostwick and R. Fahnestock (2011), K. Ramanna, R.L. Watts (2012), D. Brînză and M. Bădoi (2013), C. T. Kaya (2013), N. Gabriel, and P. Stefea (2013), D. Alexander, R. Fasiello (2014), L. Hodder, P.Hopkins, K. Schipper (2014), J. Muller (2014), M.I Damian, S.M. Mănoiu, C.G. Bonaci, J. Strouhal (2014), R. Kurniawan, A. D. Mulawarman, A. Kamayanti (2014), I. Iacob (2014), D. Simtion (2014), R. Gonçalves ir P. Lopes (2015), H. Bohušová ir P. Svoboda (2016), V. Palea (2014, 2017) and others investigated the reasons for the recognition of the fair value concept in the financial accounting and the retrospective, possibilities for its application in different accounting areas, analysed the advantages and limitations of accounting methods based on fair value and historical cost concepts. A considerably lower number of authors, such as A.S. Hyder et al. (1999), C. Elad (2004), K. Herbohn ir H. Herbohn (2006), H.A. Jöbstl (2009), K. Herbohn (2009), W. Tzcupke (2009), K. Wallner (2009), P. Miller ir P. Bahnson (2009), B.J. Epstein ir E.K. Jermakowicz (2010), M. Fischer ir T. Marsh (2013), K. Muhammad (2014), C. Elad ir K. Herbohn (2011), Y.H. Aryanto (2011), D. Dvořáková (2011), I.V. Zamula ir O.V. Shavurska (2015), M. Stárová, H. Čermáková, T. Hlavsa, H. Vostrovská, M. Levá (2016) studied the advantages and limitations of the use of the fair value method or the application of some of its aspects for the financial accounting of forests. Although all of the authors demonstrate a larger or smaller degree of criticism of the fair value approach, they express the need for its improvement in order to adapt it to the financial accounting of forests, however, the problems in applying the fair value method for the forest financial accounting remain unresolved. It should be noted that the alternative to the fair value method is forest accounting by the cost method, which was more explicitly examined at the end of the 20<sup>th</sup> century, until the IAS 41 was published: K. Openshaw (1980), A.S. Hyder et al. (1999), M. Penttinen (1992), A.R. Davy (1987), H. A. Jöbstl (2000 b), later H. Bohušová, P. Svoboda, D. Nerudová (2012), G. Ignat, K. Iatco, G. Ungureanu, C. Costuleanu, H. Athes (2014), D. Dvořáková (2011b) analysed the possibilities and disadvantages of applying the cost



method to forests, however, in these works, most emphasis is laid on the practical aspects of the application of this method.

Another area of extensive scholarly research is forest valuation and the determination of fair value which is directly related to the forest accounting at fair value. Much attention was paid to the analysis and application of the fair value determination methods by S. Jones and P.V. Wolnizer (2003), A. Raihi-Belkaoui (2004), M. Ristea and I. Jianu (2010), R.G. Schroeder, M.W. Clark, J.M. Cathey (2011), C.A. Bunea-Bontas (2013), S. Rozentāle and M. Ore (2013), B. Mackenzie, D. Coetsee, T. Njikizana, E. Selbst, R. Chamboko, B. Colyvas, B. Hanekom (2014), L. Hodder et al. (2014), D. Alexander ir R. Fasiello (2014) and others. However, the issue of determining the fair value of forests was under more frequent focus of the forestry sector scholars rather than researchers of accounting. The retrospective of the development of forest assessment methods was examined by G.A. Navaro (2003, 2007), M. Martin and M. Bösch (2013). The formula of forest land valuation introduced by M. Faustmann (1849) and its subsequent transformations were examined by M.B. Grainger (1968), B. Manley and B.B. Bare (2003), J. Buongiomio (2001), G.A. Navaro (2003, 2007), I. Ferguson and J. Leech (2007), S.J. Chang (2013) and other scholars. Many authors have researched the choice of discount rates, relevant to the determination of the current value of forests. In this context, the following authors are worth mentioning: H.H. Chapman (1915), J. Quiggin (1997), V. Brukas, B.J. Helles, F. Tarp, P. Thorse (2001), C. Price (2005), C. J. Hepburn and P. Koundouri (2007), C.S. Binkley (2009), E. Grege-Staltmane and H. Tuherm (2010), M. Martin and M. Bösch (2013), E. Ungerböck, V. Sekot, P. Toscani (2015), B. Manley (2016), M. Stárová, et.al (2016). However, the most frequently mentioned works have examined the economic methods of assessing forests without linking the application of these methods to the financial accounting for forests and the principles for the fair value determination, while the issues of the adaptation of assessment methods to the financial accounting system have received only scarce attention.

The main scientific problem, i.e. *the lack of the theory intended for the financial accounting for forests in general, and in certain particular aspects*, triggers the lack of the

relevance, reliability, comparability and comprehensibility of the financial information provided by business entities involved in managing forests. The lack of research into the financial accounting for forests as a single system of interacting elements of the accounting system raises **the scientific problem of the dissertation**: the need to conceptualise and link the elements of the financial accounting system of forests by creating the financial accounting model of forests, based on economic logic and general accounting principles, consistent with the fundamental and other enhancing financial information characteristics and combining into a common framework the following aspects: recognition, classification, registration, valuation of forests and their presentation in the financial statements.

**The aim of the research** is to assess the compliance of information provided in the financial statements of forestry enterprises with fundamental and other enhancing qualitative characteristics of financial information and to establish a financial accounting model for forests managed by business entities.

**The object of the research** is the system of financial accounting for forests managed by business entities.

**The objectives of the research** are as follows:

1. To examine the problematic theoretical aspects of forest assets recognition and classification in the financial accounting system of an enterprise;
2. To explore the possibilities and challenges of accounting methods of forests in accordance with the financial accounting concepts;
3. To analyse the economic methods of forest valuation and the possibilities and limitations of their application for determining the fair value of forests;
4. To develop a methodology for empirical research on the financial accounting for forests managed by business entities;
5. To examine the assumptions of the harmonisation of financial accounting for forests managed by business entities in Lithuania;
6. To study the practice of financial accounting for forests managed by Lithuanian forestry enterprises and the conformity of financial information provided on forests with the fundamental and other enhancing qualitative characteristics of financial information;

7. To construct and provide justification for the conceptual model of financial accounting for forests managed by business entities;

8. To evaluate the compliance of the financial accounting model for forests managed by business entities with the general accounting principles, fundamental and other enhancing qualitative characteristics of financial information as well as possibilities for its feasibility, suitability and practical application.

**The methodology of the research.** Seeking to fulfill the research objectives, the author applied the theoretical methods of comparative analysis of the scholarly literature, critical evaluation, abstraction, deduction, systematisation, generalisation, modelling. The empirical research employed the methods of document content analysis, questionnaire survey, expert evaluation. These methods facilitated combining fragmentary elements of financial accounting for forests into a single system (model). The problematic theoretical aspects of financial accounting for forests have been examined by means of the above mentioned theoretical research methods. The establishment of the financial accounting model for forests is based on the analysis of the theoretical research, accounting regulations and the results obtained from a questionnaire survey of the chief accountants employed by the Lithuanian forestry enterprises. The expert evaluation method was used to evaluate the justification, suitability and practicality of the model. The dispersion coefficient of concordance was used to determine the degree of the compatibility of experts' opinions, and the statistical reliability of the compatibility hypotheses was verified by the Kendall's concordance coefficient.

**Scientific novelty of the dissertation.** The dissertation can be considered as a new and original scientific work due to its aspects of theoretical novelty as follows:

- For the first time in Lithuania, the research work was carried out into the concepts of forest recognition, classification, accounting and the related accounting methods as well as the selection of valuation methods to be applied in the forest accounting system;
- The justification of the theoretical fundamentals for the financial accounting for forests was presented: the criteria for forest recognition as assets in the enterprise's financial

accounting system were distinguished and the financial accounting system including the classification of forests managed by business entities was provided.

- After examining the advantages and disadvantages of the concepts of the financial accounting and its impact on fundamental and other enhancing qualitative characteristics of financial information, the application of these concepts for the financial accounting for forests has been justified.

- An analysis of classical methods used for accounting assets was carried out and, on the basis of this analysis, two methods conforming to different accounting concepts were presented: the modified method of forest accounting at cost and the modified method of forest accounting at fair value.

- Economic forest valuation methods have been analysed and a system for the forest fair value determination, consistent with the fair value concept and criteria, has been presented.

- A conceptual model of financial accounting for forests managed by business entities has been developed. The model encompasses the aspects of recognition, classification, registration, valuation and presentation of forests in the financial statements.

### **Practical significance of the dissertation**

- The analysis carried out into the content of applied legal acts - national and international accounting standards and other Lithuanian regulatory acts related to forestry activities - was carried out in order to identify the completeness and clarity of the regulation of financial accounting for forests in terms of the practical application of their provisions, allowed to detect the deficiencies in the accounting standards regulating financial accounting for forests and define the areas and directions for improvement of these legal acts.

- The questionnaire survey of the chief accountants of the Lithuanian private forestry enterprises allowed to evaluate the practice of financial accounting for forests and draw conclusions about the quality of financial information provided by these companies, which may be useful to the users of financial information of such companies when making investment, financing and other economic decisions.

- In the course of carrying out the expert evaluation, the study included the main persons responsible for the regulation of financial accounting in Lithuania, as well as practitioners - auditors whose experience and knowledge facilitated the assessment of the aspects of the conceptual model for forest accounting from the perspective of its practical application. The expert support, expressed in favour of the established financial accounting model, suggests that the model may be proposed to the developers of the Business Accounting Standards (Ministry of Finance of the Republic of Lithuania) as an appropriate basis for regulating the financial accounting for forests managed by entities in Lithuania. As the model is not limited by the national legal features, it can be adapted to private and state-controlled enterprises not only in Lithuania, but also in other foreign countries.

#### **The statements defended in the dissertation**

1. Unified forest recognition and classification criteria based on the general accounting principles, forest accounting and valuation methods ensure the presentation of correct and comparable information on forests managed by business entities in their financial statements.

2. The application of the forest financial accounting model ensures the compliance of the information provided in the financial statements with the fundamental and other enhancing qualitative characteristics of the financial information and, therefore, is beneficial for information users who are economic decision makers in management, investment and other fields.

3. The established conceptual model of financial accounting for forests managed by business entities is universal because it can be applied to small and large private and state forestry enterprises, as well as enterprises who manage forests, but are not involved in forestry activities.

**The structure and the scope of the dissertation.** The dissertation consists of an introduction, three sections, conclusions and recommendations, as well as a list of references and annexes. The scope of the dissertation is 250 pages (without annexes), it contains 53 pictures, 12 tables, 227 literature sources, 6 annexes.

## SUMMARY

### **The problematic theoretical aspects of financial accounting for forests.**

Forests are the main resources and sources of income for the forestry sector and forestry enterprises. Forests most commonly account for more than 80% of the total value of the assets managed by such companies, however, in the global accounting practice, forests are not always identified as assets and are not presented in the balance sheet (or: statement of the financial position), one of the key financial statements of the company. A failure to present a significant part of the assets in the financial statements distorts the information about the financial situation of forestry enterprises and the financial statements do not fulfill their main mission - they do not represent a true and fair view of the enterprise and is in conflict with the accounting principle of a reporting entity that the accounting system of the entity must include *all* the assets and liabilities of the company. Having examined the aspect of forest recognition as assets in the context of global forestry accounting practice, two types of forest accounting models, found in forestry enterprises can be distinguished: the balance sheet model and off the balance sheet model (thereafter balance model and off-balance model). The balance model aims at determining the value of forests and its changes, as well as providing information about forests in the balance sheet, while the off-balance model is much simpler as it allows to escape forest financial accounting, i.e. all forest costs are recognised as expenses incurred during the reporting period. However, most scholars who have explored this issue are advocating for the balance model which is also promoted by the international accounting standards as a more commonly used balance mode in the global accounting practice, since information about the managed forests and the real results of the performance of the enterprise is required for the users of the information provided by the financial statements for economic decision making in management, investment, financing and other fields.

