

## Opportunistic management behavior in reporting earnings of agricultural companies

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### Abstract

This study examines reliability of reported earnings of agricultural companies in the Republic of Serbian. Methodologically, the study utilizes the various regression models and univariate tests. Using sample of 1,983 firm-year observations from the period 2009 to 2013, we find that agricultural companies in the Republic of Serbia are engaged in earnings management. Further, we find that profitability and leverage have a significant influence on scope and direction of earnings management. Income-decreasing behavior is observed in more profitable firms, while income-increasing behavior is observed in highly leveraged and more profitable firms. The results might have significant implications for agricultural regulators, users of financial statements and researchers who study the problem of earnings management within international accounting setting and weak legal enforcement.

**Keywords:** Earnings management. Income-increasing behavior. Income-decreasing behavior. Discretionary accruals. IFRS

### 1. Introduction

Agricultural production in Serbia has a greater relative economic importance compared to other European countries, even compared to the neighboring ones. This is true

due to favorable natural conditions, as well as due to some historical specifics. The transitional processes which have lasted for two and a half decades, accompanied with effects of global economics crisis, caused further decline in economic activity in Serbia, which increased a relative importance of agriculture in the overall economy (Jakšić et al., 2015). In the last decade, the share of agriculture in GDP was about 10%, while the share in employment was about 20% (World Bank, 2014). In addition, agriculture plays an important role in the foreign trade – the share of agricultural products in overall export is 20-24%, while the share in import is 5-8% (Statistical Office of the Republic of Serbia, 2015). Increase in agricultural export can lead to growth of this sector and increase the profit of this sector (Najafi Alamdarlo, 2016). As a consequence of the bimodal development strategy during the socialist political and economic system, Serbian agriculture is characterized by a dual production structure. On one side, there is a large agricultural sector, and on the other side, individual production sector. Large agricultural sector represents the modern part of Serbian agriculture with a higher level of production intensity. Agricultural companies are highly market-oriented and they are “responsible” for the food security of the country, but they also create significant surpluses which made Serbia a net exporter of agricultural products for the last ten years.

Consequently, the actual performance of agricultural firms in Serbia represents one of the key aspects of the entire national economy. However, main information on agricultural companies’ performances is given in their financial statements. These statements provide a view of the financial position and results of operations for the given period. This information is relevant to the various stakeholders. Firstly, national agricultural regulators need a significant insight into the operating activities of agricultural companies in order to evaluate effects of agricultural policy measures, the competitiveness of agriculture, the scope of agricultural production, sustainable development and other. Secondly, owners of agricultural companies are interested in the use of their capital. Thirdly, investors and creditors are interested in the assessment of the risks of financial investments. Due to importance of agriculture production, management should know the all internal and external factors that have influence on business activity and results (see more: Nogueira et al., 2013). Finally, through the financial statements, management presents the results of their work and attracts additional capital.

Therefore, the notion of earnings quality is a major concern in evaluating a company’s financial health (Beaver, Kennedly, & Voss, 1968). Given the wide range of users and the

importance of presented data, it is reasonable to raise the question of reliability and quality of financial statements. This issue cannot be taken for granted because the existence of earning management practices, often with devastating consequences (Enron, WorldCom, Xerox etc.), has been widely reported.

To recognize the existence of opportunistic behavior in the agricultural sector, we undertake a study of earnings management in agricultural companies in Serbia between 2009 and 2013. Using a sample of 1,983 firm-year observations, we examine the practice of earnings disclosure to determine the presence of opportunistic management behavior through the underestimation and/or overestimation of the reported earnings. We also examine characteristics of companies which can be associated with income-increasing and income-decreasing behavior. Empirical tests show that distortion of earnings information is observed in agricultural sector. In addition, research shows that the practice of income-decreasing behavior is associated with companies' profitability, while as income-increasing behavior is associated with profitability and leverage of agricultural companies.

This study makes several significant contributions. Firstly, it is important in helping regulators to better assess the effects of government agricultural measures through the recognition of the possible quality problems in reported earnings. Secondly, the study is significant for all users of financial statements of agricultural companies in Serbia, since it indicates the level of adequate hesitation for use of disclosed information. Finally, the study is significant for many researchers since it deals with the problem of accounting quality within international setting and weak legal enforcement.

The rest of the paper is organized as follows. In the next section we review literature and institutional setting, and we develop hypothesis. The following section describes used materials and methods. After that, we present main empirical results. Finally, in the last section, we conclude the paper.

