

Quality of biological assets disclosures of agricultural companies according to international accounting regulation

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Abstract

The quality of financial statements, and in particular the quality of biological assets disclosures of agricultural companies, can be crucial for the realization of international business activities. The aim of this research is to investigate the quality of biological assets disclosures in the financial statements of companies according to the IAS 41 and IFRS for SMEs. The quality of biological assets is investigated into two aspect. Firstly, the index of

biological assets is measured. Secondly, identification of the crucial factors that affect the quality of biological assets disclosure are made by regression model. Results of empirical model show that factors such as liquidity, profitability and international activity positively affect the quality of reporting on biological assets. On the other hand, factors such as company size, biological assets intensity, leverage and listing status do not have a significant impact on the quality of biological assets disclosures.

Keywords: Biological assets. Quality. Financial reporting. Disclosure index. Agriculture companies factors.

1. Introduction

Biological assets represent live animals and plants that are involved in agricultural production. Difference between consumables and bearer biological assets must be realized. Biological assets can be as consumables or bearer biological agents. Assets collected as agricultural products or sold as biological assets are categorized as consumable. Examples of these are cattle that are used in meat production or are kept for sale. On the other hand, bearer biological assets are not consumable and include, for example, cattle from which milk is obtained. Furthermore, biological assets are categorized into mature and immature assets. Mature biological assets are those that have attained harvestable specifications (for consumable biological assets) or are able to sustain regular harvests (for bearer biological assets) (IAS 41).

Biological assets are one of the crucial assets in the balance sheet of agricultural companies. Many authors pay attention to characteristics of agricultural production related to biological processes and adaptation to climate conditions (Polikarpova et al., 2018). Accounting and disclosing information about biological assets have the significant impact on the quality of agricultural company's financial statements. Disclosing incomplete information about biological assets can affect negatively to the quality and reliability of information for decisions making. In order to provide new investors, potential creditors and achieve a good business relationships, companies that have biological assets have to adequately disclose all the necessary information about the value and changes in biological assets in the financial statements. Furthermore, the disclosures of biological assets are subject to auditing.

The problem of defining, accounting and disclosing all types of biological assets is regulated by International Accounting Standard 41 – Agricultural (IAS 41) and by IFRS for SMEs, Section 34: Specialized activity – Agriculture. Those accounting regulations provides requirements about disclosing information about biological assets. Difference between those

two regulations is based on the company's size and amount of required obligatory disclosing. Furthermore, there are differences between disclosures when biological assets are measured by fair value, or when the fair value can not be recognized. Beside those difference some disclosures are the same for according to IAS 41 and IFRS for SMEs such as: description of the assets, reconciliation of changes in the carrying amount of biological assets, showing separately changes in value, sales, harvesting etc. Also, there are some same disclosure when biological assets can not be measured such as: description of the assets, an explanation of why fair value cannot be reliably measured, depreciation method, useful lives or depreciation rates, gross carrying amount and the accumulated depreciation, beginning and ending. If the companies create financial statements according to the International Accounting Standard and International Financial Reporting Standards, those companies have larger volume of obligatory disclosures about biological assets.

In order to provide quality information in financial statements, the especially quality information about biological assets, companies must meet all requirements according to the disclosing regulation. According to the nature of information, disclosures of biological assets are made in the notes to financial statements. Notes to financial statements are not prescribed form, and therefore accountants must pay attention how to create notes to financial statement in order to meet all requirements about biological assets disclosures. Quality of biological assets disclosure can be measured by the index of filled accounting regulation requirements. Many internal and external factors such as company size, intensity of biological assets, concentration of ownership, the type of audit firm, profitability, leverage etc. Identification the quality level of biological assets disclosures, as well identification the crucial factors that affect the biological assets disclosures, can provide useful information and point to the critical aspect which can lead to improvement of the quality of financial statements.

The aim of this paper is to investigate the quality of biological assets disclosures in the financial statements of companies according to the IAS 41 and IFRS for SMEs. The quality of biological assets is investigated into two aspect. Firstly, the index of biological assets is measured. Secondly, identification of the crucial factors that affect the quality of biological assets disclosure are made by regression model. For this research, the sample of 100 observation of financial statements of companies in the period 2014-2016 was used. Financial statements are provided by the Serbian Business Registers Agency.