When the balance model is used in the financial accounting for forests, the problem of forest (the forest stands) classification emerges. Due to the peculiarities of the long-cycle development (“production”) of the forest and the schedule for obtaining economic benefits, it is difficult to classify the stands strictly as fixed or current assets or to assign them to a

specific group of assets. Thus, Hyder et al. (1999), Mint (2005), Track (2007) suggested only classifying forest land as fixed tangible assets, but recognising stands as *current assets* because they will be converted into cash (sold) in one business cycle. Meanwhile, Penttinen et al. (2004), Jöbstl (2009), Grege – Staltmane (2010), Zamula ir Shavurska (2015) claim that forest stands should be classified as *fixed assets*, as the presentation of forest in the inventory item of the balance sheet would greatly improve the enterprise's current solvency ratios, although immature forests are considered to be assets of rather low liquidity with a production cycle of decades, generating certain income from intermediate logging, therefore, in terms of economical meaningfulness, forests are not fully consistent with the definition of current assets, while this type of classification of the forest would only distort the meaning of the enterprise's financial data. In terms of the forest location in the classification system of assets, it is important to identify the attribution of forest to one or another group of assets according to the nature of the assets. Thus, Iesalnieks (2005) suggested allocating stands to the stock, Sekot (2007) - to the production in progress, Grege - Staltmane (2010) - to a group of fixed tangible assets. However, a considerable number of authors, dealing with forest accounting problems, for example, Hogg and Jöbstl (2009), Tzschupke (2009), Elad and Herbohn (2011), Zamula and Shavurska (2015) believe that forests (forest stands) developed during forestry activities, should be classified as biological assets and distinguished from other tangible assets. It should be noted that the definition of biological assets is suitable for forests used in forestry, but other kinds of forest should not be classified as such. An unusual approach on this subject is expressed by Grege - Staltmane (2010), who state that such assets may be presented as *investment property*. The accounting standards do not provided for this type of classification, but if the forest is acquired as an investment *only* due to its increase in value in the future or it also earns an *investment (lease) revenue*, it corresponds to the economic significance of the investment assets. The selected forest classification leads to subsequent accounting for forests, i.e. the accounting and valuation methods applied.

The accounting process of the entity's resources and the presentation of the information in the financial statements are highly dependent on the accounting methods

used, which are based on the two concepts of financial accounting: historical cost accounting and fair value accounting. Alexander and Fasiello (2014) argue that none of the concepts is ideal: the fair value is misleading in terms of the profit and loss account (or: statement of profit and loss), historical cost – in terms of the balance sheet. Nissim and Penman (2008), Ristea and Jianu (2010), Brînză and Bădoi (2013), Hodder et al. (2014) argue that the emergence of a fair value concept is a consequence of the principle of “a true and fair view” which is also related to the paradigm of the “balance sheet method” that prioritises assets and liabilities rather than income and expenses. The benefits of accounting at fair value are obvious, as the information presented in the financial statements is increasingly becoming more relevant and appropriate not only for making economic decisions and cash flow forecasts, but also in reflecting changes in the market and their impact on the enterprise’s performance. Moreover, it is in line with the characteristics of the timely presentation of the financial accounting information, creates a clear picture for investors and valuation at fair value is more acceptable to the users of information presented in financial statements (Ramanna, 2008; Barth, 2010; Landsman, 2007; Ristea and Jianu, 2010; Argiles et al., 2011; Bolivar and Galera, 2012; Hodder et al., 2014; Palea, 2014). The shortcomings of accounting at fair value are as follows: unrealised amounts presented in the financial statements distort the meaning of financial ratios and may mislead the users, an increase in asset value and profit volatility is observed, the efficiency of the enterprise’s executives is not reflected, and most importantly, an unreliable, subjective, costly estimate of fair value is observed when various valuation methods are applied. Also, it is impossible to verify the accuracy of assumptions and forecasts, therefore, the management has the possibility to manipulate the data (Nissim and Penman, 2008; Curtis, 2009; Magnan, 2009; Bostwick and Fahnstock, 2011; Bolivar and Galera, 2012; Ramanna and Watts, 2012; Gabriel and Stefea, 2013). Accounting at historical cost provides more reliable information about the enterprise’s operations: assets are valued at cost, which is an objective and legally documented value that provides less opportunity for management to manipulate financial information (Whittington, 2008; Rudžionienė, 2008). Nevertheless, even when using the historical cost method, a number of data in the financial statements are subjective, based on



certain assumptions (such as bad debts, provisions, depreciation), while the value of the assets in the financial statements is significantly different from their market price, financial information is less appropriate for economic decisions, the aspects of physical capital maintenance erosion are hidden (Bolivar and Galera, 2007; Danbolt and Rees, 2008; Lambert, 2010).

Both accounting methods that meet one or the other accounting concepts can be used for forestry accounting, but each of them has certain ambiguities. The specificity of forestry activities leads to conflict by applying traditional accounting methods based on the historical cost and the realisation principle, because it does not reflect the fundamental event - the transformation of biological assets (forest), which essentially changes the assets. The valuation at cost may be less reliable than the valuation at fair value because it may be the result of an incorrect allocation of costs and unjustified cost estimates during different biological transformation periods. In addition, the forest “production” cycle is long and does not coincide with the reporting period, therefore, the income is recognised after a fairly long period of time, thus, the information presented in the financial statements appears to be distorted (Bohušová et al., 2012; Gabriel ir Stefea, 2013; Ignat et al, 2014).

Apart from that, the application of the cost method in forest accounting is complicated because of the forest development costs included in the forest value, and, in particular, in determining the end of capitalisation. Cost accounting of fixed assets is required to be depreciated. This process reflects the continuous use of the assets and the receipt of economic benefits, as well as the reduction in value. Meanwhile, with the growth of the forest, its value increases and its physical properties are improving, thus, the calculation of depreciation does not reflect the dynamics of the changes in the values impacted by the biological transformation of the forest and the dynamics of obtaining economic benefits, therefore, the calculation of the depreciation does not suit these assets (Miller ir Bahnson, 2009). However, the concept of depreciation may not be so hostile to a forest that is used in activities other than forestry, where it is possible to identify a permanent aspect of forest use and economic benefits, however, such use is not related to the reduction of the forest value.

According to the concept of the fair value, the forest in the balance sheet has to be presented at fair value less estimated costs to sell. However, the largest drawback of this method in the context of forest accounting is the fact that rather often the forest does not have an active market with quoted prices, therefore, diverse valuation methods are used to determine the fair value, sometimes based on quite subjective assumptions, thus, the information can be unreliable or difficult to verify. In the cases of forest evaluation at fair value, the explanatory notes should disclose the valuation assumptions and methods, but these disclosures are often too superficial (Herbohn, 2009; Jöbstl 2009; Tzcupke 2009; Elad ir Herbohn, 2011; Silva et al., 2011; Stárová, et al., 2016).

The change in the fair value of forests, which is currently recognised in the profit and loss account, will actually be realised in the following decades, which raises doubts as it distorts the real performance of the enterprise and may not only lead to faulty decisions on profit distribution and misleading interpretations of financial indicators, but also confuse the information users in other ways, or contradict to the prudence principle (Elad, 2004; Herbohn 2009; Wallner 2009; Dvořáková 2009; Aryanto 2011; Fischer and Marsh; 2013; Stárová et al., 2016). The application of the classic fair value method is causing the revenue-expenses asymmetry: in the first year of forest development, when afforestation costs and most of the maintenance costs are incurred, the fair value of the stands either slightly changes or is stable, while significant forest fair value changes are observed much later when the stands maintenance costs are significantly reduced (Elad, 2004; Herbohn, 2009; Wallner, 2009; Dvořáková, 2009; Aryanto, 2011; Fischer ir Marsh, 2013; Stárová, et al., 2016). However, the key advantage of forest accounting at fair value is a better representation of forest biological transformation and the changes in fair value are directly related to changes in the future economic benefits, thus, they are relevant to the users of the information presented in the financial statements.

The fair value method used in forest accounting poses constant challenges in determining the fair value of a forest. As a rule, unlogged forests do not have an active market with quoted prices, therefore, their fair value is usually determined using income methods (discounted cash flows) which have their own disadvantages, because they are

based on subjective assumptions about forest volumes, timber prices, future forest development costs, as well as discount rates that are of particular importance in the estimation of long-term cash flows (Hyder et al., 1999; Zyla, 2010; Bunea-Bontas, 2013; Mizaras et al., 2013; Mizaras 2013). The majority of the suggested economic methods of forest valuation are based on the forest land valuation formula proposed by Faustmann (1849), but the application of forest valuation methods based on this formula (modified) for forest accounting leads to another problem: complex assets are valued, while the forest land and the forest growing there (forest stands) are recorded and presented in the financial statements as assets of different categories and are accounted for in different ways. According to Jöbstl and Merlo (2009), even though quite a number of effective forest valuation methods have been developed, many of them are interdisciplinary and, therefore, are not easily accepted. So far, continuous discussions are under way on how to reliably determine the value of growing forests in order to ensure the users' with the least distorted financial information presented in financial statements.

### **Prerequisites for the development of a financial accounting model for forests managed by business entities and the formation of the model**

The forest area covers 33% of the territory of the Republic of Lithuania: half of it is occupied by the state forests, the other half - by private forest areas and forests, reserved for the restoration of ownership rights. In total, 96 % of the state forests of Lithuania are managed by 42 state forest enterprises that *do not include* forests in their financial accounting system, i.e. they apply an off-balance forest accounting model which distorts their financial performance indicators, while the information presented in the financial statements does not conform to the fundamental qualitative characteristics of the financial information and is not *a priori* comparable with the financial information, provided by private forestry companies that are required to apply the balance model in the forest financial accounting.

Private forestry companies in Lithuania are confronted with the uncertainty of forest financial accounting in the national Business Accounting Standards (BAS), and the International Financial Reporting Standards (IFRS). The IFRS only refer to the general

principles of presentation of forest and forest land in the financial statements, while the BAS do not regulate forestry accounting, therefore, the forest managing enterprises can theoretically carry out forest accounting by using the forest financial accounting policy that is beneficial to them. The results of the content analysis presuppose the necessity to change and improve the BAS and other legal acts of the Republic of Lithuania that affect the forestry accounting in the areas of forest recognition, classification, accounting and valuation.

The research into the financial accounting policies and practices of 62 private forestry enterprises in Lithuania reveals that financial accounting for forests in private forestry enterprises is different, thus, the financial information provided by them *is not comparable*. The research results show that although all the enterprises under analysis apply the same Business Accounting Standards, manage forests attributed to the economic value category (group IV) and, in *acquired* forest accounting apply the balance model and *cost method exceptionally* (without depreciation), however, essential differences are identified in other areas. The costs incurred *to plant (reforest)* forests are assigned to assets in 56.90% of the forest developing enterprises, however, even in 36.21% of the entities, the incurred costs are assigned to the expenses of the reporting period, which reduces *the reliability* of the financial information and raises doubts about the “true and fair view” of businesses in the financial statements. Significant differences are observed in financial accounting of forest cost estimation, forest stand classification, maintenance and restoration costs. The forest recognised as an asset is mostly classified as inventory, as indicated by 68.96 % of the respondents, however, 29.31% of the enterprises classify it as fixed tangible assets, and 1.72% - as other type of fixed assets. Thus, completely different information in the enterprises’ balance sheets is presented. The forest acquisition cost is uniquely attributed to the forest costs by 98.28% of the respondents and the acquisition-related taxes - by 51.72% of the respondents. The most common practice, observed in the majority of enterprises, which recognise the (re)planted forest as an asset, is as follows: the forest costs include the forest nurseries preparation costs (84.85%), the forest seedlings and sprouts costs (90.91%) and planting costs (90.91%). Meanwhile, a slightly different pattern is seen in a smaller

