

# Earnings Management in Unlisted Firms: Cross-country and Time Difference Analyses Across four Emerging Eastern European Countries Between 2003-2009

Susana Callao, José I. Jarne, David Wróblewski

**Abstract** – We investigate earnings management in unlisted firms across four emerging Eastern European countries: Poland, Hungary, Slovakia and the Czech Republic between 2003-2009. We are interested in determining whether earnings management is being practiced in emerging countries. The question arises as these countries increasingly have more importance in the European market, and till now have been barely explored. Specifically, we investigate whether companies from these emerging countries manage their earnings and whether they do it to increase or decrease the earnings figure. We also analyze whether the manipulation varies in time affected by different events, and cross-sectional analysis between the countries in the sample. Based on discretionary accruals during the period from 2003 to 2009, the results show that an average firm from emerging Eastern European countries manages earnings downwards. Results suggest that the manipulation varies over the years: a decrease in earnings management between 2003 and 2007, and increase in earnings manipulation between 2008 and 2009. We also confirm that there is a significant difference in earnings management between the emerging countries analyzed. Examining earnings management behaviour in new emerging economies may help to understand how managers cope with the pressure in highly competitive European markets. It opens new discussions and debates on the comparison of both European markets, and on the possible investigations of reasons of such manipulation.

**Keywords** – Discretionary Accruals, Earnings Management, Eastern European Countries, Emerging Countries.

## I. INTRODUCTION

Earnings management has received considerable attention in the literature as can be seen in the significant number of studies related to this subject. Most research considers earnings management as opportunistic behavior that arises under conditions of incomplete and asymmetric information, when the principal hires agents that may not have the same interests. Managers may have an incentive to make decisions in their own interest when preparing financial information to the detriment of the firm's owners [27], [28]. Prior literature defines earnings management as a deliberate intervention in external financial reporting to reach earnings targets through various accounting practices and policy choices that may result in stakeholders believing certain financial information<sup>1</sup>.

<sup>1</sup> However, some papers adopt an informative or signaling perspective [4], [102], [117]. They consider that managers use earnings management to reveal their expectations for the future of the firm, thus making it easier for investors to predict future performance. Other definitions of earnings management can be found in [2], [38], [97], inter alia.

In earnings management literature, different aspects have been investigated. Nevertheless, earnings management in emerging European countries is barely explored. The fundamental changes that have taken place in the economic and societal structures in the emerging European countries after the fall of communism institutions create very different background from the North America and Western Europe previously examined.

The change from communism to new democratic regimes, the rapid privatization, the institutional infrastructure, the culture, etc. are the factors that lead us to think that managers' behaviour may be different from that in other countries. Moreover, these countries are becoming increasingly important in the European Union. Additionally events such as joining the European Union and facing latest financial crisis may have significant effect on the existence of earnings manipulation.

The study focuses on unlisted firms from four emerging Eastern European countries: Poland, Hungary, Slovakia and the Czech Republic, during the period from 2003 to 2009. Most of the studies on emerging countries across the world were based on listed companies; therefore, the current study presents new vision on the developing markets. We analyze whether firms from these emerging countries manage earnings and if so, to measure the sign of such manipulation. We also examine the yearly pattern on of earnings management behaviour looking at how the companies respond to the dynamic environment, considering two important events, joining the European Union and the 2008-2009 financial crisis and their effects on managers' decisions for managing earnings. Finally, we investigate whether the earnings manipulation differs among these emerging Eastern European countries, regardless of their common communism heritage, cultural or social similarities.

These results based on discretionary accruals models show that firms from emerging Eastern markets manage earnings and they do so to decrease earnings. The manipulation declines from 2003 to 2007, and increases from 2008 to 2009. We detect differences in earnings management among the emerging countries analyzed. The Czech Republic and Polish samples present the lowest manipulation, followed by Hungary. Slovakia is the country with the highest level of earnings management.

Our findings contribute to the recent debate among practitioners, regulators and academics about the possible determinants of earnings management in developing countries. Investors and analysts try to look for clues and new tendencies in earnings manipulation. New emerging economies may help to understand how managers cope with the pressure in highly competitive European markets.

Opportunities for manipulation appear and the investor needs to fulfill their information needs. In addition, the study may be useful for academics, as it investigates new markets opening new discussions and debates on the comparison of both European markets (Western and Eastern). Besides, the change in the underlying business reality (incorporation of Eastern European countries into the global European market) is accompanied by the possible new ways and incentives for earnings management.

The remainder of this paper is organized as follows. In the next section we present the motivations and background of our research questions. Then, we review the literature on earnings management. The third section focuses on the sample selection and explains the methodology we employed. The fourth part presents the results we have obtained. Finally, we present the conclusions and the study's limitations in Section 5.

## II. MOTIVATION

Emerging Eastern European countries by recent entrance into the European Union (EU) made a significant step in the development and economic growth of their companies. They just start to compete on the open European market, which shows very tight competition. Western European companies are well-established and much stronger than emerging European companies. Additionally, the legal, economic, cultural and political situations in developing European countries (Eastern part of Europe) differ from those in Western European countries. [68] finds a relationship between some institutional factors, such as legal enforcement, investor protection, etc., and earnings management. This suggests that earnings management in these countries will not be the same as it is in Western Europe (as mentioned, Western European economies are well investigated in terms of earnings management).

These countries entered the European Union (EU) only a few years ago, resulting in changes in the institutional, technological and economic environment, thus raising new challenges for firms. One of these is to be competitive in a large global market. Some firms manage earnings to appear stronger and more competitive than they actually are. For this reason, we are interested in investigating if Eastern European companies manage earnings and if they do it to increase or decrease earnings. This is our first objective.