## **2. Literature Review**

Earnings management as a term is defined by several authors. Davidson, Stickney and Weil (1988) point that earnings management is the process of taking deliberate steps within the constraints of generally accepted accounting principles to bring about a desired level of reported earnings. Following Healy & Whalen (1999), define earnings management as the alteration of firms' reported economic performance by insiders to either mislead some

stakeholders or to influence contractual outcomes. This definition stresses the problem of information asymmetry which provides opportunity for insiders, such as managers, to benefit themselves at the expense of other stakeholders. Scott (2003) defines earnings management as an act of selecting accounting policies from a set of accepted accounting rules to get favorable results. Garcia Lara et al. (2005) provide that earnings management is an intentionally carried out management practice, opportunistic and/or educational, with the purpose to report desired results, distinct from the real ones. According to the above definitions of earnings management a general conclusion is that the term earnings management involves manipulation of financial statements carried out by managers. Furthermore, as the objective of earnings management can be set misleading stakeholders and other users of financial statements about the performances of the firm.

Earnings can be managed upward (increasing) or downward (decreasing). Different studies show that the earnings quality depends on the scope of the incentives and the quality of the regulatory framework. Incentives can be personal - bonuses, stock options, employment preservation, etc. (Sun & Rath, 2009), or may be related to the firm characteristics - size, performance, leverage, corporate governance, etc. (Al-Fayoumi, Abuzayed, & Alexander, 2010). The regulatory framework quality is defined by the choice of accounting framework and its implementation (Barth, Landsman, & Lang, 2008; Dimitropoulos, Asteriou, Kousenidis, & Leventis, 2013), as well as by a success of the audit function to curb earnings management (De Las Heras, Cañibano, & Moreira, 2012).

A common assumption in incentive based studies of earnings management is that managers use this flexibility to distort financial information in order to maximize their own utility (Sun & Rath, 2009). Agricultural companies are additionally motivated to misrepresent firm performance since these companies are dependent on unstable weather conditions. This increases the risk of earnings smoothness through the creation of reserves in good years.

### **3. Materials and Methods**

#### **3.1. Hypothesis development**

Serbian accounting setting is based on implementation of international regulatory framework. International regulation is seen as a good way to improve quality of financial reporting. However, it is characterized by a certain degree of flexibility which allows

managers to exercise their discretion in choosing between different accounting treatments and estimates. This implies a possible manipulation of financial data (Bisogno, 2012).

Agricultural companies are expected to comply with this regulation. IAS 41 – Agriculture is especially important for these companies since it deals with specifics of biological assets recognition, valuation and disclosure. According to IAS 41, biological assets are measured at their fair value. This accounting approach causes additional uncertainty since fair values are often very subjective in nature which increases the chance of opportunistic management behavior through misuse of given discretion over earnings.

The discussion whether international regulation successfully curbs opportunistic managerial behavior is inconclusive. In current literature there are two opposing views regarding the influence of IFRS on earnings quality (Dimitropoulos et al., 2013). One view is that IFRSs improve reliability of financial reporting by limiting opportunistic management discretion (Ashbaugh & Pincus, 2001). Despite so widely reported improvements, there are also numerous opposite findings which argue that implementation of international regulation does not improve earnings quality (Cairns, 1999; Street & Gray, 2002).

It seems that the mere implementation of international regulation does not necessarily guarantee reduced opportunistic management behavior. Barth et al. (2008) suggest that main reasons for these conflicting views are the gradual transition from local GAAP to IFRS; the lack of infrastructure to enforce the application of IFRS; differences in the effectiveness of controls regarding the economic environment and corporate incentives; and, finally, differential time period and data metrics (Dimitropoulos et al., 2013). Hope (2003) shares the view and suggests that even the best accounting standards are inefficient if not enforced adequately.

Additional perspective of the problem of opportunistic management behavior is that it can be two-dimensional – which means that managers can exercise their discretion in order to push earnings upwards or downwards. Some companies can be engaged in income-increasing, and some in income-decreasing behavior. Bearing that in mind, our hypothesis of earnings management is stated as follows:

#### *H1. Agricultural companies in Serbia are engaged in earnings management.*

To examine magnitude and direction of opportunistic management behavior in reporting earnings, contribution of firm characteristics needs to be considered. Different studies provide significant evidence that firm operating characteristics are related to proxies

for earnings management. Widely reported firm characteristics that belong to this group are: (1) firm performance, (2) debt, (3) growth and investment, and (4) size (P. Dechow, Ge, & Schrand, 2010). We examine opportunistic management behavior of Serbian agricultural firms at the individual firm level through these characteristics known to be related to earnings management.