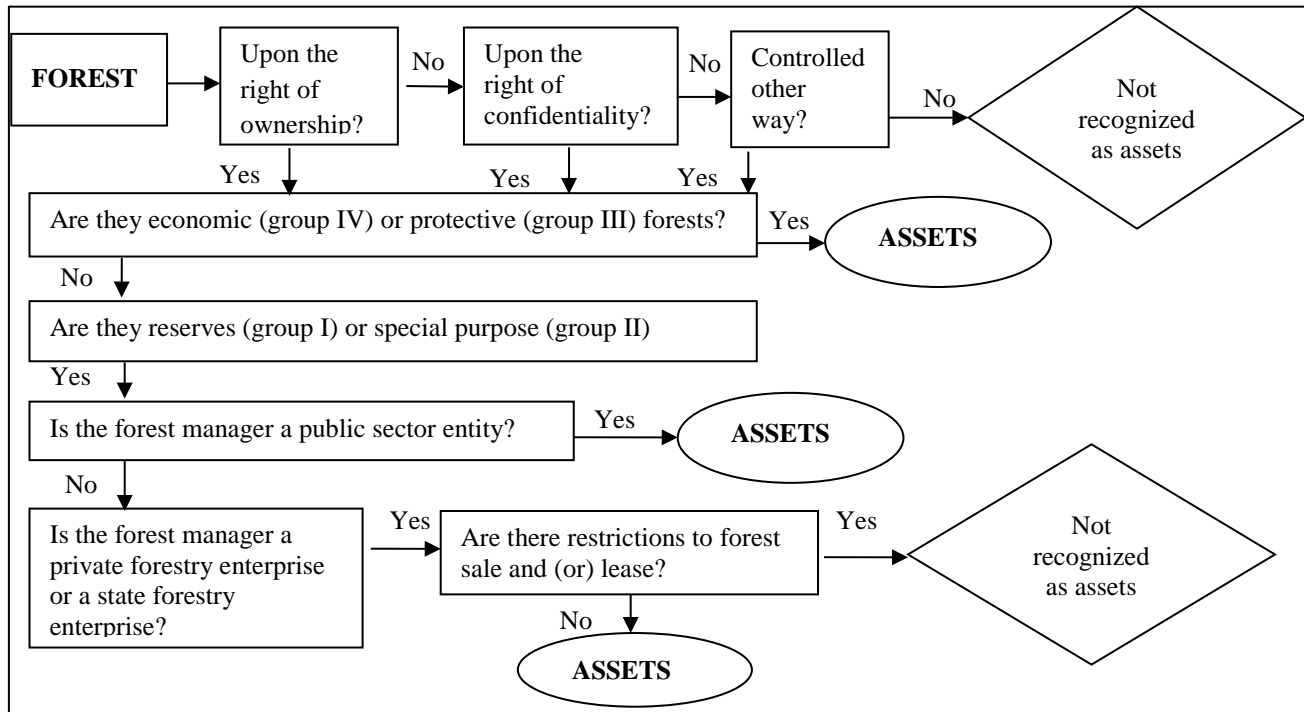
number of enterprises – forest maintenance until maturity costs (69.70%) and forest maintenance until sale costs (63.64%) are included in their forest (assets) costs. However, of *all* the surveyed enterprises, even 55.17% of the respondents indicated that forest maintenance costs are recognised as expenses of the reporting period, while only 44.83% of the surveyed subjects capitalise them. The costs of forest maintenance until maturity (or sale) cover a considerably significant part of the costs of these enterprises, thus, a different approach to them can have a significant impact on the financial indicators.

In general, the respondents' attitude to forest accounting regulation is worth mentioning: from 82.76% to 89.65% of the surveyed respondents claim that accounting standards do not sufficiently clearly and comprehensively regulate the areas of forest recognition as assets, forest classification and accounting after the initial recognition. On the other hand, under the conditions of the undefined accounting process regulation, it is important to provide additional explanatory information to consumers, but only 46.55% of the respondents indicate that additional information about managed forests is provided by explanatory notes, while even 34.48% of the respondents do not provide any extra information in notes, therefore, the information may be hardly understandable to users.

In the ongoing course of the research, very small enterprises managing small forest areas were expected to use simpler accounting methods, while accounting carried out by larger companies was supposed to be more complicated: they recognise reforestation costs as an asset and more frequently use the fair value in their accounting. However, these assumptions have not been confirmed – none of the enterprises attributed forests to biological assets, nor they applied accounting methods based on fair value, weak or very weak association was observed between the enterprises, the size of the forests under their management and the recognition of reforestation costs as assets. It should be noted that even 98.39% of the respondents agreed on the necessity of establishing a forest financial accounting model.

The structure of the financial accounting model of forests managed by business entities was determined by the logic of the consistency of the accounting process of elements included in the financial statements: 1) recognition, 2) classification, 3) initial

measurement, 4) measurement after recognition and 5) derecognition. First of all an algorithm for recognition of a forest as an asset in the accounting system of Lithuanian entities was constructed on the basis of the essential criteria for recognition of a forest as an asset, i.e. the *control* and *future economic benefits*, as identified in the research process, also, taking into account the restrictions established by the state on forestry and other activities in forests as well as the legal status of an enterprise, (see Fig. 1).



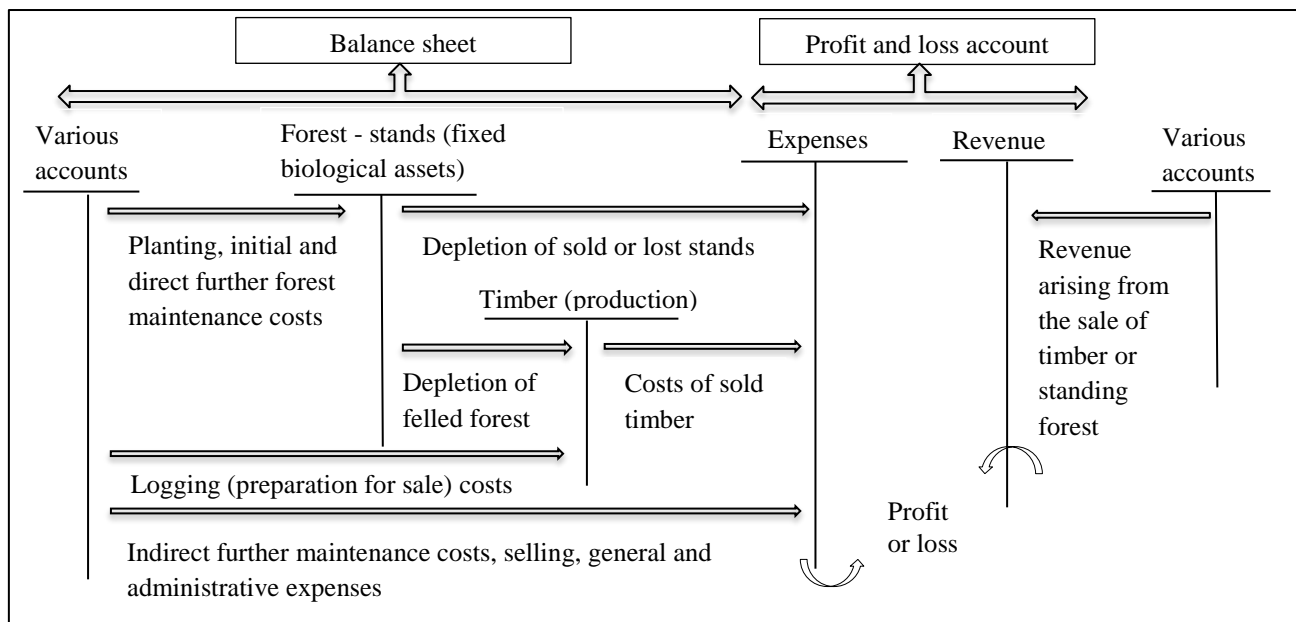
**Fig. 1. Algorithm for forest recognition as an asset in financial statements.** Source: Compiled by the author.

The examination of the restrictions applied to the use of forests in Lithuania showed that the compliance of forests to the criteria of forest recognition as an asset would trigger doubts to private forestry companies that manage the ecosystem’s protection and the recreational forests of group II, with sales and other operational restrictions.

In terms of forest classification, it is necessary to assess the business entity’s operational background, the aim of forest acquisition or development as well as the forest use restrictions, established by the state. Taking these factors into consideration, the forests being developed by the state and private forestry enterprises for forestry purposes should be assigned to *fixed biological assets*, however, the forests that cannot be or are not used for

forestry purposes, should be classified in a different way: forests acquired as an investment, leased forests should be recognised as *investment property*, forests used in other non-forestry activities (rural tourism and provision of other recreational services, etc.) – *other fixed tangible assets*, forests acquired for sale in the near future - *inventories (goods)*. This classification reflects the purpose and the economic significance of forests managed by business entities.

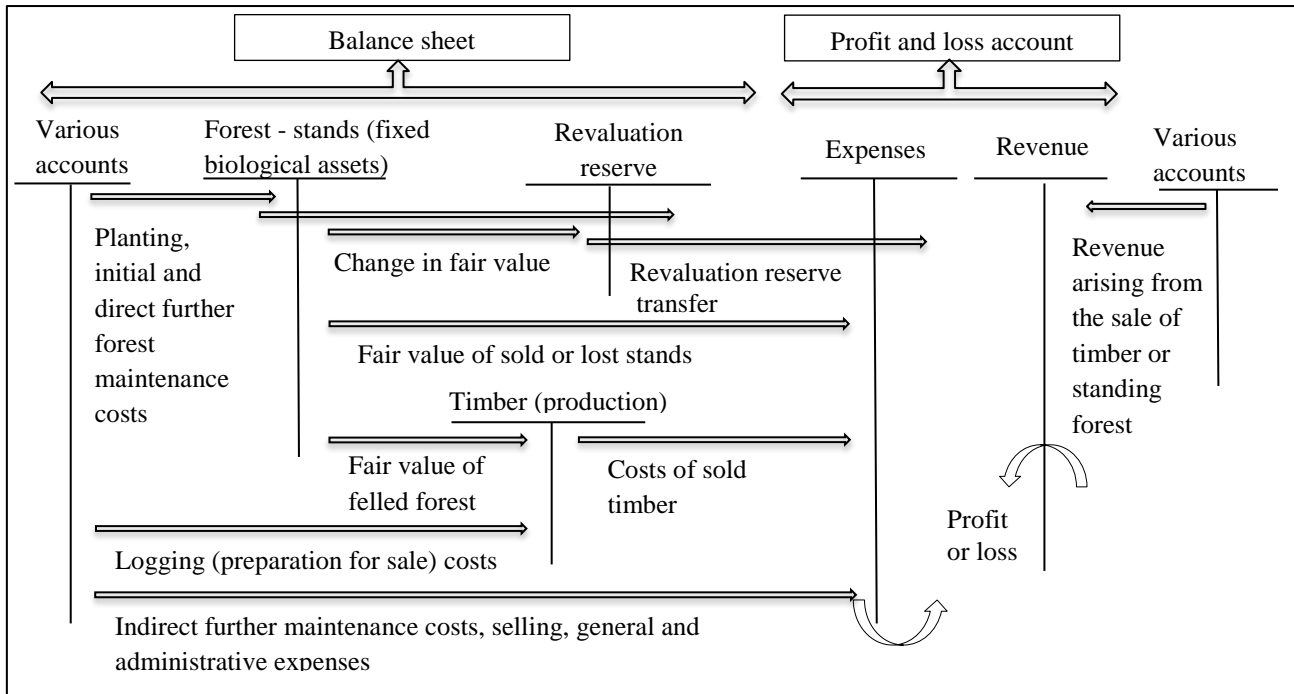
Taking into account the detected drawbacks of forest accounting at cost and its popularity among the Lithuanian forestry companies, the author suggests the modification of the cost method, as indicated in Figure 2.



**Fig. 2. A modified method of forest financial accounting at cost** (Source: Compiled by the author)

A modified method of forest financial accounting at cost (see Figure 2) eliminates the essential shortcomings of the cost method: depletion, unlike depreciation, is not related to the “useful time” of a forest, enables us to take into account the continuously changing forest cost, therefore, provides a solution to the end of capitalisation expenses. Also, facilitates the application of the methodologically correct method of *systematic write-off of fixed assets*.

However, in forest accounting medium-size and large companies are recommended to use a fair value method in order to provide more relevant information to users. In order to eliminate the disadvantages of the classical fair value method, the author suggests the modification of it, as shown in Figure 3.