However, based on the earnings management literature, we expect that manipulation may change over the years. These changes may be in respond to many aspects of the environment where companies operating, such as: market fluctuations, economic cycle, macroeconomic conditions, among others. Dynamic environment is one of the relevant factors which may influence managers' decisions [69]. [109] and [111] add that complex environment is important for managers' decisions. [62] points out, as well, that environmental uncertainty is likely to affect firms' performance.

The firms' environment is changing. The managers may respond to those changes. We think that managers try to cope with the fluctuations of the market and they also respond to these fluctuations by variations in earnings management. In addition, our analysis period includes two important moments: European Union membership and first impact of world economic crisis.

For one side, there is our perception of shrinking possibilities of managing results, as candidate states implemented numerous legislative measures facing with political pressure from the European Commission derived from EU membership. Indeed, the harmonization process started long before the accession; however, the direct and the biggest impact on the companies has been observed in the years of immediate preparation, accession, and years just after the EU membership. During the transition period, new EU membership countries were active in reviewing and amending key legislation to adapt to new European requirements. The EU Commission proposed principles for improving regulations, such as: development and implementation of national anti-corruption strategies or programs covering both preventive and repressive measures. It was created a competent and visible control bodies. It appears the development of targeted investigative techniques, statistics and indicators. Clear and transparent rules on party financing, and external financial control of political parties were required [26].

On the other side, first impact of financial crisis could be noticed between 2008 and 2009. Therefore, in a period of crisis, when investors are pessimistic about earnings news, managers rely on more earnings management and report similar earnings level as previous periods (they may manipulate more if they are not able to reach established earnings). This is partly due to increased worries about potential loss of investors.

Nevertheless, other view may suggest that in worse periods impact of the audit affects the quality of the financial information and the manipulation decreases, see [18], [30]. [18], for example, describes that managers during the periods of crisis manipulate less their earnings because due to the audit quality the quality of the provided financial reports improve. Additionally, [7] explains that managers smooth the effect of fluctuation of the markets because market reacts more adversely to changes in earnings.

Finally, the emerging Eastern European market seems to be similar countries. The four countries considered give the impression of having the same conditions and circumstances, since they are all post-communist countries. Moreover, since the four countries are in a transition phase to democratic politics and market economies, we expect earnings management to be similar in all four. The cultural, social and legal aspects, among others, of each country may have some influence on the perception of manipulation but we do not expect this perception to differ greatly.

When former regimes collapse and new ones adapt to democratic and market-oriented societies, the outcome is a weak and inconsistent legal framework combined with few controls and the persistence of the culture of state

intervention. This facilitates the emergence of corruption as one of the key governance problems in this region. The rapid privatization undertaken in many post-communist countries in the absence of proper institutional infrastructure and safeguards to ensure fairness and transparency further expand the scope for corruption. The massive transfer of public assets to private hands in many cases reinforces rather than undermines corrupt networks [58]. Nevertheless, the emerging Eastern European countries that joined the EU in 2004 have been relatively more successful at improving their overall governance systems during their long transition period, and this – rather than external political pressure in the run-up to accession– may be one reason why their anti-corruption measures appear effective and resilient.

However, considering the macroeconomic situation of these countries, we observe significant differences between them. Poland and the Czech Republic have lower inflation rates, lower unemployment, and higher GDP (see Appendix 1), showing better resistance and economic stability in comparison to Slovakia and Hungary. Since there are macroeconomic differences among countries, we investigate whether there are differences in earnings management between these countries. Prior literature provides our ample discussion on the influence on the macroeconomic environment on companies, which indeed may influence earnings management. For example, better local country development may constrain earnings management, while poor economic situations lead to higher manipulation over time, as managers try to fulfil previously established companies’ objectives [93]; see also [1], [10], [17], [35], [46], [47], [49], [57], [61], [67], [68], [113].

### III. LITERATURE REVIEW

Taking into consideration the sample selection, the majority of studies on earnings management are based on US sample. We should point out that a significant number of studies are based on the Asian emerging market. However, there are almost no studies on European emerging markets. Mostly, European studies are based on the Western European countries. Fig. 1 shows the distribution of the total earnings management studies in term of the sample selection.

The literature defines emerging market as a country that has some characteristics of a developed market, but does not meet standards to be a developed market [81]. Among the largest and developing economies Brazil, China, India, Russia, followed by Indonesia, Mexico, Korea, Malaysia, Bangladesh are mentioned as examples of emerging economies in the world. In Europe, the Czech Republic, Estonia, Greece, Hungary, Poland, Romania, Slovakia, Slovenia represent mainly emerging countries. Appendix 2 presents country origin, the objectives and obtained results of key studies on earnings management based on the sample from developing countries around the world.

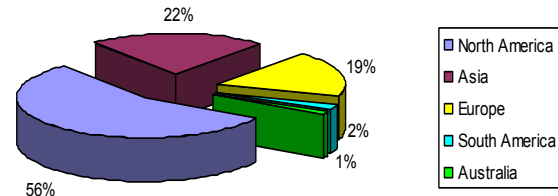


Fig. 1. Distribution of studies of earnings management related to continents

We have analyzed a total of 207 articles on earnings management. 14 papers are descriptive papers, and 177 are papers represent studies based on country sample, within the period of 1985 and 2012.

Source: The author

Recently, there have been more studies on emerging Asian economies. There are also a few descriptive studies based on samples from developing European countries, and we contribute to this stream of literature.