According to previous researches, firm's profitability can significantly influence management decision to involve in earnings management, but firm performance incentives can be mutually conflicting. Increased earnings can improve company's performance and chances for additional investment and bonuses, while as decreased reported earnings can minimize income taxes. However, if profitability is extremely low, management may decrease income, which is known as the 'big bath' strategy (Healy, 1985). The rationale is that when the lower boundary of the earnings cannot be reached efficiently, it is better to go as low as possible to make the future earnings targets easier to meet (Sun & Rath, 2009).

The evidence of association of firm size with opportunistic management behavior is mixed (Zmijewski & Hagerman, 1981; Zimmer, 1986). Early studies suggest that firm size is positively associated with earnings management since larger firms make income-decreasing choices in response to greater political scrutiny (Watts & Zimmerman, 1986). However, more recent papers report that firm size is negatively associated with opportunistic behavior since smaller firms have weaker internal controls (Ashbaugh-skaife, Collins, & Kinney, 2007).

Higher leverage is also associated with lower quality earnings (P. Dechow et al., 2010). Highly leveraged firm is more likely to engage in income-increasing behavior to avoid violating a debt covenant (Watts & Zimmerman, 1986; Zmijewski & Hagerman, 1981). Engagement in income-decreasing behavior is also reported and explained with managers' intentions to obtain better terms in their contract renegotiations (DeAngelo, DeAngelo, & Skinner, 1994) or to blame previous management for distressed conditions (Charitou, Lambertides, & Trigeorgis, 2007). Despite conflicting arguments for income-increasing or income-decreasing behavior, it is apparent that a firm's leverage affects earnings management (Sun & Rath, 2009).

Growth opportunities can provide incentives for earnings smoothness behavior since uncertain opportunities cause earnings volatility. Firms with higher growth rates need additional funding sources, so they are more likely to engage in earnings management (Al-Fayoumi et al., 2010; Healy & Palepu, 1990; Sun & Rath, 2009).

Following the aforementioned discussion, we formalize our second hypothesis as follows:

*H2. Firm characteristics of Serbian agricultural companies are associated with opportunistic management behavior in reporting earnings.*

### 3.2. Measurement of earnings management: discretionary accruals

Opportunistic behavior is not directly observable and consequently, difficult to measure empirically. Studies concerning earnings management have adopted different earnings measures in order to capture opportunistic management behavior – earnings persistence, magnitude of accruals, residuals from accrual models, earnings smoothness, timely loss recognition, benchmarks, investor responsiveness and external indicators of earnings misstatements (P. Dechow et al., 2010). In this study, we use residuals from accruals models approach to capture earnings management.

Accounting accruals is viewed as a difference between reported earnings and cash flow from operating activities. In modelling the accrual process, it is necessary to distinguish discretionary (“abnormal”) from non-discretionary (“normal”) accruals. While non-discretionary accruals are expected to capture firm’s fundamental performance, discretionary accruals are seen as distortions caused by application of management accounting discretions and, consequently, as a proxy for earnings management.

The methodological approach adopted in this study is based on original cross-sectional Jones (1991) model. Jones proposes the total accrual as a function of sales growth and change in level of property, plant and equipment.

Discretionary accruals (DAC) are estimated in two steps. Firstly, following Dechow et al. (1995), we compute accrual component or earnings as follows:

$$TAC_t = (\Delta CA_t - \Delta Cash_t) - (\Delta CL_t - \Delta STD_t - \Delta TP_t) - Dep_t \quad (1)$$

Where:

- Total accruals
- $AC_t$
- ( Change in total current assets from period  $t-1$  to  $t$

$A_t$	(	Change in cash and cash equivalents from period $t-1$ to $t$
$\Delta$	(	Change in total current liabilities from period $t-1$ to $t$
$L_t$	:	Change in short-term debt included in current liabilities from period $t-1$ to $t$
$\Delta$	(	Change in income taxes payable from period $t-1$ to $t$
$P_t$		Depreciation and amortization expense in year $t$
$ep_t$		

If a firm does not disclose information on short-term debt and income taxes payable, then the change in these variables is assumed to be zero (Leuz, Nanda, & Wysocki, 2003).