**Fig. 3. A modified method of forest financial accounting at fair value** (Source: Compiled by the author)

After modifying the fair value method, the forest is presented in the balance sheet at fair value (a valuable indicator for users of financial information), the fair value change is presented in the revaluation reserve and shall be transferred to the profit and loss account when it is realized (no misleading information is provided to users of the financial statements, while the profit and loss account presents the actual results of the business entity and escapes the manipulation of profitability indicators). The modified fair value method ensures that only the realised revenue is presented in the profit and loss account, whereas the fair value of the sold forest (timber), reduced by the amount of the accumulated revaluation reserve, would be the actual cost of the forest and recognised as expenses. For its part, the fair value of a forest can be determined by the following formula:



$$DV_t = \sum_{n=0}^{T-t} \frac{P_n(1+a)^n - I_n(1+u)^n}{(1+i)^n}$$

$DV_t$  – current (fair) value of a forest in year  $t$ , €

$P_n$  – forecasted revenue for the year  $n$ , estimated at year  $t$  selling prices of standing forest or timber (by species and assortment) minus logging (timber preparation) costs, €

$a$  – average growth rate of prices of standing forest or timber (by species and assortment), in decimals;

$I_n$  – forecasted forest costs for the year  $n$  (fixed and variable), estimated at year  $t$  prices €

$u$  – long-term growth rate for forest costs, in decimals;

$i$  – interest rate, in decimals;

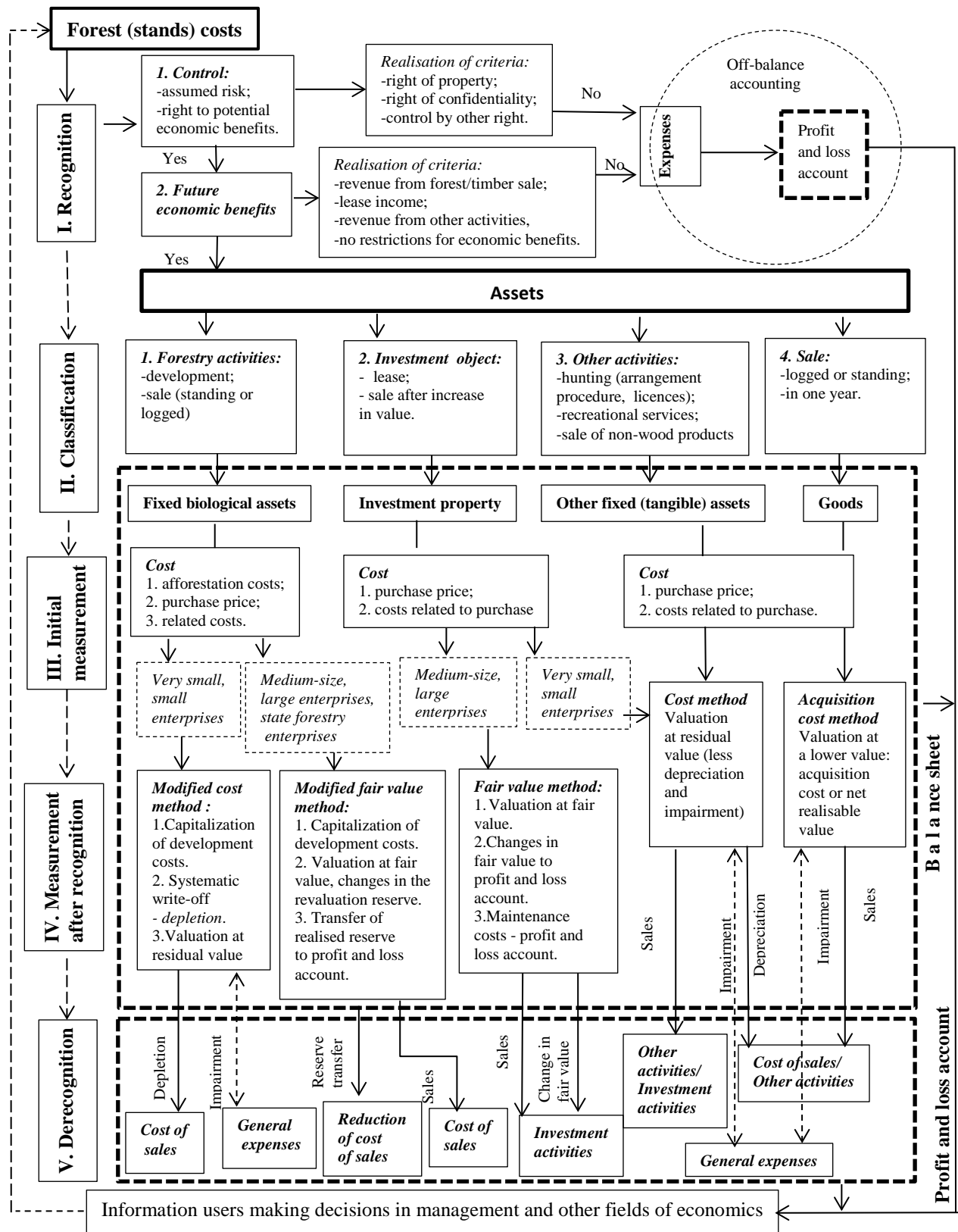
$T$  – stand turnover (in years);

$t$  – the current age of the stands (year of calculation; in years);

$n$  – periods for which net future cash flows are calculated.

The formula reflects the *current value* of the forecasted future cash flows from the forest at the end of the year of calculation ( $t$ ), i.e. the date of the financial statements. This evaluation is based on the enterprise's estimates and assumptions (the data of the third reliability level), but largely based on the information available on the active market (timber sales prices, growth rate). Each year, after the change in any of the variables, the fair value shall be recalculated, which reflects the changes in the market conditions. The fair value of stands shall be calculated by subtracting the fair value of forest land from the estimated forest fair value.

The analysis of the scientific literature and the elements of the forest financial accounting process and their variables shows that the most suitable expression of the financial accounting model for forests managed by business entities is a conceptual descriptive static model that could be formed as an open input-process-outcome system. Based on the consistency of the elements of the accounting process, presented in the financial statements, five elements of the forest financial accounting model are identified, and their variables and interrelations are presented in Figure 4.



**Fig. 4. Financial accounting model for forests managed by business entities** (Source: Compiled by the author)

The forest financial accounting model is a simplified construction that reflects the financial accounting process of the forest stands, which is based on the concepts of cost and fair value and reflects the consistency of the elements of the forest financial accounting process and the interrelations of the operating variables. This model is suitable to all the business entities incurring forest costs. The input of the given model is the costs of the forest (stands), which, according to the specified recognition criteria and their realisation, are recognized as assets or expenses of the reporting period (in the latter case, subsequently, off-balance accounting of such resources is carried out). The classification of the assets is determined by the projected purpose of the acquisition and use of the forest, but regardless of the group of assets, at initial recognition stage the assets are valued at cost, taking into account the limited possibilities to determine the fair value of young stands. The follow-up forest accounting and reporting of financial statements is determined by the size of the enterprise, i.e. the model diversifies the accounting methods and takes into account the possibility of applying more sophisticated accounting methods: accounting methods based on the cost concept are targeted at very small and small enterprises, while the methods that are consistent with the concept of fair value, are applied to medium or large enterprises and the state forestry enterprises. The outcome of the model is high-quality financial information in the balance sheet and in the profit and loss account on the development, use and sale of forests, useful for users of information provided in financial statements who make economic decisions related to the enterprise with a long-standing impact on further activities of the enterprise.

### **Evaluation of the financial accounting model for forests managed by business entities**

The method of expert evaluation has been selected for verifying the financial accounting model of forests managed by business entities: the financial accounting of business entities is regulated by legal acts (in Lithuania – by accounting standards), the requirements of which are binding on business entities that apply them. Therefore, the appropriateness and practical applicability of the forest financial accounting model can be confirmed by the qualified persons, involved in the financial accounting regulation process and responsible for the preparation of the legal acts, related to accounting and having deep

knowledge of the accounting theory, as well as specialists who are aware of the peculiarities of forestry activities and have gained experience in practical accounting processes and the control of their outcomes (auditors).

The expert evaluation has shown that experts prioritise a balance forest financial accounting model that should be applied *to both the private forestry enterprises and the state forestry enterprises* (the Kendall coefficient of concordance, after taking into account the coinciding ranges is  $W_r=0.81$ ), because only this type of a model ensures and presents real information on the enterprise's financial position, fairly reflects the enterprise's performance, conforms to the general accepted accounting principles, ensures the provision of relevant information to the users ( $W_r=0.66$ ), and unanimously validates the elements comprised by the forest financial accounting model and their consistency (the Kendall concordance coefficient  $W=1$ ), all of which proves the validity of the structure of the model established. In accordance with the opinion presented by experts, the most important criterion for recognising forests as assets is control, the second is the probability of obtaining future economic benefits ( $W_r=0.72$ ). Also, the experts have approved of the suggested classification of forests developed by forest enterprises as fixed biological assets, as given in the forest financial accounting model. However, a lower level of the compatibility of opinions ( $W_r=0.52$ ) was observed in classifying forests used for non-forestry purposes. Nevertheless, the options presented in the model have received a high level of expert approval. In assessing the diversification of the accounting methods according to the size and legal status of the enterprise, the highest level of expert approval referred to the use of equal accounting methods for both, private forestry enterprises and state forestry enterprises, also, a rather high level of approval was expressed for accounting diversification, taking into account the size of the enterprise ( $W_r=0.74$ ). According to the experts, the cost of growing stands should include the afforestation and plantation maintenance costs, as well as the further forest maintenance costs until maturity ( $W_r=0.83$ ). Meanwhile, the cost method for forest stand accounting is offered to small business entities due to the fact that it is easily understood, reliable and verifiable. Furthermore, the depletion method is suitable for forests developed by forestry enterprises, as a systematic asset write-

off method substituting the depreciation calculation. However, the depreciation method can be applied to forests acquired for different purposes, yet, in this case the level of the compatibility of expert evaluation was lower ( $W_r=0.44$ ). Nonetheless, the experts were unanimous in expressing the approval of the appropriateness of the fair value method to be applied for accounting of forests managed by forestry enterprises and, despite a lower level of support to causes that triggered the need to modify the fair value method ( $W_r=0.35$ ), expressed a high level of acceptance of the way of modification: the unrealised result of the fair value change of stands can be stored in the revaluation reserve, thus, the stand afforestation (reafforestation) and maintenance costs must be capitalised, and, at the initial recognition, the stands can be evaluated at cost. The experts supported the suggested method for determining the fair value of the forest ( $W_r=0.58$ ), however, they also emphasised that the fair value of the mature forest may be determined by other publicly available information. A significant difference in opinions is observed regarding the choice of the discount rate ( $W_r=0.1$ ), thus, it is necessary to carry out further studies to validate the discount rate. From the experts' viewpoint, the following groups of users will benefit most from the information provided by the model: potential investors, owners of business entities, management, financial creditors and tax authorities ( $W=0.81$ ).

The established model can be used in the processes of improving the regulation of forest financial accounting. Also, on the basis of this model, a more detailed methodology of forest financial accounting can be developed, which, upon approval, shall become compulsory for managing forest entities. This model is useful for the financial statements' issuers due to the fact that it provides a structured forest accounting scheme which facilitates the comprehension of the consistency of this process and its impact on financial statements, escapes subjective interpretations and harmonises the accounting policies of different enterprises ( $W_r=0.48$ ). In terms of the assessment of the financial accounting process of forests and the directions of the improvement of the model, a certain degree of disagreement of experts was observed with regard to the regulation details in the accounting standards ( $W_r=0.3$ ): half of the experts expressed a higher level of acceptance of the statements reflecting the concept of the accounting standards based on rules, others

preferred the accounting standards based on principles, which should include only the general guidelines for forest accounting, while detailed methodologies should be established by companies themselves in their accounting policies.

## CONCLUSIONS

1. The most important resource of forestry enterprises is forest, which unlike other fixed assets of economic entities, is not always recognised as an asset and is consequently is not presented in the balance sheet, one of the key financial statements of the enterprise. The evaluation of the forest financial accounting system in terms of forest recognition as an asset in the world financial accounting practice allowed to distinguish two *types* of forest accounting models used by forestry enterprises in the forest financial accounting system: the balance model and the off-balance model. On the one hand, the advantage of the balance model is that the financial statements reflect the real situation of the company, on the other hand, the disadvantage of this method is that forest accounting not only becomes specific and problematic, but also different assessment methods are applied. The off-balance model avoids financial accounting and valuation of the forest, but is criticized for presenting the distorted financial information about the enterprise's performance and is not in line with certain general accepted accounting principles. The increasingly growing interest in the financial accounting methods that take into account the holistic perspective of value creation, leads to develop a theory of forest financial accounting in the framework of the balance forest financial accounting model.