Prior literature investigates *incentives to manage earnings*. Following the study of [38], they can be classified: capital market incentives, contracting incentives and political incentives<sup>2</sup>. Related to the emerging countries, researchers focus on incentives, such as: the managers’ decisions to opt for managing earnings and the tax incentives [72]; earnings manipulation to avoid reporting losses and sustain current performance [11] and [123], incentives related to obtain receive subsidies [15] or incentives related to the capital market [73] and [124].

Prior research has also investigated *factors that may influence earnings management*, such as, corporate governance, the importance of the audit committee and its role, investor protection, legal enforcement, etc<sup>3</sup>. In emerging economies setting boards and ownership structure have been shown to earnings manipulation [24], [55], [70], [71], [85], [86] and [96]. Another factor is the relationship between audit quality and earnings management over different macroeconomic periods [14], [39]. Finally, [73] focused on the quality of corporate governance and earnings management.

Another stream of research evaluates the existence of earnings management and develops *the measurement of earnings management*, e.g., [66], [78], [90], [105], [112], [120], [123].

Therefore, in present study we contribute to the recent debate among practitioners, regulators and academics about the existence of earnings management in new developing countries, till now barely explored, as the investors and analysts try to look for new tendencies in earnings manipulation. These countries start to have increasing impact on the European economies. They gradually improve in terms of doing business, technology, competitiveness, information, etc. In consequence, we try to respond whether companies from emerging markets manipulate earnings, how they manipulate, if the manipulation is the same or different among countries, etc. We also highlight some of the possible macroeconomic conditions that may influence earnings management.

<sup>2</sup> See also papers of [3], [12], [17], [20], [37], [38], [41], [52], [76], [86], [100], [107], among others.

<sup>3</sup> See studies of [17], [30], [33], [42], [56], [64], [94], [121], among others.



In consequence, our study has two main composing elements: the empirical evidence of earnings management of Eastern European countries analysing cross-country and time differences; and the descriptive analysis of the possible reasons for the managers' earnings management behaviour based on the literature.

#### IV. SAMPLE AND METHODOLOGY

##### 1. Sample and Analysis Period

The sample comprises non-financial and non-listed firms from the emerging European countries: Poland, Hungary, Slovakia and the Czech Republic. Previous studies on developing countries based their samples on the listed companies. Therefore, our study contributes to the literature<sup>4</sup>. We select these four countries for the following reasons.

The selected countries are former communism countries. These countries experienced dramatic change when they found themselves within the communist bloc from 1945 to 1989. It caused changes in political, cultural, economic and social life. In 1989, a wave of revolutions in the communist bloc countries dissolved the existing political regime and all our selected four countries became countries with a democratic system. Following, they started the process of transition to a market economy [32].

Additionally, our sample of emerging countries joined the European Union in May 2004. Moreover, all our four countries are members of the Visegrad Group (also known as the "Visegrad Four"<sup>5</sup> or simply "V4"), which reflects the efforts of the developing countries of the Central European region to work together in a number of fields of common interest within the all-European integration<sup>6</sup>.

We focus on the period from 2003 to 2009 for three reasons. First, we are interested in the evaluation of earnings management in emerging European countries before and after joining the European Union. Before 2004, Eastern European companies were developing, growing and transforming 10 years after the collapse of communism regime. The Czech Republic, Hungary, Poland and Slovakia transformed from central planning towards a market economy. We want to test the effect of these transformations on managers' behaviour. Second, we are interested in testing the managers' activity in a period affected by the financial crisis (2008-2009).

We use the AMADEUS database to collect the sample, and retain those firms for which data is available for the variables considered for all the years included in the study (2003-2009). For each variable, we eliminate outliers falling outside the range set by the mean value plus/minus three times the standard deviation. The sample comprises a total of 4,499 companies for each year, in total 31,493 observations. Hungary is the country with the fewest (742 observations) and Poland with the most (15,302).

In Eastern European countries the IFRS is required for consolidated financial statements of listed companies, since it is mandatory by EU. Some listed companies also apply IFRS to prepare separate financial statements because of EU allowed member states to decide about it. We work with non-consolidated financial statements prepared under local GAAP<sup>7</sup> to avoid the impact of IFRS implementation and its effect on the companies' earnings. Our final sample is presented in Table 1.

Table 1: Sample selection procedure

	<i>Czech R.</i>	<i>Poland</i>	<i>Hungary</i>	<i>Slovakia</i>	<b>Total</b>
Total number of firms available in Amadeus data base	2,990	2,544	175	359	6,068
Incomplete data (missing data)	(779)	(208)	(62)	(163)	(1,212)
Extreme values	(178)	(150)	(7)	(22)	(357)
<b>Total sample firms</b>	<b>2,033</b>	<b>2,186</b>	<b>106</b>	<b>174</b>	<b>4,499</b>
Number of observations	14,231	15,302	742	1,218	31,493

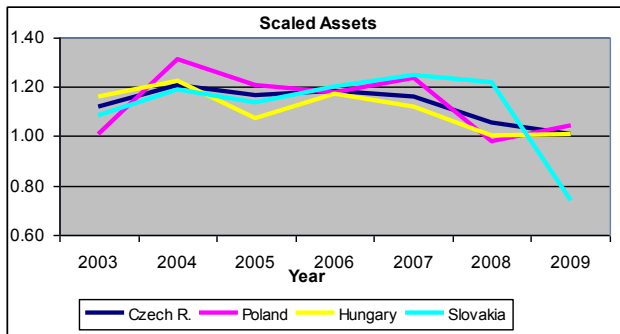
Following we describe our sample focusing on some of the main variables, see Fig. 2. Focusing on some main descriptive variables (total assets, sales, ROA) we clearly identify that Eastern European companies show solid and significant growth, with the exception of 2008 and 2009. Between these years companies have been affected by the first impact of the world financial crisis. [82] points out, by mid-2007, over-dependence on market forces and mechanisms without proper and workable regulatory mechanisms and systems in place to govern the globalization process, led to the appearance of large cracks threatening the stability of the world economy on two fronts: a sharp hike in primary commodity prices and the global financial crisis. Many primary commodities registered a steep rise in prices since 2002, reaching an all-time high in 2007-2008, with extreme fluctuations. [8] confirms the existing effects of the global financial crisis on growth in emerging European countries.