Secondly, discretionary accruals (DAC) are estimated as the residuals of the following OLS equation, computed by year:

$$\frac{TAC}{TA_{t-1}} = \beta_1 \left( \frac{\Delta}{TA_{t-1}} \right) + \beta_2 \left( \frac{\Delta REV_t}{TA_{t-1}} \right) + \beta_3 \left( \frac{PPE_t}{TA_{t-1}} \right) + \varepsilon_t \quad (2)$$

Where:

$\Delta$	Change in net sales from period $t-1$ to $t$
$REV_t$	
$P$	Net property, plant and equipment
$PE_t$	
$T$	Total assets at the beginning of the fiscal
$A_{t-1}$	year

All variables are deflated by lagged total assets to control for heteroscedasticity.

### 3.3. Research design

Signed and absolute values of discretionary accruals are used as a measure of earnings management. The absolute value is needed to avoid the compensation between negative and positive accruals, since management can be involved either in income-decreasing or in



income-increasing behavior to meet earnings target (Klein, 2002). Higher absolute value of discretionary accruals indicates greater opportunistic management behavior.

Under the hypothesis H1 that agricultural companies in Serbia are engaged in earnings management, we expect the discretionary accruals to be significantly different from zero. We test this proposition by examining the mean (single sample t-test), median (Wilcoxon non-parametric signed rank test), and the binomial signed test for proportional differences.

In order to test hypothesis H2, we introduce signed and absolute value of discretionary accruals as a dependent variable in the following model:

$$Y = \beta_0 + \beta_1 SIZE + \beta_2 ROA + \beta_3 LEV + \beta_4 GROWTH + \varepsilon \quad (3)$$

Where:

Y	Discretionary accruals measured using Jones model
SI	Firm size measured by the natural logarithm of total assets
ZE	
RO	Firm profitability measured by the ratio of net income to total
A	assets
LE	Firm leverage measured by the ratio of total debt to total assets
V	
GR	Firm growth opportunities measured as the change in sales
OWTH	from year t-1 to year t (percentage)

As previously explained, the dependent variable is our proxy for earnings management. To shed light on different aspects of earnings management, we run several models with different discretionary accruals measures:

Model 1 – DAC, the signed value of discretionary accruals,

Model 2 - |DAC|, the absolute value of discretionary accruals,

Model 3 - |DEDAC|, the absolute value of income-decreasing discretionary accruals,

Model 4 - |INDAC|, the absolute value of income-increasing discretionary accruals.

If hypothesis H2 is true, we expect to find statistically significant coefficients of firm characteristics (size, profitability, leverage and growth).

### 3.4. Data selection

To carry out empirical tests, we focus on annual data presented in financial statements of agricultural companies in Serbia in period 2009-2013. The classification by sector and identification of agricultural companies is based on national codification which is complied with EU standards.

Our initial sample is the population of all companies in Serbia classified in Sector A – Agricultural production, forestry and fishing which operated in period from 2009 to 2013. Data is collected from *Amadeus* database supplied by *Bureau van Dijk*. Amadeus provides financial statement data for a vast set of European companies.

Initial sample has 3,315 firm-year observations (663 firms, 5 years). We then exclude companies with missing data. Final samples has 1,983 firm-year observations.

Data is processed using the statistical software SPSS IBM Statistics Version 20.

## 4. Results

### 4.1. Descriptive statistics and correlations

We run our cross-sectional Jones (1991) model for each year from 2009 to 2013 (equations 1 and 2), and then turn our attention to analysis of the discretionary accruals. Table 1 presents the descriptive statistics for dependent and explanatory variables of the discretionary accruals regression models (equation 3). We observe that more agricultural companies in Serbia have negative discretionary accruals than positive (1,141 compared to 842), which indicates that more firms are engaged in income-decreasing behavior. However, DAC of individual firms varies significantly from minimum value of -.477 to maximum value of 1.559. The average ROA of Serbian agricultural companies is 4.2%, and the median is 2.5%. More than a half of operations of agricultural firms is financed with debt, and the rest by owners (the mean for leverage is 58.9%, and the median is 62.7%). As far as individual firms are concerned, leverage varies from one extreme value to the other (minimum leverage is 0.3% and maximum is 99.96%).