2. The essential condition of applying the balance forest accounting model is the recognition of a forest as an asset, i.e. the forest must meet the main asset recognition criteria applied in the traditional financial accounting: the resource *control* and the possibility to gain *future economic benefits*. If the first criterion is easily accomplished, the second one may sometimes result in the non-compliance of a forest to the definition of assets with regard to the restrictions for economic activities and economic gain, as specified by the state. The analysis of the forest use restrictions specified in the legal acts of Lithuania shows that only forests of group II of ecosystem protection and recreation forests managed

by private forestry enterprises raise doubts on their compliance with the recognition criteria, while the recognition as assets of forests of groups III and IV is unquestioned and, therefore, must be reflected in the financial statements of private and state forest enterprises, in charge of their management.

3. The specific natural properties, common to forests, impact not only its long “production” cycle, but also the peculiarities of economic benefits. That is why it is difficult to assign a forest to one or another category in the range of assets classification used in the traditional financial accounting. However, there is a unanimous agreement on a single classification aspect: the forest land should be separated from the stands and included in fixed tangible assets, while the classification issues of stands remain a relevant topic for further discussions. Naturally, this context poses threat to manipulate the financial information by presenting the stands either as fixed or current assets, as well as belonging to different groups according to the nature of the assets: biological, fixed tangible assets or inventory. In terms of the forest classification, it is necessary to assess the operational background of forest business entities, the aim of forest acquisition or development, the forest use restrictions, established by the state. The forests developed for economic purposes by the private and state forestry enterprises should be assigned to fixed biological assets, but the forests that cannot be or are not used in forestry activities, should be classified in a different way: the forests acquired as an investment, the forests for lease should be classified as an investment property, while the forests used for other than forestry activities (rural tourism and other recreational services) should be recognised as other fixed tangible assets, the forests acquired for sale in the near future – as goods for resale. This type of the classification would reflect the purpose and economic significance of forests managed by business entities.

4. The accounting of the business entity’s resources and the provision of information on them in the financial statements depend on the accounting and evaluation methods used, which are based on two concepts of financial accounting: historical cost accounting and fair value accounting. The major advantage of accounting at fair value is the provision of more relevant information for economic decision-making processes as it

responds to market changes. Meanwhile, the historical cost accounting does not reflect the impact of inflation, does not take into account the changing circumstances in the market, therefore, it provides information that is often insufficient for economic decision-making processes or corrective actions. The main disadvantage of accounting at fair value is the fact, that if there is no active market with quoted prices, the fair value is determined using different methods, thus, the information may become incomparable and unreliable. When forestry enterprises use cost-based accounting methods, their financial statements provide reliable and verifiable information, thus, the opportunities for managerial manipulation are minimised. Apart from that, there is no need to carry out the periodic determination of fair value of a forest, which is a time-consuming procedure demanding additional worktime and (or) financial resources. The methods of accounting at fair value allow to present forests in the balance sheet at their fair value, which is considerably more relevant to the users of the information presented in the financial statements, in particular, regarding the long-term prospects of the enterprise, and the forecasting of the future cash flows, and allows to reflect not only the forest biological transformation, but also the impact of market circumstances, also, giving a “true and fair view” of the company in the financial statements.

5. The historical cost concept, which is traditionally clear, understandable and easily implemented, in the case of forest accounting is complicated in two ways: 1) forest reforestation and follow-up maintenance costs distribution and determination of the end point of capitalisation and 2) the selection of a systematic write-off mode after a forest recognition as a fixed asset. The reason for the first uncertainty is a long forest development cycle during the course of which constant expenses for stands are incurred and, at the same time, the periodic revenue is earned from thinning as well as from the main cuttings performed by stages, while the second is related to the fixed asset depreciation calculation, applied in the traditional financial accounting, that does not reflect the dynamics of forest value changes and the process of obtaining economic benefits. A modified method of forest accounting at cost allows to minimise these shortcomings: the forest acquisition cost should include not only the planting, initial forest maintenance costs, but also the direct further forest maintenance costs, incurred until the forest (stands) under development sale or felling



moment, however, the indirect further forest development costs, related to the forest maintenance should not be included. To systematically write-off the stands, the depletion method is suggested, according to which the cost of stands should be included in timber cost after felling or should be recognized as expenses after the forest (stands) or its part is sold.

6. When the fair value method is used for forest accounting, the financial statements reflect the forest biological transformation and its impact on the value, continuous information about changes in the value of the forest is presented, while these changes are directly related to the forecasts of the future economic benefits. However, the fair value method applied in forest accounting has two basic drawbacks: 1) the presentation of the fair value change in the profit and loss account does not meet the revenue recognition criteria, causes the revenue-expenses asymmetry, can lead to false expectations for dividends and wrong assumptions for economic decision-making processes, 2) due to the lack of an active market, the determination of fair value of the forest is a subjective process, which can be reduced only by applying uniform assessment methods, revealing the fair value determination methods and assumptions in the explanatory notes. The modified method of forest accounting at fair value allows to minimise the following disadvantages: the stands should be recorded at cost, thereafter, annually revalued to fair value, the unrealized fair value gains or losses should be presented in equity (revaluation reserve), while the forest afforestation (reafforestation) and further development and maintenance costs should be capitalised.

7. The most appropriate method for determining the fair value of a forest is the income method, where the fair value is determined by converting the future cash flows from the asset into one current value, taking into account the current market forecasts. Most of the proposed forest valuation methods are based on Faustmann's (1849) land value determination formula, but more recent methodologies are characterised by uncertainties in forecasting long-term cash flows, as well as by setting a discount rate. The examined methods of economic evaluation of forests do not fully conform to the fair value criterion, therefore, a modified method is proposed for determining the fair value of the forest that implies the present value of the forecasted future cash flows from forests, taking into

account the historic growth rates of the forest income and expense for forest stands, using the third reliability level data, however, largely based on the information available on the active market.

8. The results of the empirical survey of forest accounting policies and practices used by the forestry enterprises in Lithuania showed that the financial accounting for forests is different, therefore, the financial information provided by them is incomparable. Although all the surveyed companies apply the Lithuanian Business Accounting Standards, manage economic forests (group IV), apply a balance model to the acquired forest accounting, their forests are accounted for, exclusively, at cost, nevertheless, essential differences have been identified in other areas. The research showed that, although most of the enterprises capitalise the afforestation (reforestation) costs, a significant number of them assign them to the expenses of the reporting period, which reduces the reliability of the financial information and raises doubts regarding the “true and fair view” in the financial statements. The significant differences were identified in the areas of forest cost determination, classification of stands, as well as in the areas of accounting maintenance and restoration expenses. In the context of uncertain accounting processes, it is important to provide additional information to users, yet, more than half of the surveyed enterprises do not provide any additional information on forests in their explanatory notes. The results of the survey revealed that the enterprises do not opt to use fair value accounting methods, adapted in global practice, in order to provide users with more relevant information in their financial statements.

9. The conceptual forest accounting model, based on economic logic and general accepted accounting principles, is in line with the historical cost and fair value concepts and can be applied to small, medium and large forestry enterprises or business entities managing forests and involved in other activities. The forest financial accounting model is established as an open input-process-output system, the structure of which conforms to the consistency scheme of the process of the accounting elements included in the financial statements. The input of the introduced model is the forest (stands) costs, which, according to the recognition criteria and their realisation, are recognised as an asset, the classification of

which is determined by the intended purpose of the acquisition and use of the forest. At initial recognition, the assets are valued at cost and forest accounting methods are diversified depending on the nature of the use of the asset and/or the size of the enterprise. The outcome of the model is the financial information on the forests under development presented in the balance sheet and in the profit and loss account, which is useful for users of the information found in the financial statements, for making economic decisions related to the enterprise, thus, impacting the further activities of the enterprise.

10. Seeking that the users of accounting information are able to make well-grounded economic decisions, the financial information must be consistent with the fundamental and other enhancing qualitative characteristics. The forest financial accounting model enables to provide relevant information about the enterprise's activities, as it reflects the value of the enterprise's main resource, i.e. the forest value in the balance sheet and its real results in the profit and loss account, also it allows us to assess the enterprise's capacity to obtain economic benefits in the future. The model provides reliable information, because it meets the prudence principle in terms of revenue recognition and is based on a clear evaluation methodology. In the case of using a unified forest financial accounting model for the private forest enterprises and the state forest enterprises, the users of accounting information are given the opportunity to compare the financial information of not only of different time periods but also of forestry enterprises with different status (state and private) in order to evaluate the efficiency of their activities. The clear presentation of forest data on the balance sheet and additional disclosures in the explanatory notes ensure that users will better understand the activities of the enterprise and its financial indicators. An expert evaluation of the model showed that experts exhibited a high or satisfactory level of compatibility of opinions and confirmed the justification and suitability of the balance financial accounting model for forests managed by business entities, as well as the structure of the model, the variables of its individual elements and the relevance of information for the users and the possibilities for its practical application.

## **Approbation of the scientific research and their dissemination**

### **Publications on the dissertation topic:**

1. Budrionytė R., Kazlauskienė L., Subačienė R. (2012). Lietuvos miškų urėdijų miškų finansinė apskaita: aktualijos ir perspektyvos. – Apskaitos ir finansų mokslas ir studijos: problemos ir perspektyvos 1(8), p. 36–43.

2. Будрионите, Р., Субачиене Р. (2013). Проблемы регламентации финансового учета лесов в Литве. Современные проблемы учета, анализа и аудита в условиях трансформации учетной системы корпоративного и государственного сектора. Харьков: Харьковский институт финансов, с. 24–31.

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2. International scientific conference „Accounting, Audit, Analysis: Science, Studies and Business Synthesis“. 15-16 of October, 2015. Vilnius University. Report „Fair Value Accounting in the Context of National and International Accounting Standards“.

3. 10<sup>th</sup> international scientific conference „Accounting and Finance: Science and Business Partnership“. 24-25 of November, 2016. Kaunas, Aleksandras Stulginskis University. Report “Problems and Practice of Forest (Stands) Classification in Lithuanian Forestry Enterprises in the Context of Accounting Standards”.

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Born on the 4<sup>th</sup> of July, 1972, in Vilnius, Lithuania.

Education:

1990 - 1995 Economist (Accounting and Auditing specialization), Vilnius University

2013 - 2017 doctoral studies at the Vilnius University, Social Sciences: Management

Professional experience:

1995 – now, Accounting and Auditing Department, Faculty of Economics, Vilnius University. Assistant, lecturer.

1998 - 2005 JSC Aliejaus holdingas. Chief Financial Officer.

1998 - 2002 JSC Halmarkas. Chief Financial Officer.

2000 - now, International Business School at Vilnius University. Lecturer

2009 - 2015 the Committee of Accounting Standards under the Audit and Accounting Authority. Member (expert).

2016 - now, the Committee of Business Accounting Standards under the Ministry of Finance of the Republic of Lithuania. Member (expert).

## SANTRAUKA

**Temos aktualumas.** Sudėtingomis šiuolaikinio verslo valdymo ir konkurencingos, nuolat kintančios rinkos, taip pat didelio informacinio srauto sąlygomis verslo sėkmę gali padidinti *aktuali, patikima, palyginama, suprantama ir laiku pateikta* finansinė informacija, kuria remiantis gali būti priimami racionalūs operatyviniai ir strateginiai verslo valdymo, finansavimo, investiciniai bei kiti ekonominiai sprendimai. Pastarųjų dešimtmečių globalizacija padidino informacijos vartotojų poreikį gauti palyginamą informaciją apie įmonių ekonominės veiklos procesus *pasauliniu lygmeniu* - tai naujai aktualizavo finansinės apskaitos harmonizavimo ir standartizavimo klausimus, kurie sprendžiami reglamentuojant apskaitos procesus tarptautiniu mastu daugiau nei 40 metų. Vis dėlto ne visos sritys per šį laikotarpį susilaukė pakankamai dėmesio, viena jų – svarbaus visuomenei, pagrindinio miškininkystės įmonių išteklius - miško finansinė apskaita, informacijos apie ją pateikimas bei atskleidimai verslo subjektų finansinėse ataskaitose.