<sup>4</sup> Additionally, only around 5% of the total of the companies of the emerging Eastern European countries represent listed companies.

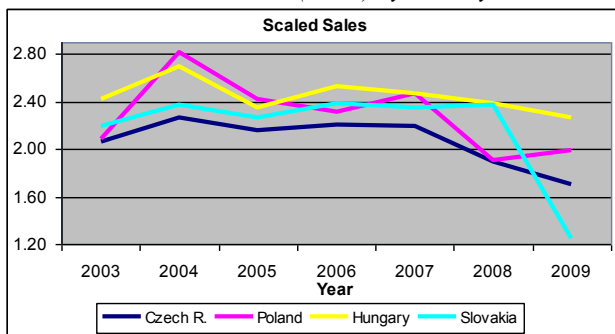
<sup>5</sup> see <http://www.visegradgroup.eu/>

<sup>6</sup> In February 1991, Czechoslovakia (Czech and Slovakia), Hungary and Poland met in the city of Visegrad (Hungary) and agreed on a "Declaration of Cooperation on the Road to European Integration"

<sup>7</sup> Local normative has not been changed during our sample period in all our sample countries.



Panel B. Sales (mean) by country



Panel C. ROA (mean) by country

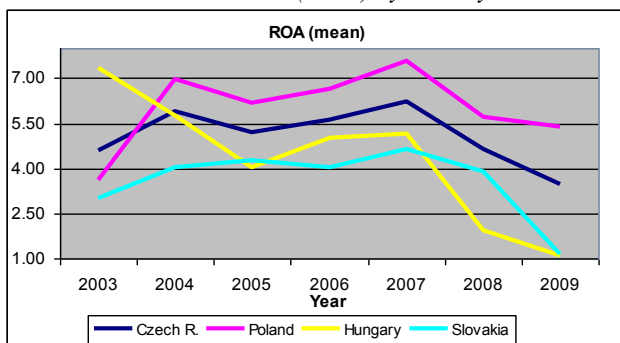


Fig. 2. Descriptive statistics on the sample  
Panel A. Assets (mean) by country  
Source: The author

## 2. Methodology

In the literature we find at least three main research designs for detecting earnings management: those based on aggregate accruals, those based on specific accruals and those based on the distribution of earnings after management [80].

First approach identifies discretionary accruals based on the relation between total accruals and hypothesized explanatory factors. The Jones model [50] and its modifications have been used by prior research to improve the detection model. They introduced a regression approach to control for the non-discretionary part of accruals. These approaches are typically called aggregate accruals studies and include, among others, the models proposed by Dechow, Richardson and Tuna [21], Dechow, Sloan and Sweeney model [23], Kang and Sivaramakrishnan model [51], Kasznik model [52], Key model [54], Kothari, Leone, and Wesley model [62], Larcker and Richardson model [65], Shivakumar model

[100], Teoh, Welch and Wong model [106], and Yoon and Miller model [123].

A second approach is to model specific accruals, as in [79]. These studies often focus on industry settings in which a single accrual is sizable and requires substantial judgment. A third approach is to examine the statistical properties of earnings to identify behaviour that influences earnings, as developed by [12] and [25].

To detect earnings management, we use aggregated accruals, specifically the discretionary part of the accruals in relation to the total accrual. Accruals are the part of revenues and expenses that do not imply collections and payments, and they are defined as the difference between profit and operating cash flows. Due to the lack of data for operating cash flow for many of the companies in the sample, we calculate total accruals (TA) according to equation (1):

$$TA_{it} = \Delta Receivables_{it} + \Delta Inventories_{it} - \Delta Payables_{it} - DEP_{it} \quad (1)$$

where,  $\Delta Receivables$  is the change in accounts receivable,  $\Delta Inventories$  is the change in inventories,  $\Delta Payables$  is the change in accounts payable and  $DEP$  is the depreciation and amortization expense. The subscripts  $i$  and  $t$  refer to the firm and the year respectively. Changes are calculated with respect to the prior year.

However, not all accruals are equally capable of being manipulated, and we may, therefore, distinguish between non-discretionary accruals (NDA), which are more difficult to manage, and discretionary accruals, which are easier. Thus,  $TA = NDA + DA$

Since the discretionary and non-discretionary components of accruals are not directly observable, we use the model which provides the most reliable results for our sample countries. Based on the adjusted R square, predicted sign of the coefficients, standard error of the estimated variables and the p-value, which represents the statistical significance of the variables, we evaluate the robustness and the effectiveness of ten models for measuring earnings management. We analyze the following models for both: time-series and cross-sectional analysis: the Jones Model [50], Dechow, Sloan and Sweeney Model (Modified Jones Model) [23], the Kang and Sivaramakrishnan Model [51], the Shivakumar Model [99], the Key Model [54], the Teoh, *et al.* Model [106], the Kasznik Model [52], the Yoon and Miller Model [123], the Dechow, Richardson, and Tuna Model [21] and the Kothari *et al.* Model [62]<sup>8</sup>. The results indicate that the cross-sectional Yoon and Miller model is an effective model for our Eastern European countries in detecting earnings management judged based on higher level of adjusted R square, success in the predicted sign, lower level of standard error, and more significant values of the parameters.