2. Literature Review

In order to ensure the quality of the disclosure in financial reporting on biological assets, it is necessary to determinate the factors that caught have a significant impact on the financial reporting of companies. The identification and measurement of the mentioned factors implies an analysis of the relationship between internal and external factors and the level of disclosure of biological assets.

Gonçalves et al. (2014) state in their research that, firms have a higher propensity for disclosure when they have larger amounts of non-financial assets (such as a goodwill impairment). These authors draw a parallel between biological assets and the goodwill impairment according to the criteria of complexity of measurement and disclosure. Some other authors dealt with the same issue (Glaum et al. 2013; Shalev, 2009), their concluded that the goodwill impairment requires a valuation skill, so it is to be expected that companies will invest more resources in improving the quality of reporting when they have this position. Leading by analogy, this is also the case with biological assets having in mind the complexity of measurement and disclosure. According to the stakeholder theory, the creators of financial statements on biological assets should ensure compliance with IAS 41 to provide information to users of these statements especially when firms have material amounts of biological assets (Gonçalves et al., 2014). Based on the results of the conducted researches, it is expected that there is a significant positive correlation between the intensity of biological assets (participation of biological assets in total assets) and the level of compulsory disclosure of biological assets.

Concentration of ownership is often used as an internal factor in the quality analysis of the financial reporting. Glaum et al. (2013) state that the structure of the company's owners influences the motivation of increasing the quality of company reporting. Due to the separation of the ownership function from the managerial function, agency problems are rising, with the rise in agency costs in proportion to the increase in the dissolution of the ownership structure. In order to reduce agency costs, companies with a more diluted ownership structure have a greater motivation to provide transparent financial reporting (Oliveira et al. 2006). This is supported by the statement (Ding et al. 2007) that the IAS was arranged to provide information to stakeholders, in order to reduce the asymmetry of information between managers and external users and to encourage transparency in reporting. For companies that are controlled by a larger number of investors, there is a higher demand

for publishing information. It is to be expected that there is a significant negative correlation between the concentration of ownership and the degree of compulsory disclosure related to biological assets.

Company size reflects capability from the aspect of production volume, where a higher production enables a higher sales revenue level and intensive growth (Andrašić et al. 2018). Glaum et al. (2013) state the size of the company as an important factor that affects the level of disclosure of information in financial statements. The results of their research have shown that larger companies have allocated more funds for the needs of accounting services and for the purpose of improving the quality of financial reporting, than small businesses. Larger companies also cover more easily the costs which are triggered by the need for a higher degree of disclosure. Compared to small companies, large companies are using the capital market for external financing, and encouraging higher levels of disclosure are aimed at increasing investor confidence. This fact leads to a greater need for higher levels of information to stakeholders, or external users. It is to be expected that there is a significant positive correlation between the size of companies and the level of voluntary and compulsory disclosure related to biological assets.

The type of auditors represents a significant determinant in the process of determining the quality of financial reporting. Jensen et al. (1976) as well as Watts et al. (1983) state that auditors are striving to reduce the agency costs by reducing the asymmetry of information. However, they emphasize that this is possible if the market expects the auditor's level of independence to be equal to zero. Committees and penalties, as well as loss of reputation, are some of the mechanisms that encourage auditors to ensure their independence. To avoid all of these independent auditors require higher levels of disclosure (Chalmers et al., 2004; Oliveira et al. 2006). Several studies testify to the fact that there is a positive impact on the level of disclosure in companies audited by the big four (DeAngelo, 1981; Hossain et al. 1995; Inchausti, 1997; Oliveira et al. 2006; Watts et al., 1983). It is to be expected that there is a significant positive correlation between the type of auditors and the degree of compulsory disclosure related to biological assets.

International stakeholders are an important part in determining the level of disclosure of information. It is necessary to determine the potential correlation between the level of foreign activity of the enterprise and the level of disclosure. Authors (Amiraslani et al. 2013; Daske et al., 2013; Gonçalves et al., 2014; Oliveira et al., 2006) claim that there is a positive link between the level of disclosure and the degree of foreign activity of the company.