Miškų ūkis - prioritetinga ūkio šaka, apimanti įvairialypes miško želdinimo, priežiūros, ugdymo, naudojimo ir apsaugos biotechnines bei ekonomines priemones. Miško teikiama mediena ir kiti miško produktai bei paslaugos tenkina ekologines, ekonomines ir socialines visuomenės reikmes, miškų reikšmė nuolat didėja dėl jų teikiamos įvairiapusės naudos valstybei, visuomenei, šalies ūkiui ir žmogui. Per pastarąjį dešimtmetį išaugęs susidomėjimas miškininkystės įmonių veikla padidino patikimos, aktualios ir palyginamos finansinės informacijos apie šių įmonių veiklą, poreikį. Tuo tarpu miškininkystės įmonių specifinė finansinės apskaitos sritis – miško finansinė apskaita, skirtingose šalyse ir įmonėse gali būti visiškai skirtinga: nuo miškų finansinės apskaitos ignoravimo, ko pasekmė – nepilni, neteisingi ir potencialiai klaidinantys finansiniai duomenys apie įmonių veiklą, iki pateikimo finansinėse ataskaitose tikrąją vertę, kuri dažnai pagrįsta subjektyviais vertinimais ir prielaidomis, todėl suteikia galimybių vadovybei manipuliuoti finansine informacija. Miškus gali valdyti ir miškininkystės veiklos nevykdantys verslo subjektai rekreacinių, medžioklės paslaugų teikimui, nuomos ar investavimo tikslais, tačiau tokio turto finansinės apskaitos aspektai nėra reglamentuoti.

Skirtinga miškų finansinės apskaitos praktika ir reglamentavimo trūkumas lemia *nepatikimos, nepalyginamos, nesuprantamos*, todėl ekonominių sprendimų priėmimui netinkamos informacijos pateikimą verslo subjektų finansinėse ataskaitose. Tik harmonizavus miško pripažinimo ir klasifikavimo principus, vėlesnius apskaitos ir vertinimo būdus, finansinėse ataskaitose gali būti suformuojama aktuali, patikima, palyginama ir suprantama informacija apie miškus valdančių verslo subjektų veiklą, kuri būtų tinkama valdymo, investicinių ir kitų ekonominių sprendimų priėmimui.

**Mokslinė problema ir jos ištirtumo lygis.** Lietuvos mokslininkų paskelbtuose darbuose miškų ekonomikos klausimais galima išskirti tris esmines tyrimų kryptis: 1) miškų sektoriaus raida ir efektyvus miškų valdymas, 2) miškų urėdijų veiklos efektyvumo tyrimai, 3) miškų ekonominės vertės nustatymas. Šiuos klausimus nagrinėjo G. Činga, R. Deltuvas, E. Laurinavičius (2001), G. Činga, A. Deltuvas, J. Mažeika (2002), R. Deltuvas (2006), A. Gaižutis (2005), V. Domarkas ir V. Varapnickas (2006), S. Mizaras (2006, 2012, 2013), A. Gaižutis ir J. Kurtinaitienė (2007), R. Deltuvas et.al (2010), M. Kavaliauskas, R. Deltuvas, G. Činga (2011), M. Kavaliauskas (2012), B. Galinienė, A. Gaižutis, S. Deveikis, A. Tumelionis, I. Kučinskienė (2012), S. Mizaras ir D. Mizaraitė (2014), S. Mizaras ir D. Lukminė (2016). Tačiau verslo subjektų valdomų *miškų finansinės apskaitos sistema* Lietuvoje tirta nebuvo.

Miškų finansinė apskaita užsienio autorių darbuose dažnai nagrinėjama 41-ojo TAS „Žemės ūkis“ kontekste, taigi turi artimų sąsajų su biologinio turto finansine apskaita ir tikrosios vertės nustatymo klausimais. Lietuvoje biologinio turto apskaitos problematiką nagrinėjo D. Zinkevičienė ir N. Stončiuvienė (2004, 2006), D. Zinkevičienė (2009), R. Paliulienė (2012), A. Amelevič (2013), N. Stončiuvienė, D. Zinkevičienė, L. Martirosianienė (2016), tikrosios vertės nustatymo ir taikymo apskaitoje aspektus tyrė K. Rudžionienė (2008, 2009). Vis dėlto minėti autoriai tyrė tradicinio biologinio turto augintojų - gyvulininkystės ir augalininkystės įmonių finansinės apskaitos aspektus, tuo tarpu *miško* finansinės apskaitos sistema ir jos aspektai nagrinėti nebuvo.

Miškų finansinės apskaitos klausimai dažniau buvo tirti užsienio šalių mokslininkų. Miško pripažinimo turtu ir įtraukimo į miškininkystės įmonių apskaitos sistemą bei

finansines ataskaitas klausimus kėlė H. Lemmel (1956), K. Abetz (1957), H.D. Brabander (1965), K. Openshaw (1980), J. Borchers (1997), A.S. Hyder, L. Lönnstedt, M. Penttinen M. (1999), J.N. Hogg ir H.A. Jöbstl (2009 a), W. Tzschupke (2009 b), D. Dvořáková (2011b), M. Stárová, H. Čermáková, T. Hlavsa, H. Vostrovská, M. Levá (2016). Mažiau dėmesio sulaukusi, tačiau reikšminga miškų finansinės apskaitos sritis – miško klasifikavimo aspektai, buvo nagrinėti J. Borchers (1997), G. Bright (2001), M. Penttinen, A. Latukka, H. Merilainen, O. Solminen (2004), Iesalnieks (2005), W. Sekot (2007), H.A. Jöbstl (2009 b), E. Grege – Staltmane (2010), D. Dvořáková (2011), I.V. Zamula, O.V. Shavurska (2015). Vis dėlto miško atitikimo turto pripažinimo finansinės apskaitos sistemoje kriterijams bendrai ir apribotos ūkinės veiklos miškuose atvejais problemos, taip pat verslo subjektų valdomų miškų klasifikavimo kriterijų sistema nesulaukė pakankamo tyrėjų dėmesio.

Reikia pažymėti, kad didžiausio mokslininkų dėmesio sulaukė dvi su miškų finansine apskaita susiję sritys: 1) miškui tinkamų apskaitos būdų parinkimas ir 2) miško vertinimas. Daugiausia tyrimų buvo atlikta ir mokslo darbų paskelbta palaikant ar kritikuojant 41 – ajame TAS „Žemės ūkis“ nurodytą privalomą biologinio turto apskaitą tikrąja verte. Tikrosios vertės koncepcija mokslinėje literatūroje analizuota labai plačiai - tiek sprendžiant teorinius konceptualiuosius, tiek praktinius taikomuosius klausimus. M.P. Bolivar ir N.A. Galera (2007, 2012), F. Allen ir E. Carletti (2008), G. Whittington (2008, 2015), J.V. Curtis (2009), Dvořáková (2009), M.L. Magnan (2009), M. Ristea ir I. Jianu (2010), R. Lambert (2010), J.M. Argiles, J.G. Garcia-Blandon, T. Monllau (2011), C. Bonaci ir J. Strouhal (2011), E. Bostwick ir R. Fahnestock (2011), K. Ramanna, R.L. Watts (2012), D. Brînză ir M. Bădoi (2013), C. T. Kaya (2013), N. Gabriel, ir P. Stefea (2013), D. Alexander, R. Fasiello (2014), L. Hodder, P.Hopkins, K. Schipper (2014), J. Muller (2014), M.I Damian, S.M. Mănoiu, C.G. Bonaci, J. Strouhal (2014), R. Kurniawan, A. D. Mulawarman, A. Kamayanti (2014), I. Iacob (2014), D. Simtion (2014), R. Gonçalves ir P. Lopes (2015), H. Bohušová ir P. Svoboda (2016), V. Palea (2014, 2017) ir kiti tyrė tikrosios vertės koncepcijos įsitvirtinimo finansinėje apskaitoje priežastis ir retrospektyvą, taikymo skirtingose apskaitos srityse galimybes, analizavo tikrosios vertės ir istorinės savikainos



koncepcijomis pagrįstų apskaitos būdų privalumus ir trūkumus. Gerokai mažiau autorių: A.S. Hyder et al. (1999), C. Elad (2004), K. Herbohn ir H. Herbohn (2006), H.A. Jöbstl (2009), K. Herbohn (2009), W. Tzcupke (2009), K. Wallner (2009), P. Miller ir P. Bahnson (2009), B.J. Epstein ir E.K. Jermakowicz (2010), M. Fischer ir T. Marsh (2013), K. Muhammad (2014), C. Elad ir K. Herbohn (2011), Y.H. Aryanto (2011), D. Dvořáková (2011), I.V. Zamula ir O.V. Shavurska (2015), M. Stárová, H. Čermáková, T. Hlavsa, H. Vostrovská, M. Levá (2016), savo darbuose nagrinėjo tikrosios vertės būdo, arba tam tikrų jo aspektų taikymo *miško finansinei apskaitai* privalumus bei ribotumus. Nors visų autorių darbuose pastebima didesnė ar mažesnė tikrosios vertės būdo kritika, išreiškiama jo tobulinimo, siekiant pritaikyti miško finansinei apskaitai, būtinybė, tačiau tikrosios vertės būdo taikymo miškų finansinėje apskaitoje problemos lieka neišspręstos. Reikia paminėti, kad tikrosios vertės būdo alternatyva – miško apskaita savikainos būdu, plačiau buvo nagrinėta XX amžiaus pabaigoje, iki 41- ojo TAS paskelbimo: K. Openshaw (1980), A.S. Hyder et al. (1999), M. Penttinen (1992), A.R. Davy (1987), H. A. Jöbstl (2000 b), vėliau H. Bohušová, P. Svoboda, D. Nerudová (2012), G. Ignat, K. Iatco, G. Ungureanu, C. Costuleanu, H. Athes (2014), D. Dvořáková (2011b) nagrinėjo savikainos būdo taikymo miškams galimybes ir trūkumus, tačiau šiuose darbuose didesnis dėmesys skiriamas praktiniams būdo taikymo aspektams.

Kita plati mokslininkų tirta sritis, tiesiogiai susijusi su miško apskaita tikrąja verte – miško vertinimo ir tikrosios vertės nustatymo problemos. Daug dėmesio tikrosios vertės nustatymo metodų analizei ir taikymui skyrė S. Jones ir P.V. Wolnizer (2003), A. Raihi-Belkaoui (2004), M. Ristea ir I. Jianu (2010), R.G. Schroeder, M.W. Clark, J.M. Cathey (2011), C.A. Bunea-Bontas (2013), S. Rozentāle ir M. Ore (2013), B. Mackenzie, D. Coetsee, T. Njikizana, E. Selbst, R. Chamboko, B. Colyvas, B. Hanekom (2014), L. Hodder et al. (2014), D. Alexander ir R. Fasiello (2014) ir kiti, tačiau būtent *miško* tikrosios vertės nustatymo tema dažniau analizuota ne apskaitos, o miškų ekonomikos krypties mokslininkų. Miško vertinimo metodų vystymosi retrospektyvą tyrė G.A. Navaro (2003, 2007), M. Martin ir M. Bösch (2013). M. Faustmann (1849) miško žemės vertinimo formulė ir vėlesnės jos transformacijos nagrinėtos M.B. Grainger (1968), B. Manley ir B.B.

Bare (2003), J. Buongiorno (2001), G.A. Navaro (2003, 2007), I. Ferguson ir J. Leech (2007), S.J. Chang (2013) ir kitų mokslininkų darbuose. Nemažai autorių tyrė ypač aktualų miškų dabartinės vertės nustatymui – diskonto normos parinkimo klausimą. Čia verta paminėti H.H. Chapman (1915), J. Quiggin (1997), V. Brukas, B.J. Helles, F. Tarp, P. Thorse (2001), C. Price (2005), C. J. Hepburn ir P. Koundouri (2007), C.S. Binkley (2009), E. Grege-Staltmane ir H. Tuherm (2010), M. Martin ir M. Bösch (2013), E. Ungerböck, V. Sekot, P. Toscani (2015), B. Manley (2016), M. Stárová, et.al (2016) darbus. Vis dėlto dažniausiai minėtuose darbuose buvo tiriami ekonominiai miškų vertinimo būdai, nesiejant jų taikymo su miškų finansine apskaita ir tikrosios vertės nustatymo principais, o vertinimo būdų adaptavimo finansinės apskaitos sistemai klausimai nagrinėti minimaliai.