**Table 1: Descriptive statistics of sample variables**

Variable	N	Mean	Median	Std. Deviation	Minimum	Maximum
DAC	1,983	.032	-.001	.144	-.477	1.559

DAC	1,983	.079	.041	.124	.000	1.559
DEDAC	1,141	.041	.031	.046	.000	0.477
INDAC	842	131	.078	.170	.000	1.559
SIZE	1,983	7.723	7.803	1.479	1.919	13.361
ROA	1,983	.042	.025	.115	-.826	0.763
LEV	1,983	.589	.627	.285	.003	.999
GROWTH	1,983	13.408	.077	377.129	.000	15,658.741

The sample includes 1,983 firm-year observations for Serbian agricultural firms in period 2009-2013. Variables definition: DAC is signed value of discretionary accruals, |DAC| is absolute value of discretionary accruals, |DEDAC| is absolute value of income-decreasing discretionary accruals, |INDAC| is absolute value of income-increasing discretionary accruals, SIZE is natural logarithm of total assets, ROA is net income divided by total assets, LEV is ratio of total debt to total assets, GROWTH is sales growth for the year (%). Dependent variables are estimated from cross-sectional Jones (1991) model.

Source: Authors calculation

Table 2 presents the Pearson correlation matrix for explanatory variables, showing moderate correlations between them. Size factor is significantly and negatively correlated with all other firm characteristics, meaning that larger agricultural firms have lower profitability, lower debt and lower growth. ROA has negative and significant correlation with leverage, which indicates that high profit firms are less leveraged. Negative significant correlation of leverage with size and ROA signals that debt funding is more present in smaller and less profitable agricultural firms. Based on the correlation coefficients, we do not expect multicollinearity problems, since the coefficients are significantly below 0.8 (Niemi, 2005).

**Table 2: Pearson correlation coefficients of explanatory variables**

Variable	SIZE	ROA	LEV	GROWTH
SIZE	1	-.120**	-.254**	-.050*
ROA	-.120**	1	-.318**	.025
LEV	-.254**	-.318**	1	.013
GROWTH	-.050*	.025	.013	1

Variables definition: SIZE is natural logarithm of total assets, ROA is net income divided by total assets, LEV is ratio of total debt to total assets, GROWTH is sales growth for the year (%). \*,\*\* indicates significance at the 5% and 1% significance level respectively (two-tailed test).

Source: Authors calculation

## 4.2. Empirical findings on scope of opportunistic management behavior

As previously explained, if Serbian agricultural companies are engaged in earnings management, we expect the discretionary accruals to be significantly different from zero. We test this proposition by examining the mean (single sample t-test), median (Wilcoxon non-parametric signed rank test), and the binomial sign test for proportional differences. The results are presented in Table 3.

**Table 3: Univariate tests of discretionary accruals**

Variable	Parametric t-test			Wilcoxon Signed Rang Test			Binomial Sign test		
	Mean	t-statistic	p-value	Median	z-statistic	p-value	+/-	t-statistic	p-value
DAC	0.032	9.973	0.000	-0.001	2.598	0.009	842/1,141	6.692	0.000

Variable definition: DAC is signed value of discretionary accruals estimated as residuals from cross-sectional Jones (1991) model. The null hypothesis for t-test is that mean equals zero, for Wilcoxon signed rank test is that the median equals zero and for the binomial sign test is that the proportion of positive and negative accruals is equal. Reported p-values are from two-tailed tests.

Source: Authors calculation

Results of various univariate tests suggest that discretionary accruals are significantly different from zero. Thereby, we confirm our first hypothesis that agricultural companies in Serbia are significantly engaged in earnings management.

### 4.3. Empirical findings on association between opportunistic management behavior and firm characteristics

We further examine whether individual characteristics of Serbian agricultural firms influence the direction of earnings management. We regress discretionary accruals on firm characteristics (equation 3) four times, on each occasion using different dependent variable (Models 1 to 4). Table 4 presents results of regression models.

**Table 4: Regression results on value relevance of firm characteristics**

Dependent Variable	Model 1 DAC	Model 2  DAC	Model 3  DEDAC	Model 4  INDAC
Intercept	.029 (1.345)	.056 ** (2.995)	.030 ** (3.308)	.059 (1.456)
SIZE	-.002 (-.803)	.000 (-.046)	.001 (.615)	.002 (.384)
ROA	.295 ** (9.966)	.246 ** (9.573)	.032 * (2.263)	.299 ** (5.633)

LEV	.008 (.680)	.023 * (2.206)	.009 (1.725)	.067 ** (2.848)
GROWTH	-.000 (-.447)	.000 (.465)	.000 (.878)	.000 (1.171)
R <sup>2</sup> -adjusted	5.3%	4.5%	3.1%	3.8%
F-statistic	28.672	24.425	6.869	9.319
p-value	0.000	0.000	0.014	0.000
N	1,983	1,983	1,141	842