Managers operating in several geographical areas should provide a higher level of disclosure, bearing in mind the higher complexity of the company's activities and the greater asymmetry of the information while operating in wider geographic area. According to the theory of signaling, international trade activities involve a greater volume and complexity of information which are being controlled, and consequently this affects companies to display their international presence by improving disclosure of information (Depoers, 2000; Oliveira et al. 2006). It is to be expected, on the basis of the previously conducted research, that there is a significant positive link between international stakeholders and the degree of compulsory disclosure of biological assets.

The agency theory claims that disclosure can be considered as a control mechanism of manager performance. Namely, managers tend to publish detailed information in order to secure their fees and positions in the company. If the achieved return rate is higher, companies are expected to disclose the positive news to avoid any reduction in stock values (Oliveira et al., 2006). However, the results of empirical research are contradictory, and it is not possible to assert with certainty the direction of influence of this factor reflected through profitability. It can be expected that there is a link between the profitability of companies and the degree of mandatory and voluntary disclosure of biological assets.

The sector and the type of activities can have a significant implication on the level of mandatory and voluntary disclosure and therefore on the financial reporting quality. Companies belonging to the same sector tend to provide the same level of disclosure in order to avoid an unwanted market assessment (Oliveira et al. 2006). In accordance with that, companies tend to follow appropriate industry practices. The authors (Rahman et al., 2002) compared accounting regulations and accounting practices in Australia and New Zealand, and found that the sector (industry) affected the level of disclosure. Also, sectoral research has shown that companies operating in sectors where higher levels of intangible assets are engaged tend to be more likely to disclose voluntarily (Oliveira et al. 2006). Based on the results of previous research, it can be expected that there is a significant positive link between the sector and the level of compulsory and voluntary disclosure related to biological assets. It is also important to keep in mind the age (sustainability) of the company.

Akhtaruddin (2005) states that older companies with more experience are more willing to include more information in their financial statements in order to improve their reputation and image on the market. The author claims that older companies disclose a higher level of information than younger companies. In line with this, it is to be expected that there is a

positive link between the age of the company and the level of disclosure about the assets of the assets.

Determining the level of leverage can be an important component in identifying the level of disclosure of information. Namely, companies with a high level of leverage, have higher agency costs. As a result of this, companies that have more leverage rates tend more to disseminate information voluntarily, in order to reduce these agency costs (Oliveira et al. 2006). On the other hand, companies with low leverage tend to send information to the market about their capital structure, which again encourages voluntary disclosure. Numerous studies dealt with the impact of leverage on the level of disclosure, which have shown an significant link between this variables (Hossain et al. 1995; Inchausti, 1997; Oliveira et al. 2006). Considering previous studies there are no strong expectations regarding the direction of the impact of this factor. Therefore, it is to be expected that there is a link between the level of leverage and the level of voluntary disclosure of information on intangible assets.

The influence of factors such as status on the stock market, dividend payments and assets-in-place must be included in the analysis to determine their potential correlation with the level of disclosure of information. Companies listed on foreign stock exchanges (or more stock exchanges) have multiple agency issues (Inchausti, 1997; Oliveira et al. 2006). A higher level of voluntary disclosure affects the reduction of this problem. On the other hand, a higher degree of voluntary disclosure of these companies can be motivated by attracting a larger number of investors on financial stock markets. Hossain et al. (1995) has shown that there is a statistical significance of the foreign listing variable that suggests that firms, which are simultaneously listed overseas and locally, tend to disclose more information voluntarily than those listed only on the domestic (New Zealand) stock exchange. Based on previous research it is expected that companies listed on foreign stock exchanges have a higher degree of voluntary disclosure of intangible information.

When it comes to the dividend pay-outs, the author (Inchausti, 1997) points out that, as the dividend policy is more generous, the less information is disclosed. Signaling theory explains that companies with a low payout rate are more likely to explain to the capital owners the reasons for a restrictive dividend payment policy and, therefore, have a higher level of disclosure of information. Based on previous research it is expected that there is a negative correlation between the dividend payment policy and the degree of disclosure of information.