Pagrindinė mokslinė problema, nulemianti miškus valdančių ūkio subjektų finansinės informacijos aktualumo, patikimumo, palyginamumo ir suprantamumo stoką – *miškų finansinės apskaitos teorijos apskritai ir tam tikrais atskirais aspektais nebuvimas*. Mokslinių darbų miškų finansinės apskaitos, kaip vientisos tarpusavyje sąveikaujančių apskaitos proceso elementų sistemos, klausimais stoka pagrindžia disertacinio darbo **mokslinę problemą**: poreikį konceptualizuoti ir susieti miškų finansinės apskaitos sistemos elementus, sukuriant ekonomine logika bei bendraisiais apskaitos principais pagrįstą, fundamentaliąsias ir kitas svarbias finansinės informacijos charakteristikas atitinkantį miškų finansinės apskaitos modelį, apjungiantį miško pripažinimo, klasifikavimo, registravimo, vertinimo ir pateikimo finansinėse ataskaitose aspektus į bendrą sistemą.

**Tyrimo tikslas** - įvertinti finansinėse ataskaitose pateikiamos informacijos apie miškininkystės įmonių valdomus miškus atitikimą fundamentaliosioms ir kitoms svarbioms kokybinėms finansinės informacijos charakteristikoms ir sukurti verslo įmonių valdomų miškų finansinės apskaitos modelį.

**Tyrimo objektas** - verslo įmonių valdomų miškų finansinės apskaitos sistema.

**Tyrimo uždaviniai:**

1. Ištirti miško pripažinimo turtu ir klasifikavimo įmonės finansinės apskaitos sistemoje probleminius teorinius aspektus;

2. Išnagrinėti miško apskaitos būdų taikymo galimybes ir problematiką finansinės apskaitos koncepcijų kontekste;
3. Išanalizuoti ekonominius miško vertinimo metodus ir jų taikymo tikrosios vertės nustatymui galimybes ir ribotumus;
4. Sudaryti verslo subjektų valdomų miškų finansinės apskaitos empirinio tyrimo metodologiją;
5. Ištirti verslo subjektų valdomų miškų finansinės apskaitos harmonizavimo Lietuvoje prielaidas;
6. Ištirti Lietuvos miškininkystės įmonių valdomų miškų finansinės apskaitos praktiką ir apie miškus teikiamos finansinės informacijos atitikimą fundamentaliosioms ir kitoms svarbioms kokybinėms finansinės informacijos charakteristikoms;
7. Sudaryti ir pagrįsti verslo subjektų valdomų miškų konceptualųjį finansinės apskaitos modelį;
8. Įvertinti verslo subjektų valdomų miškų finansinės apskaitos modelio atitikimą bendriesiems apskaitos principams, fundamentaliosioms ir kitoms svarbioms kokybinėms finansinės informacijos charakteristikoms, jo pagrįstumą, tinkamumą ir praktinio pritaikymo galimybes.

**Tyrimo metodika.** Siekiant įgyvendinti iškeltus tyrimo uždavinius taikyti teoriniai mokslinės literatūros lyginamosios analizės, kritinio vertinimo, abstrakcijos, dedukcijos, sisteminimo, apibendrinimo, modeliavimo metodai. Empiriniam tyrimui naudoti dokumentų turinio analizės, anketinės apklausos, ekspertinio vertinimo metodai. Tai sudarė sąlygas sujungti fragmentinius miškų finansinės apskaitos elementus į bendrą sistemą (modelį).

Miškų finansinės apskaitos probleminiai teoriniai aspektai tirti naudojant minėtus teorinius mokslinius tyrimo metodus. Miškų finansinės apskaitos modelio formavimas pagrįstas atlikto teorinio tyrimo, apskaitos reglamentų turinio analizės bei Lietuvos miškininkystės įmonių vyr. buhalterių anketinės apklausos rezultatais. Modelio pagrįstumas, tinkamumas ir praktinis pritaikomumas vertintas taikant ekspertinio vertinimo metodą. Ekspertų nuomonių suderinamumo lygiui nustatyti naudotas dispersinis konkordacijos

koeficientas, suderinamumo hipotezės tikrintos Kendall konkordacijos koeficiento statistiniu patikimumu.

**Mokslinis disertacijos naujumas.** Parengta disertacija gali būti laikoma nauju ir originaliu moksliniu darbu dėl šių teorinio naujumo aspektų:

- Pirmą kartą Lietuvoje buvo išnagrinėti moksliniai darbai miško pripažinimo, klasifikavimo, apskaitos koncepcijų taikymo ir su tuo susijusių apskaitos būdų ir vertinimo metodų pasirinkimo miškų finansinės apskaitos sistemoje aspektais.

- Pagrįsti miškų finansinės apskaitos teoriniai fundamentalieji pagrindai: išskirti miško pripažinimo turtu įmonės finansinės apskaitos sistemoje kriterijai ir pateikta verslo subjektų valdomų miškų klasifikavimo finansinėje apskaitoje sistema.

- Išnagrinėjus finansinės apskaitos koncepcijų privalumus ir trūkumus bei įtaką fundamentaliosioms ir kitoms svarbioms kokybinėms finansinės informacijos charakteristikoms, pagrįstas šių koncepcijų taikymas miško finansinei apskaitai.

- Atlikta klasikinių turto apskaitos būdų analizė ir jų pagrindu pateikti du nauji, skirtingas apskaitos koncepcijas atitinkantys, miško finansinės apskaitos būdai: modifikuotas miško apskaitos savikaina būdas ir modifikuotas miško apskaitos tikraja verte būdas.

- Išnagrinėti ekonominiai miško vertinimo metodai ir pateikta miško tikrosios vertės nustatymo sistema, atitinkanti tikrosios vertės koncepciją ir kriterijus.

- Sudarytas konceptualusis verslo subjektų valdomų miškų finansinės apskaitos modelis, apimantis miško pripažinimo, klasifikavimo, registravimo, vertinimo ir pateikimo finansinėse ataskaitose aspektus.

### **Praktinė darbo reikšmė**

- Atlikta taikomųjų teisės aktų – nacionalinių ir tarptautinių apskaitos standartų, bei su miškininkystės veikla susijusių kitų Lietuvos norminių aktų turinio analizė, siekiant identifikuoti miškų finansinės apskaitos reglamentavimo pilnumą ir aiškumą praktinio jų nuostatų taikymo aspektu, leido nustatyti miškų finansinės apskaitos reglamentavimo apskaitos standartuose trūkumus ir įvardinti šių teisės aktų tobulinimo sritis ir kryptis.

- Atlikta Lietuvos privačių miškininkystės įmonių vyr. buhalterių (buhalterių) apklausa leido įvertinti miškų finansinės apskaitos praktiką ir padaryti išvadas apie šių įmonių teikiamos finansinės informacijos kokybę, kas gali būti naudinga tokių įmonių finansinės informacijos vartotojams priimant investicinius, finansavimo ir kitus ekonominius sprendimus.

- Atliekant ekspertinį vertinimą, į tyrimą buvo įtraukti pagrindiniai asmenys, atsakingi už finansinės apskaitos reglamentavimą Lietuvoje, taip pat praktikai – auditoriai, kurių patirtis ir žinios leido įvertinti konceptualiojo miškų finansinės apskaitos modelio aspektus taikomuoju požiūriu, praktines modelio taikymo galimybes. Ekspertų pritarimas sukurtam miškų finansinės apskaitos modeliui leidžia teigti, kad modelis gali būti siūlomas verslo apskaitos standartų rengėjams (Lietuvos Respublikos Finansų ministerijai) kaip tinkamas pagrindas reglamentuoti verslo įmonių valdomų miškų finansinę apskaitą Lietuvoje. Kadangi modelis nėra apribotas nacionaliniais juridiniais ypatumais, jis gali būti adaptuotas privačioms ir valstybės kontroliuojamoms įmonėms ne tik Lietuvoje, bet ir kitose užsienio šalyse.

### **Ginamieji disertacijos teiginiai**

1. Bendraisiais apskaitos principais pagrįsti vieningi miško pripažinimo ir klasifikavimo kriterijai, miško apskaitos būdai ir vertinimo metodai užtikrina teisingos ir palyginamos informacijos apie valdomus miškus pateikimą verslo subjektų finansinėse ataskaitose.

2. Miškų finansinės apskaitos modelio taikymas užtikrina finansinėse ataskaitose pateikiamos informacijos atitikimą fundamentaliosioms ir kitoms svarbioms finansinės informacijos kokybinėms charakteristikoms, todėl naudingas informacijos vartotojams, siekiantiems priimti valdymo, investicinius ir kitus ekonominius sprendimus.

3. Sukurtas konceptualusis verslo įmonių valdomų miškų finansinės apskaitos modelis yra universalus, nes gali būti taikomas mažose ir didelėse, privačiose ir valstybinėse miškininkystės įmonėse, taip pat ne miškininkystės veiklą vykdančiose įmonėse, valdančiose miškus.

**Darbo struktūra ir apimtis.** Darbą sudaro įvadas, trys skyriai, išvados ir pasiūlymai, taip pat literatūros sąrašas ir priedai. Darbo apimtis 250 puslapių (be priedų), jame yra 53 paveikslai, 12 lentelių, 227 literatūros šaltiniai, 6 priedai.

## **Išvados**

1. Svarbiausias miškininkystės įmonių išteklius – miškas, skirtingai nei kitas verslo subjektų materialusis turtas, ne visuomet pripažįstamas turtu ir tuomet nepateikiamas vienoje pagrindinių įmonės finansinių ataskaitų – balanse. Pasaulinėje miškų finansinės apskaitos praktikoje galima išskirti du miškų apskaitos *modelių tipus*: balansinį ir nebalansinį. Balansinio modelio tipo privalumas - finansinės ataskaitos atspindi realią įmonės situaciją, tačiau trūkumas – specifinė, dviprasmiška miškų apskaita, taikomos skirtingos vertinimo metodikos. Nebalansinis modelis leidžia išvengti miško finansinės apskaitos ir vertinimo, tačiau yra kritikuotinas, nes iškreipia finansinę informaciją apie įmonės veiklą ir neatitinka kai kurių bendrųjų apskaitos principų. Augantis susidomėjimas finansinės apskaitos metodais, kurie atsižvelgia į holistinę vertės kūrimo perspektyvą, lemia vis spartesnę balansinio modelio tipo plėtrą ir suponuoja būtinybę šia kryptimi vystyti miškų finansinės apskaitos teoriją.

2. Kertinė balansinio miškų finansinės apskaitos modelio taikymo sąlyga yra miško pripažinimas turtu - miškas turi atitikti tradicinėje finansinėje apskaitoje taikomus du esminius turto pripažinimo kriterijus: išteklių kontrolė ir galimybė iš jo gauti ekonominę naudą ateityje. Jei pirmasis kriterijus nesunkiai įgyvendinamas, tai antrasis tam tikrais atvejais gali lemti miško neatitikimą turto definicijai dėl valstybės nustatytų ūkininkavimo ir tuo pačiu ekonominės naudos gavimo apribojimų. Išanalizavus Lietuvos teisės aktuose numatytus miško naudojimo apribojimus nustatyta, kad abejonių kyla tik dėl privačių miškininkystės įmonių valdomų II grupės ekosistemų apsaugos ir rekreacinių miškų atitikimo turto pripažinimo kriterijams, tuo tarpu III ir IV grupių miškų pripažinimas turtu nekvestionuotinas, taigi šie miškai privalo atsispindėti juos valdančių verslo subjektų, tame tarpe valstybinių miškų urėdijų, finansinėse ataskaitose.