The results indicate that we may have a misspecification problem if we apply one of other models to our sample of firms. Other models do not seem to be reliable at least for

<sup>8</sup> Wide literature discusses the advantages and disadvantages of both methodologies, see for example, [5], [23], [60], [74], [84], [85], [102], [122].

our samples of Czech, Polish, Hungarian, and Slovakian firms. Consequently, we use the Yoon and Miller [123] model (eq. 2):

$$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it} \quad (2)$$

Where,  $TA_{it}$  is total accruals in year  $t$  booked by firm  $i$  in period  $t$ ;  $\Delta REV_{it}$  is the change in net sales revenue;  $\Delta REC_{it}$  is the change in receivable accounts;  $\Delta EXP_{it}$  is the change in operating expenses excluding non-cash expenses;  $\Delta PAY_{it}$  is the change in payables;  $NCASH_{it-1}$  is previous period non-cash expenses, such as depreciation;  $GPPEGRW_{it}$  is a rate of growth in gross property, plant and equipment;  $A_{it-1}$  is total assets from the previous period,  $\varepsilon_{it}$  is the error term.

The basis for this model is the modified version of Jones (1991), a model proposed by [23], and attempts to improve it by including two more variables:  $\Delta EXP_{it} - \Delta PAY_{it}$  and  $NCASH_{it-1} \times GPPEGRW_{it}$ .<sup>9</sup> As [123] argues, the latter variable associates noncash expenses with noncurrent accruals, and it captures a normal or non-discretionary level of noncash expenses. This variable substitutes the property, plant and equipment variable included in [23], and it does not have an expected sign.

The first variable,  $\Delta EXP_{it} - \Delta PAY_{it}$ , was adopted by [123] from [51]. This variable is included because managers can manipulate not only sales, but also expenses. It captures the impact of cash expenses on current accruals and allows us to capture properly the dual aspects of current accruals (sales through  $\Delta REV_{it} - \Delta REC_{it}$  and expenses through  $\Delta EXP_{it} - \Delta PAY_{it}$ ). For the first variable we expect a negative sign because an increment in cash revenues causes a decrease in receivables and then a decrease in accruals. On the other hand, the expected sign for the second variable is positive. It means that an increment in cash expenses causes a decrease in payables and then a rise in accruals.

Equation (2) is estimated for the period 2003-2009 by applying the cross-sectional methodology. The regression was run per country and per industry.

$A_{it-1}$  is used as a deflator to avoid problems of heteroscedasticity. Standard errors are adjusted for heteroscedasticity per White [119].

Having estimated the parameters of equation (2) per country and per industry, we apply the values obtained to

predict discretionary accruals for the 2003–2009 study periods. The prediction error is interpreted as the discretionary part of accruals, defined in equation (3):

$$\frac{DA_{it}}{A_{it-1}} = \frac{TA_{it}}{A_{it-1}} - \left( a_0 \frac{1}{A_{it-1}} + a_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + a_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + a_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} \right) \quad (3)$$

where,  $DA_{it}$  are discretionary accruals for firm  $i$  in period  $t$ , and  $a_0$ ,  $a_1$ ,  $a_2$  and  $a_3$  are the estimated values of  $ai$ .

After obtaining the discretionary accruals for each company, we then investigate whether companies from emerging Eastern Europe perform earnings management to increase earnings. To this end, we calculate the number of companies that showed positive and negative earnings management per country and year. We also calculate the mean of discretionary accruals in positively ranked firms and the mean of negatively ranked firms<sup>10</sup>.

To study if the level of manipulation decreases over the years, we look for any significant differences in the level of discretionary accruals for the periods 2003–2009. To this end, we calculate the value of discretionary accruals in absolute terms for firms in each country. After verifying the variable does not follow a normal distribution (see Appendix 3), we apply the non-parametric Friedman's test for each country. Friedman's test, by way of individual analysis of the data (in our case, of the absolute value of discretionary accruals) per country, allows us to present an ordering of years (for each country) based on the level of earnings management. This helps us to evaluate whether earnings management has increased or decreased over the years.

Finally, to know whether the level of manipulation is homogeneous among our sample of countries, we run the non-parametric Kruskal-Wallis test using the absolute value of discretionary accruals. We are also interested in investigating whether the level of discretionary accruals showed significant differences by pairs of countries. To this end, we use the non-parametric Mann-Whitney test.

## V. RESULTS

The results of the regression parameters (2) are reported in Appendix 4. We can observe statistical significance of the variables. The descriptive statistics for discretionary accruals are shown in Table 2.

<sup>9</sup> [122] provides a comment on the strengths and weaknesses of the main accruals models, specifically the Jones model and its extension.

<sup>10</sup> This was done to gain a more nuanced analysis, since it was possible that the results would show a larger number of positive (negative) DA, but that the mean in the DA made by the positively ranked firms would at the same time be lower (higher) than the mean in the DA made by the negatively ranked firms.