Hossain et al. (1995) state in their research that the assets-in-place are another factor that influences the level of disclosure. According to this study, Myers (1977), asserts that companies with a larger proportion of assets-in-place (which do not have a potential to growth) have difficulties in transferring funds between shareholders and debtors. The assets-in-place is expressed as the ratio of the book value of fixed assets (net after depreciation) to the total assets. It is to be expected that there is a negative correlation between the assets-in-place and the level of disclosure.

Taking into account the contingency theory, Douppnik et al. (1995) suggest that the environment, institutional structure and cultural values contribute to accounting discrepancies between countries. Namely, Nobes et al. (2013) classify national accounting systems from the aspect of the functioning into the Anglo-Saxon and Continental law. There are several studies that investigated the impact of the institutional factors on the practice of enterprise reporting (Djankov et al. 2003; Nobes, 2008; Wysocki, 2011). Although the objective of the IFAC is to ensure accounting comparability between countries, this does not imply the exclusion of institutional factors at the national and enterprise level (Wysocki, 2011). It is to be expected that there is a significant positive correlation between companies in the countries of Anglo-Saxon law and the degree of compulsory and voluntary disclosure of biological assets.

Elad et al. (2011) conducted a research on biological assets in Australia, United Kingdom and France. They concluded that the costs of measuring and reporting on biological assets at fair value exceed the benefit, with the emphasis that the accounting model regulated by IAS 41 influences the increase the volatility of salaries. The authors argue that there is a need for the IASB for the revision of IAS 41. PWC (2009 and 2011) has collected international studies on the impact of adopting the IAS in the wood industry sector to establish best practices for the fair valuation and disclosure of biological assets. It has been found that companies have different levels of transparency in terms of biological assets, while the assumptions about fair value were not considered in most cases. Accordingly, the PWC recommended the necessity of presenting the key value estimations, expected future prices and costs, as well as sensitivity analysis in the case of a change in a factor such as discount rate, prices, costs or growth.

Silva et al. (2012) developed an index of disclosure regarding the information disclosure in agricultural sector using a sample of 45 companies in Brazil. The most frequently not disclosed items in the agricultural sector are the type of biological assets, the adjustment of the book value and their changes, as well as risk management procedure and

other restrictions of the biological assets. A higher level of transparency in disclosure contributes to alleviating asymmetric information. Hooks et al. (2011) point out that quality reporting cannot be provided with a limited information, and companies that are interested in improving the quality of their reporting must increase the level of disclosure of information in their financial statements.

3. Methodology

This chapter provides methodological framework adopted for the quality of biological assets disclosures in the financial statements of agricultural companies according to the IAS 41 and IFRS for SMEs. The research includes the sample of 100 observation of financial statements for the period 2014-2016, where empirical analysis is focused on crucial factors that affect the quality of biological assets disclosure such as company size, biological assets intensity, profitability, liquidity, leverage, international activity and listing status.

Table 1: Review of explanatory variables

Variables	Symbol	Calculation
Dependent variable		
Disclosure index	Y_i	$Index_i = \sum \frac{di}{m}$
Independent variables		
Company size	X_1	Natural logarithm of the total assets
Biological assets intensity	X_2	Biological assets/ Total assets
Profitability	X_3	Net income / Total assets
Liquidity	X_4	(Receivables + cash n cash equivalents) / Short-term liabilities
Leverage	X_5	Total liabilities/ Total capital
International activity	X_6	Foreign sales revenue / Total sales revenue
Listing status	X_7	Company is listed 1 Company is not listed 0

Source: Authors' illustration

The index is constructed and calculated on the basis of the disclosure required by IAS 41 and the notes on the consolidated financial statements included in the annual report. This index includes three categories: mandatory items, optional but recommended items and optional and non-recommended items. The first and the second category include all disclosure items required by IAS 41, while the last category corresponds to voluntary information. The index can be represented by the following formula:

$$Index_i = \sum \frac{di}{m},$$

where $d_i = 0$ or 1 , $d_i = 1$ if the items are disclosed, $d_i = 0$ if the items are not disclosed, $m =$ the maximum number of applicable items that can be disclosed.