Variables definition: DAC is signed value of discretionary accruals, |DAC| is absolute value of discretionary accruals, |DEDAC| is absolute value of income-decreasing discretionary accruals, |INDAC| is absolute value of income-increasing discretionary accruals, SIZE is natural logarithm of total assets, ROA is net income divided by total assets, LEV is ratio of total debt to total assets, GROWTH is sales growth for the year. Dependent variables are estimated from cross-sectional Jones (1991) model. \*,\*\* indicates significance at the 5% and 1% significance level respectively (two-tailed test). T-statistics are in the parenthesis.

Source: Authors calculation

Presented *p*-values suggest that our models are significant. However, low *F*-statistics and adjusted *R*<sup>2</sup> values mean that firm characteristics cannot explain a lot of reasons for earnings management. There are also other factors (bonuses, corporate governance, audit function etc.) that have to be included in explanation of magnitude and direction of earnings management of agricultural companies.

Presented evidence on signed discretionary accruals (Model 1) shows that only profitability plays large role in determining magnitude of opportunistic behavior. Positive significant coefficient of ROA suggests that agricultural companies with higher profit rates are more likely to engage in earnings management. When absolute discretionary accruals are regressed (Model 2), cancelling compensations in different directions of earnings management, high ROA is still the most important incentive for earnings manipulation, followed by high leverage. No significant association between magnitude of earnings management with other firm characteristics (size, growth) was observed.

When only negative discretionary accruals are considered (Model 3), we observe that agricultural companies with higher profit rates are engaged in income-decreasing behavior. Our findings are consistent with previous researches (Al-Fayoumi et al., 2010; De Las Heras et al., 2012), as well as with our expectation that agricultural companies with higher profits decrease their earnings to minimize income taxes.

When only positive discretionary accruals are considered (Model 4), we observe that highly leveraged and more profitable agricultural firms are engaged in income-increasing behavior. Association of high leverage with income-increasing behavior is well documented in other studies (P. Dechow et al., 2010; Watts & Zimmerman, 1986; Zmijewski &

Hagerman, 1981). However, findings that profitable firms are more engaged in income-increasing behavior could be explained with reversal nature of earnings management (P. M. Dechow, Hutton, Kim, & Sloan, 2012). Namely, any accrual-based earnings management has an inherent characteristic that it must reverse in another period. It means, that if a firm has overestimated its earnings in one period, in future it will have to underestimate its earnings. It is interesting to note that highly profitable firms are engaged both in income-increasing and income-decreasing behavior which suggests that unusual income-increasing behavior may be a consequence of earlier income-decreasing behavior.

## 5. Discussion

Agricultural sector is very important constituent of Serbian economy. Therefore, recognizing the quality of reported results from agricultural production is vital for different stakeholders.

Using sample of 1,983 firm-year observations from period 2009 to 2013, we find that agricultural companies in Serbia are engaged in significant earnings manipulation. Further, we find that high profit and high leverage are the most frequent reasons for distortion of reported earnings. More profitable agricultural firms are significantly engaged both in income-decreasing and income-increasing behavior, while highly leveraged agricultural companies tend to increase their earnings in order to improve their chances for debt financing.

Our findings have important agricultural and overall government policy implications since they shed light on problem of information risk in reporting earnings of agricultural companies. Scope of distortion can be a direct consequence of government measures or it can signal the actual limitations in earnings interpretations. Results are also of interest to investors, creditors and other users of financial statements since it makes a profile of agricultural companies engaged in earnings management by associating firm characteristics with magnitude and direction of opportunistic behavior. This study is also of interest to researchers who study the problem of earnings management in emerging economies who adopted international accounting regulation but have a weak enforcement mechanism.

This study has limitations that are common to all earnings management examinations. Namely, earnings management is not directly observable and used models might suffer from misspecifications which can influence final conclusions. Other factors which are considered

constant in this study could turn out to be influential. Therefore, final conclusions should be treated with caution.

Since there are various dimensions along which management can exercise their discretions, it is difficult for one proxy of earnings management to capture all aspects of opportunistic behavior. Therefore, for future research, it would be interesting to look into the use of other proxies for earnings management and to compare results. Also, it would be interesting to investigate influence of other earnings management incentives in explanation of earnings disclosure distortions (bonuses, stock prices, audit function, corporate governance, legal enforcement etc.).

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