Table 2: Statistics on discretionary accruals over the years

	2003	2004	2005	2006	2007	2008	2009
<b>Panel A: Czech Republic</b>							
Mean	-0.0308	-0.0184	-0.0337	-0.0187	-0.0167	-0.0410	-0.0492
Standard deviation	0.1502	0.1428	0.1330	0.1384	0.1615	0.1253	0.1272
Median	-0.0409	-0.0301	-0.0421	-0.0289	-0.0286	-0.0484	-0.0518
<i>Mean per industry</i>							
Industry 0	-0.0768	-0.0323	-0.0640	-0.0511	-0.0425	-0.0557	-0.0774
Industry 1	-0.0544	-0.0425	-0.0495	-0.0486	-0.0281	-0.0618	-0.0538
Industry 2	-0.0371	-0.0401	-0.0477	-0.0301	-0.0340	-0.0493	-0.0495
Industry 3	-0.0271	-0.0319	-0.0472	-0.0303	-0.0413	-0.0390	-0.0406
Industry 4	-0.0089	0.0228	-0.0048	0.0153	0.0158	-0.0233	-0.0479
Industry 5	-0.0401	-0.0638	-0.0234	-0.0294	-0.0333	-0.0519	-0.0700
Industry 6	-0.0625	-0.0461	-0.0535	-0.0517	-0.0585	-0.0413	-0.0410
Industry 7	-0.0090	-0.0241	-0.0282	0.0240	0.0369	-0.0280	-0.0522
Industry 8	-0.0099	-0.0093	-0.0186	-0.0539	-0.0334	-0.0491	-0.0037
Industry 9	0.0032	0.0156	-0.0747	-0.0434	0.0128	-0.0802	-0.0382
<b>Panel B: Poland</b>							
Mean	-0.0381	-0.0187	-0.0382	-0.0279	-0.0190	-0.0466	-0.0529
Standard deviation	0.1809	0.1602	0.1637	0.1655	0.1415	0.1390	0.1113
Median	-0.0448	-0.0318	-0.0442	-0.0379	-0.0334	-0.0451	-0.0504
<i>Mean per industry</i>							
Industry 0	-0.0679	0.0012	-0.0456	-0.0408	-0.0530	-0.0361	-0.0551
Industry 1	-0.0514	-0.0446	-0.0379	-0.0511	-0.0231	-0.0811	-0.0495
Industry 2	-0.0256	-0.0203	-0.0564	-0.0274	-0.0254	-0.0600	-0.0562
Industry 3	-0.0588	-0.0338	-0.0678	-0.0382	-0.0450	-0.0499	-0.0420
Industry 4	-0.0220	0.0066	-0.0269	-0.0093	0.0059	-0.0369	-0.0528
Industry 5	-0.0581	-0.0419	-0.0545	-0.0739	-0.0284	-0.0845	-0.0726
Industry 6	-0.0204	-0.0127	-0.0255	-0.0098	-0.0086	-0.0134	-0.0432
Industry 7	-0.0480	-0.0404	-0.0256	-0.0140	-0.0507	-0.0607	-0.0419
Industry 8	-0.0749	-0.0578	-0.0277	-0.0577	-0.0507	-0.0337	-0.0640
Industry 9	-0.0831	-0.0256	-0.0622	-0.0849	-0.0556	-0.0753	-0.0695
<b>Panel C: Hungary</b>							
Mean	0.0433	-0.0206	-0.0301	0.0178	-0.0317	-0.0524	-0.0611
Standard deviation	0.3085	0.1738	0.1156	0.1993	0.1077	0.1188	0.1097
Median	-0.0236	-0.0420	-0.0507	-0.0249	-0.0274	-0.0495	-0.0594
<i>Mean per industry</i>							
Industry 0	-0.1204	-0.0203	-0.1308	0.0506	-0.0115	-0.0347	0.0101
Industry 1	-0.0436	-0.0369	-0.0176	-0.0198	-0.0167	0.0420	-0.0319
Industry 2	-0.0163	-0.0533	-0.0546	-0.0217	-0.0414	-0.0728	-0.0800
Industry 3	-0.0701	-0.0580	-0.1001	-0.0500	-0.0494	-0.0667	-0.0765
Industry 4	0.1174	0.0071	-0.0028	0.0750	-0.0191	-0.0503	-0.0565
Industry 5	-0.0228	-0.0504	-0.0255	-0.0313	-0.0880	0.0115	-0.1039
Industry 6	0.0307	-0.0178	-0.0538	-0.0466	-0.0603	-0.1233	-0.0339
Industry 7	0.0163	-0.0426	-0.0538	-0.0132	0.0150	-0.0936	-0.0744
Industry 8	-0.0014	-0.0041	-0.0229	-0.0729	-0.0015	-0.0057	0.0097
Industry 9	-0.0564	-0.0914	-0.0928	-0.0939	-0.1193	-0.1345	-0.1177
<b>Panel D: Slovakia</b>							
Mean	-0.0490	-0.0284	-0.0531	-0.0427	-0.0241	-0.0707	-0.0522
Standard deviation	0.1261	0.1234	0.0973	0.1230	0.1806	0.1478	0.1219



Median	-0.0462	-0.0392	-0.0505	-0.0557	-0.0486	-0.0771	-0.0650
<i>Mean per industry</i>							
Industry 0	-0.0650	-0.0359	-0.0653	-0.1115	-0.0889	-0.0921	-0.0975
Industry 1	-0.0582	-0.0406	-0.0446	-0.0908	-0.0079	-0.0283	-0.0576
Industry 2	-0.0592	-0.0128	-0.0618	-0.0186	-0.0569	-0.0809	-0.0769
Industry 3	-0.0876	-0.0622	-0.0464	-0.0529	-0.0492	-0.0586	-0.0559
Industry 4	-0.0195	-0.0255	-0.0610	-0.0244	0.0110	-0.0909	-0.0175
Industry 5	-0.0556	-0.0763	0.0127	-0.1225	-0.0271	-0.0344	-0.0548
Industry 6	-0.0238	-0.0231	-0.0737	0.0180	-0.0246	-0.0952	-0.0037
Industry 7	-0.1357	0.0148	0.0014	-0.0284	-0.1150	0.0296	-0.1605
Industry 8	-0.1002	-0.0384	-0.0262	-0.0686	-0.0213	-0.0974	-0.0890
Industry 9	-0.0239	0.0231	-0.0592	-0.0555	-0.0917	-0.0670	-0.1215

### 1. Sign of Discretionary Accruals

The results (Table 2) show that our samples of firms from emerging countries manage their earnings<sup>11</sup>. Previous empirical studies on emerging countries indicate as well that firms indeed heavily engaged in earnings management, see studies, [55] and [123] in Korean firms; [90] in Bangladesh; [66], [124] in Chinese firms; [88] in Malaysian firms; [14] in Greece; [78] in Romania; and [105] in the Czech Republic, Hungary and Poland, among other studies<sup>12</sup>.