4. Empirical Results

After theoretical definition of internal and external factors, there are empirical analysis of selected variables which includes Student t test, descriptive statistics, correlation matrix and multiple regression. Table 2 presents results of the quality biological assets reporting for agricultural companies which apply IAS and IFRS and agricultural companies that apply IFRS for SMEs.

Table 2: Average assessment of the quality of biological reporting

Company group	Mean value	Minimum value	Maximum value
IAS/IFRS	0.29	0	0.63
IFRS for SMEs	0.26	0	0.60

Results indicate that reporting quality for both groups of companies is not at the satisfied level. The mean value of biological assets quality reporting for companies which apply IAS/IFRS is 0.29 and for companies that apply IFRS for SMEs 0.26. On the other hand, there are many companies that do not have biological assets disclosures and the maximum value is 0.63 according to the IAS/IFRS, as well as 0.60 according to the IFRS for SMEs. It is worrying that there are companies of both groups do not fulfill any requirements regarding biological assets disclosure.

Table 3: Student t test

Disclosure index		F statistics	Sig. p	t	Df	Sig. p
Value	Variations are equal	2.039	0.157	0.613	99	0.542
	Variations are not equal			0.837	42.188	0.407

Source: Authors' calculation

Levin F test results show that variance is equal since p-value=0.157 which is greater than 0.05. Accordingly, results of Student t test reflect that although there are differences in the quality assessment between two groups of companies, the difference are not statistically significant ($p=0.542$).

In order to examine significance, intensity and direction of factors' effect on quality of biological assets disclosure, the multiple regression models is determined as:

$$Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_i$$

- Y_1 – disclosure index,
- X_1 – company size,
- X_2 – biological assets intensity,
- X_3 – profitability,
- X_4 – liquidity,
- X_5 – leverage,
- X_6 – international activity,
- X_7 – listing status.

Table 4: Descriptive statistics

Variable	Obs.	Min.	Max.	Mean	Std. Dev.
Disclosure Index	100	0.0000	0.6000	0.2930	0.1747
Size	100	5.1432	7.6548	6.2657	0.47620
Biological assets intensity	100	0.0000	0.8536	0.1027	0.15323
Profitability	100	-0.2870	0.2883	0.0105	0.0895
Liquidity	100	0.21	40.02	2.5487	4.4971
Leverage	100	0.01	25.52	1.4652	3.0008
International activity	100	0.0000	0.6706	0.0514	0.1286
Listing status	100	0	1		

Source: Authors' calculation

Table presents descriptive statistics for the variables employed in the research. The average disclosure index is 0.2930, where mean biological assets intensity is 0.1027. The company size mean is 6.2657 where average profitability and liquidity are at level of 0.0105 and 2.5487. Finally, mean leverage is 1.4652 average international activity is 0.0514. It is noticeable that liquidity and leverage have the highest standard deviation which implies that largest difference is identified between maximum and minimum value.

In order to identify potential correlation between explanatory variables, the paper includes correlation matrix which enables determining the direction and intensity of relationship between observed variables.

Table 5: Correlation matrix

Variable		1	2	3	4	5	6	7	8
1	Pearson coefficient	1	0.214*	0.072	0.225*	0.223*	-0.123	0.220*	-0.010
	Sig. 0.05		0.035	0.476	0.024	0.026	0.234	0.028	0.922
2	Pearson coefficient	0.214*	1	0.363**	0.054	0.144	-0.050	0.103	-0.053
	Sig. 0.05	0.035		0.000	0.601	0.159	0.631	0.315	0.602
3	Pearson coefficient	0.072	0.363*	1	-0.029	-0.071	-0.094	0.182	-0.139
	Sig. 0.05	0.476	0.000		0.773	0.483	0.366	0.070	0.167
4	Pearson coefficient	0.225*	0.054	-0.029	1	0.243*	0.391**	-0.063	0.027
	Sig. 0.05	0.024	0.601	0.773		0.015	0.000	0.531	0.791
5	Pearson coefficient	0.223*	0.144	-0.071	0.243*	1	-0.161	-0.111	0.185
	Sig. 0.05	0.026	0.159	0.483	0.015		0.066	0.199	0.272
6	Pearson coefficient	-0.123	-0.050	-0.094	0.391**	-0.161	1	-0.013	-0.065
	Sig. 0.05	0.236	0.631	0.366	0.000	0.066		0.897	0.533
7	Pearson coefficient	0.220*	0.103	0.182	-0.063	-0.111	-0.013	1	0.274*
	Sig. 0.05	0.028	0.315	0.070	0.531	0.272	0.897		0.006
8	Pearson coefficient	-0.010	-0.053	-0.139	0.027	0.185	-0.065	0.274**	1
	Sig. 0.05	0.922	0.602	0.167	0.791	0.066	0.533	0.006	