3. Miško savitos prigimtinės savybės nulemia ilgą jo „gamybos“ ciklą, o tuo pačiu ir ekonominės naudos gavimo ypatumus, kurie sukelia problemų priskiriant mišką vienai ar

kitai turto kategorijai pagal tradicinę finansinės apskaitos turto klasifikaciją - tai turi įtakos šio turto apskaitos būdų pasirinkimui, vėlesniam vertinimui bei pateikimui finansinėse ataskaitose. Gana vieningai sutariama dėl vienintelio klasifikavimo aspekto: miško žemė turi būti atskirta nuo medynų ir priskirta ilgalaikiam materialiajam turtui, tuo tarpu medynų klasifikavimo klausimai ir toliau lieka aktualiu mokslinių diskusijų objektu, o praktikoje padidina galimybę manipuliuoti finansine informacija priskiriant medynus ilgalaikiam ar trumpalaikiam turtui, taip pat skirtingoms pagal turto pobūdį grupėms: biologiniam, ilgalaikiam materialiajam turtui ar atsargoms. Sprendžiant miško klasifikavimo klausimus būtina įvertinti verslo subjekto veiklos aplinkybes, miško įsigijimo ar ugdymo tikslą, valstybės nustatytus miško naudojimo apribojimus. Privačių miškininkystės įmonių bei miškų urėdijų ūkininkavimo tikslais ugdomus miškus siūloma priskirti ilgalaikiam biologiniam turtui, tačiau miškai, kurie negali būti ar nėra naudojami miškininkystės veikloje turėtų būti klasifikuojami kitaip: įgyti kaip investicija, nuomojami miškai turėtų būti pripažinti investiciniu turtu, naudojami kitoje veikloje (kaimo turizmo, kitų rekreacinių paslaugų teikimui) - kitu ilgalaikiu materialiuoju turtu, įgyti pardavimui artimiausiu metu – atsargomis (prekėmis).

4. Verslo subjekto išteklių apskaita ir informacijos apie juos pateikimas finansinėse ataskaitose priklauso nuo taikomų apskaitos ir vertinimo būdų, kurie pagrįsti dvejomis finansinės atskaitomybės koncepcijomis: apskaita istorine savikaina ir apskaita tikraja verte. Apskaitos tikraja verte esminis privalumas – ji teikia aktualesnę informaciją ekonominių sprendimų priėmimui, nes reaguoja į pokyčius rinkoje. Tuo tarpu apskaita istorine savikaina neatspindi infliacijos įtakos, neatsižvelgia į aplinkybių rinkoje pokyčius ir todėl teikia informaciją, kurios ekonominių sprendimų priėmimui ir koreguojančių veiksmų atlikimui dažnai nepakanka. Pagrindinis apskaitos tikraja verte trūkumas - jei nėra aktyviosios rinkos su skelbiamomis kainomis, tikroji vertė nustatoma taikant skirtingus metodus, todėl informacija gali tapti nepalyginama ir nepatikima. Miškų apskaitai taikant savikaina pagrįstus apskaitos būdus finansinėse ataskaitose pateikiama patikima ir įrodoma informacija, sumažinama manipuliacijų duomenimis galimybė, be to nereikia atlikti laiku, darbui ir (arba) finansiniams ištekliams imlios procedūros - periodiškai nustatinėti miško

tikrosios vertės. Taikant tikrąją vertę pagrįstus apskaitos būdus miškai balanse pateikiami tikrąją vertę, kuri yra aktualesnė finansinių ataskaitų informacijos vartotojų ekonominių sprendimų, ypač susijusių su ilgalaikę įmonės perspektyva, priėmimui bei būsimų pinigų srautų prognozavimui ir leidžia atspindėti ne tik miško biologinę transformaciją, bet ir rinkos aplinkybių įtaką.

5. Tradiciškai aiški, suprantama ir lengvai įgyvendinama istorinės savikainos koncepcija miškų atveju yra komplikuoja dėl: 1) miško (at)sodinimo, vėlesnės priežiūros išlaidų paskirstymo bei kapitalizavimo pabaigos momento nustatymo ir 2) sisteminio nurašymo būdo parinkimo mišką pripažinus ilgalaikiu turtu. Pirmojo neapibrėžtumo priežastis – ilgas miško ugdymo ciklas ir jo metu nuolat patiriamos išlaidos medynams bei tuo pačiu metu uždirbamos periodinės pajamos iš tarpinių kirtimų, taip pat etapais atliekamų pagrindinių kirtimų, tuo tarpu antrasis susijęs su ilgalaikio materialiojo turto nusidėvėjimo skaičiavimu, kuris neatspindi miško vertės pokyčių bei ekonominės naudos gavimo proceso dinamikos. Pateiktas modifikuotas miško apskaitos savikaina būdas leidžia minimizuoti šiuos trūkumus: į miško įsigijimo savikainą siūloma įskaityti ne tik miško pradines, tačiau ir vėlesnes tiesiogines priežiūros išlaidas, patiriamas iki ugdomų medynų kirtimo ar pardavimo, tačiau neturėtų būti įskaitomos su miškų ugdymu netiesiogiai susijusios priežiūros, pardavimo ir bendrosios įmonės išlaidos. Medynų sisteminiam nurašymui pasiūlytas turto išsekimo (*angl. depletion*) metodas, pagal kurį per miško ugdymo ciklą kapitalizuojamos išlaidos pripažįstamos ataskaitinio laikotarpio sąnaudomis mišką pardavus stačią ar jo netekus, arba įskaitomos į medienos (produkcijos) savikainą mišką nukirtus.

6. Miško apskaitai taikant tikrosios vertės būdą finansinėse ataskaitose atskleidžiama miško biologinė transformacija ir įtaka vertei, nuolat pateikiama informacija apie miško vertės pokyčius, o šie tiesiogiai susiję su būsimos ekonominės naudos prognozėmis. Tačiau tikrosios vertės būdo taikymas miško apskaitai turi du esminius trūkumus: 1) tikrosios vertės pokyčio pateikimas pelno (nuostolių) ataskaitoje neatitinka pajamų pripažinimo kriterijų, sukelia pajamų ir sąnaudų pateikimo asimetriją, gali sukelti nepagrįstų lūkesčių dėl dividendų ir nulemti klaidingas ekonominių sprendimų priėmimo prielaidas, 2) dėl aktyviosios rinkos trūkumo miško tikrosios vertės nustatymas tampa



subjektyviu procesu, kurį galima sumažinti nebent taikant vieningas vertinimo metodikas, atskleidžiant tikrosios vertės nustatymo metodus ir prielaidas aiškinamajame rašte. Modifikuotas miško finansinės apskaitos tikraja verte būdas leidžia minimizuoti šiuos trūkumus: medynai apskaitoje turėtų būti registruojami savikaina, vėliau kasmet perkainojami iki tikrosios vertės, nerealizuotą tikrosios vertės pasikeitimo pelną ar nuostolius pateikiant nuosavame kapitale (perkainojimo rezerve), tuo tarpu miško (at)sodinimo ir vėlesnės ugdymo ir priežiūros išlaidos kapitalizuojamos.

7. Miško tikrosios vertės nustatymui tinkamiausios - pajamų būdo metodikos, kuomet būsiami turto grynieji pinigų srautai perskaičiuojami į vieną dabartinę vertę, naudojant antrojo arba trečiojo patikimumo lygio duomenis. Dauguma miško vertės nustatymo metodų remiasi Faustmann (1849) pateikta žemės vertės nustatymo formule, o vėliau sukurtoms (patobulintoms) metodikoms būdingi neapibrėžtumai prognozuojant ilgo laikotarpio pinigų srautus, taip pat nustatant diskonto normą. Vis dėlto iširtos miškų ekonominio vertinimo metodikos neatitinka tikrosios vertės nustatymo kriterijų, todėl siūlomas miško tikrosios vertės nustatymo metodas, implikuojantis prognozuojamų būsimų grynujų pinigų srautų iš miško dabartinę vertę, atsižvelgiant į istorinį miško pajamų ir išlaidų medynams augimo tempą, naudojant trečio patikimumo lygio duomenimis, tačiau maksimaliai remiantis aktyvioje rinkoje skelbiama informacija.

8. Atlikto Lietuvos miškininkystės įmonių miškų finansinės apskaitos politikos ir praktikos empirinio tyrimo rezultatai atskleidė, kad miškų finansinė apskaita yra skirtinga, todėl teikiama įmonių finansinė informacija nepalyginama. Nors visos tirtos įmonės taiko nacionalinius apskaitos standartus (VAS), valdo ūkinius miškus, *įsigytų* miškų apskaitai taiko balansinį modelį, o miškus apskaito išskirtinai savikainos būdu, visgi kitose srityse identifikuoti esminiai skirtumai. Nustatyta, kad didžioji dalis įmonių atsodinto (pasodinto) miško išlaidas kapitalizuoja, tačiau reikšminga dalis priskiria ataskaitinio laikotarpio sąnaudoms, kas sumažina finansinės informacijos patikimumą ir kelia abejonių dėl "tikro ir teisingo įmonės vaizdo" finansinėse ataskaitose. Identifikuoti reikšmingi skirtumai miško įsigijimo savikainos nustatymo, medynų klasifikavimo, taip pat priežiūros ir atkūrimo išlaidų apskaitos srityse. Neapibrėžto apskaitos reglamentavimo sąlygomis svarbu pateikti

papildomą informaciją vartotojams, tačiau daugiau nei pusė tirtų įmonių papildomos informacijos apie miškus aiškinamuosiuose raštuose nepateikia. Tyrimo rezultatai atskleidė, kad įmonės nesinaudoja galimybe apskaitoje taikyti pasaulinėje praktikoje adaptuotus apskaitos tikrąją vertę būdus, siekiant finansinių ataskaitų informacijos vartotojams pateikti aktualesnę informaciją.

9. Parengtas ekonomine logika bei bendraisiais apskaitos principais pagrįstas konceptualusis miškų finansinės apskaitos modelis remiasi istorinės savikainos ir tikrosios vertės koncepcijomis ir gali būti taikomas mažose, vidutinėse ir didelėse miškininkystės ar kitą veiklą vykdančiose miškus valdančiose verslo įmonėse. Miškų finansinės apskaitos modelis suformuotas kaip atvira įeigos – proceso – rezultato sistema, kurios struktūra atitinka finansinių ataskaitų elementų apskaitos proceso nuoseklumo schemą. Pateikto modelio įeiga – išlaidos miškui (medynams), kurios atsižvelgiant į pripažinimo kriterijus ir jų realizaciją pripažįstamos turtu, kurio klasifikaciją lemia numatomas miško įsigijimo ir naudojimo tikslas. Pirminio pripažinimo metu turtas vertinamas savikaina, o miško apskaitos būdai diversifikuoti atsižvelgiant į turto naudojimo pobūdį ir (ar) įmonės dydį. Modelio rezultatas – finansinė informacija apie ugdomus miškus finansinėse ataskaitose, naudinga finansinės informacijos vartotojams, priimantiems ekonominius sprendimus, susijusius su įmone ir todėl veikiančius tolesnę įmonės veiklą.

10. Finansinė informacija turi atitikti fundamentaliąsias ir kitas svarbias kokybines charakteristikas, kad būtų naudinga apskaitos informacijos vartotojams. Miškų finansinės apskaitos modelis sudaro sąlygas teikti aktualią informaciją apie verslo subjekto veiklą, nes atspindi įmonės pagrindinio išteklių – miško vertę balanse ir realius veiklos rezultatus pelno (nuostolių) ataskaitoje bei leidžia įvertinti įmonės galimybes gauti ekonominę naudą ateityje. Modelis užtikrina patikimą informaciją, nes atitinka atsargumo principą pajamų pripažinimo aspektu ir pagrįstas aiškia vertinimo metodika. Taikant vieningą miškų finansinės apskaitos modelį privačioms miškininkystės įmonėms ir miškų urėdijoms, apskaitos informacijos vartotojams suteikiama galimybė lyginti ne tik skirtingų laikotarpių, tačiau ir skirtingo statuso (valstybinių ir privačių) miškų valdytojų finansinę informaciją, siekiant įvertinti jų veiklos efektyvumą. Aiškus duomenų apie miškus pateikimas balanse ir

papildomi atskleidimai aiškinamajame rašte užtikrina, kad vartotojai geriau supras įmonės veiklą ir jos finansinius rodiklius. Atliktas ekspertinis modelio vertinimas parodė, kad ekspertai su aukštu arba pakankamu nuomonių suderinamumo lygiu patvirtino pateikto balansinio verslo subjektų valdomų miškų finansinės apskaitos modelio pagrįstumą ir tinkamumą, modelio struktūrą, atskirų elementų kintamuosius, informacinį naudingumą vartotojams ir praktinio pritaikymo galimybes.