The results of the means also demonstrate the negative values of the discretionary accruals, which suggest earnings are decreased to avoid reporting earnings. Table 3 reports the correspondence (percentage) of positive and negative discretionary accruals for the samples over the years, and the magnitude of means without considering its sign.

The percentage of the observations with negative discretionary accruals ranges from about 63% to 76% for the Czech Republic sample; for the Polish sample, from 63% to 77%; the Hungarian sample between 56% and 76%, and for the Slovakian sample it ranges from 71% to 76%. These results indicate that two thirds of the cases show the negative sign of discretionary accruals, which indicates a decrease in earnings. This distribution clearly suggests that our Eastern European emerging firms tend to manipulate their earnings downwards.

Previous studies on emerging countries indicate contrary results, as most studies show that firms manage earnings to increase them. The firms tend to choose income-increasing strategies [14], [66], [123], among others. Nevertheless, prior researches were mainly based on developing Asian markets, which is different environmental background. The unique empirical study based on the emerging Eastern European countries, [105]

confirms our results indicating that firms decrease earnings to avoid reporting high earnings figure because of the tax fulfillment on firms' reporting decisions. He reports that firms aggressively manage earnings downward mainly in order to reduce tax expenses.

<sup>11</sup> The results of means are different from zero. Moreover, to test this, we generated a fictitious sample whose discretionary accrual results are equal to zero (no earnings management). We used this fictitious sample to represent the situation of no manipulation of earnings. We then used the non-parametric Mann-Whitney test to confirm a statistically significant difference in manipulation among all the countries and our non-earnings management sample. This means that, in fact, all our sample countries—the Czech Republic, Poland, Hungary and Slovakia—manipulate earnings.

<sup>12</sup> For details, see again Appendix 2.



Table 3: Results of earnings management: positive vs. negative discretionary accruals

	2003	2004	2005	2006	2007	2008	2009	Mean
<b>Panel A: Czech Republic</b>								
Zero or small positive %	30.89%	36.35%	31.48%	35.02%	34.53%	25.73%	23.66%	<b>31.09%</b>
Negative %	69.11%	63.65%	68.52%	64.98%	65.47%	74.27%	76.34%	<b>68.91%</b>
Mean positive	0.1073	0.1064	0.0973	0.1087	0.1017	0.0884	0.0851	<b>0.0993</b>
Mean negative	0.0926	0.0897	0.0939	0.0874	0.0792	0.0858	0.0908	<b>0.0885</b>
Difference	0.0147	0.0167	0.0035	0.0213	0.0225	0.0026	-0.0057	<b>0.0108</b>
<b>Panel B: Poland</b>								
Zero or small positive %	28.50%	36.41%	27.72%	30.38%	33.62%	24.34%	23.01%	<b>29.14%</b>
Negative %	71.50%	63.59%	72.28%	69.62%	66.38%	75.66%	76.99%	<b>70.86%</b>
Mean positive	0.1005	0.1258	0.1085	0.1067	0.1144	0.0842	0.0740	<b>0.1020</b>
Mean negative	0.0934	0.1015	0.0944	0.0866	0.0866	0.0886	0.0908	<b>0.0917</b>
Difference	0.0071	0.0243	0.0141	0.0200	0.0278	-0.0044	-0.0168	<b>0.0103</b>
<b>Panel C: Hungary</b>								
Zero or small positive %	44.34%	37.74%	32.08%	41.51%	33.96%	25.47%	23.58%	<b>34.10%</b>
Negative %	55.66%	62.26%	67.92%	58.49%	66.04%	74.53%	76.42%	<b>65.90%</b>
Mean positive	0.1938	0.1303	0.0972	0.1616	0.0673	0.0771	0.0656	<b>0.1133</b>
Mean negative	0.0766	0.1121	0.0903	0.0842	0.0826	0.0967	0.1002	<b>0.0918</b>
Difference	0.1172	0.0182	0.0070	0.0773	-0.0153	-0.0196	-0.0346	<b>0.0214</b>
<b>Panel D: Slovakia</b>								
Zero or small positive %	25.29%	29.31%	25.86%	25.29%	24.71%	23.56%	25.86%	<b>25.70%</b>
Negative %	74.71%	70.69%	74.14%	74.71%	75.29%	76.44%	74.14%	<b>74.30%</b>
Mean positive	0.0991	0.1105	0.0636	0.1018	0.1562	0.0998	0.0914	<b>0.1032</b>
Mean negative	0.0992	0.0860	0.0938	0.0917	0.0833	0.1232	0.1023	<b>0.0971</b>
Difference	-0.0001	0.0244	-0.0303	0.0102	0.0729	-0.0234	-0.0109	<b>0.0061</b>

Furthermore, to evaluate the level of downwards and upwards manipulation, we compare the absolute value of means (the magnitude of means without considering its sign) of positive and negative discretionary accruals, see Table 3. The dependent variable is the absolute value of discretionary accruals because we want to measure the magnitude of manipulation without regard to its sign.