Note: 1 – disclosure index, 2 – company size, 3 – biological assets intensity, 4 – profitability, 5 – liquidity, 6 – leverage, 7 – international activity, 8 – listing status.

Source: Authors' calculation

Results have shown that there is a weak and positive correlation between disclosure index and company size, profitability, liquidity and international activity. Bearing in mind that p-values are less than 0.05, it can conclude there is a statistically significant correlation between observed variables. On the other hand, it is not identified a statistically significant correlation between disclosure index and selected factors such as biological assets intensity, leverage and listing status. Further, there is a medium and positive correlation between company size and biological assets intensity, as well as, a negative correlation between profitability and leverage. Finally, it is necessary to point out significant correlation between profitability and liquidity which implies fulfilling of two fundamental principles in company business.

Table 6: Multiple regression model

Model		Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	Sig.
		<i>B</i>	Std. Error	<i>B</i>		
1	Constant	-0.016	0.241		-0.067	0.947
	X1	0.038	0.039	0.104	0.973	0.333
	X2	0.158	0.121	0.140	1.301	0.197
	X3	0.387	0.220	0.187	1.757	0.083
	X4	0.009	0.004	0.234	2.264	0.026
	X5	0.001	0.006	0.021	0.196	0.845
	X6	0.352	0.140	0.255	2.508	0.014
	X7	-0.003	0.037	-0.008	-0.076	0.940

$R^2 = 0.56$

Source: Authors' calculation

Table shows how selected factors such as company size, biological assets intensity, profitability, leverage, liquidity, international activity and listing status affect the quality of biological assets disclosure measured by disclosure index. Results of multiple regression model identify that all factors, except listing status, have positive impact on disclosure index, where model explains 56% of independent variables variations and confirms statistical significance of liquidity and international activity (p-value less 0.05).

5. Conclusion

The quality of disclosing of information about biological assets according to the international accounting regulation are not at the satisfied level. Companies which provide information about biological assets according to IAS 41 have an average index of biological assets disclosure of 0.29. There are some companies that do not have any disclosures about biological assets in the notes to financial statements. The best value of the index of biological assets disclosure is 0.63. On the other side, the quality of biological assets disclosures of companies which provide information according to the IFRS for SMEs, is at lower level and index is 0.26. Also in these group the highest index is rate at lower level at 0.60.

Research results of the factors that influence the quality of biological assets disclosures indicate that companies that have better are liquidity, profitability, as well as companies that are export oriented have a better index of biological assets disclosures. Therefore, factors such as liquidity, profitability and exports positively affect the quality of reporting on biological assets. On the other hand, factors such as enterprise size, biological assets intensity, leverage and listing status do not have a significant impact on the quality of

biological assets disclosures. The financial statements of companies that export their products are the subject of a detailed analysis of potential and existing customers and other business partners. The quality of financial statements, and in particular the quality of biological assets disclosures of agricultural companies, can be crucial for the realization of international business activities.

The results of research indicate to the key shortcomings in meeting the requirements of international regulation in the field of biological assets disclosures. Furthermore, the results indicate which factors have significant influence on the quality of biological assets disclosures. Our results are of interest to various stakeholders, such as managers, investors, creditors, and other financial statements users, since it make a profile of companies by associating factors, such as firm internal characteristics, and quality of biological assets disclosures. Quality of financial statements, especially the quality of biological assets disclosures, have to be continuous monitoring and improving. Therefore, our results are of interest for the future research in the field of quality of financial statements, especially in the field of quality of financial statements of agricultural companies.

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