The results indicate that the absolute values of positive discretionary accruals are higher than the absolute values of negative discretionary accruals (the mean of positive discretionary accruals is higher than the mean of negative discretionary accruals). Only the last two years show higher values of negative means of discretionary accruals over the negative.

The results indicate that between 2003 and 2007 the Czech Republic and Polish firms demonstrated higher values of positive means. In the two last years of our sample period, we observed fluctuations in the values, for example the Czech Republic sample in 2008 shows higher values of positive means. Nevertheless, in 2009 the negative means reached a higher value than the positive means. On the other hand, between 2008 and 2009, the Polish and Hungarian samples showed persistence of the negative sign, which means higher values of negative discretionary accruals than positive ones. And finally, the Slovakian sample shows higher values of positive means

in 2004, 2006 and 2007. Then we observe a higher level of the negative sign of means of discretionary accruals.

In light of the above, we can observe negative earnings management for our Eastern European emerging countries in most cases (more than 66%). However, the level of the manipulation indicates that upwards manipulation is much higher than downwards manipulation. The managers of our samples are more likely to round down their results, but only slightly. Taking the above considerations into account, we ran estimations to evaluate the dimensions of negative and positive manipulation. We calculated the dimensions of the manipulation due to positive and negative earnings management by multiplying the means for each year and each sample by the percentage of the observations with negative or positive discretionary accruals (Table 3). The results are reported in Table 4.

We can observe that the dimensions of the manipulation by decreasing earnings are significantly higher than manipulation by increasing earnings (in all the samples, the manipulation by negative discretionary accruals exceeds that of positive discretionary accruals). Moreover, we detected the highest manipulation by decreasing earnings in the Slovakian sample, followed by the Polish sample. In contrast, the highest manipulation by increasing earnings we observed was in Hungarian firms, followed by the Czech Republic sample of companies.

Table 4: Dimensions of the manipulation by positive and negative sign of discretionary accruals

	2003	2004	2005	2006	2007	2008	2009	Mean
<b>Panel A: Czech Republic sample</b>								
Positive DA	0.0331	0.0387	0.0306	0.0381	0.0351	0.0227	0.0201	<b>0.0312</b>
Negative DA	0.0640	0.0571	0.0643	0.0568	0.0519	0.0637	0.0693	<b>0.0610</b>
<b>Panel B: Polish sample</b>								
Positive DA	0.0286	0.0458	0.0301	0.0324	0.0385	0.0205	0.0170	<b>0.0304</b>
Negative DA	0.0668	0.0645	0.0683	0.0603	0.0575	0.0671	0.0699	<b>0.0649</b>
<b>Panel C: Hungarian sample</b>								
Positive DA	0.0859	0.0492	0.0312	0.0671	0.0228	0.0196	0.0155	<b>0.0416</b>
Negative DA	0.0427	0.0698	0.0613	0.0493	0.0545	0.0721	0.0765	<b>0.0609</b>
<b>Panel D: Slovakian sample</b>								
Positive DA	0.0251	0.0324	0.0164	0.0258	0.0386	0.0235	0.0236	<b>0.0265</b>
Negative DA	0.0741	0.0608	0.0695	0.0685	0.0627	0.0942	0.0758	<b>0.0722</b>

These findings do not confirm our expectation of positive manipulation. Previous studies confirm that managers may smooth good results to avoid reporting high earnings, see for example studies of [34], [102]. Emerging Eastern European countries, as recent members of the European Union (EU), have taken significant steps in the development and economic growth of their companies. They appear to be very competitive firms; however, the strong desire to survive on the very competitive and global market, may have led managers of companies from developing countries to decrease earnings and to maintain some non-reported earnings, instead of reporting high revenues and being viewed as large strong companies.

Additionally, as the European market shows very tight competition. Western European companies are well-established and much stronger than emerging Eastern European companies. Emerging Eastern European companies decrease their firm's value outwardly and seem to appear weaker company than they are in reality. Consequently, they prefer to manage earnings downward to decrease the value of their firms and fill in "gaps" of the European markets.

Finally, prior studies suggest that tax consideration can be a fundamental factor influencing firm's financial reporting decisions, see for example, [12], [19]. In fact, financial reporting in Eastern European countries has been always heavily influenced by taxation requirements<sup>13</sup> and the primary incentive for many firms is tax expenses minimization [105].

## 2. EARNINGS MANAGEMENT OVER THE YEARS

Companies manipulate their reported earnings (Table 2); however, taken into consideration the absolute value of discretionary accruals, we have run Friedman's test<sup>14</sup> to

<sup>13</sup> Tax regime has not been changed during our sample period in all our sample countries.

<sup>14</sup> Friedman's Test is a non-parametric test used to test for differences between groups, see, for example [36], [40], [101].

test if earnings management varies over the year in the different countries. The results are presented in Table 5.

Table 5: Discretionary accruals differences over the sample period

		Czech Republic	Poland	Hungary	Slovakia
Chi-Square		55.908***	120.900**	11.879*	13.411**
Mean Rank	2003	4.06	3.93	4.23	3.93
	2004	4.05	4.41	4.33	3.86
	2005	4.21	4.10	4.10	3.72
	2006	4.03	3.85	4.05	4.05
	2007	3.73	4.02	3.45	3.87
	2008	3.92	3.80	3.78	4.48
	2009	4.00	3.89	4.06	4.08

*Non-parametric Friedman test*

\* significance at 10%    \*\* significance at 5%    \*\*\* significance at 1%

Our results partly confirm our expectations. The test proves the significance of the results and verifies that the evidence suffices to conclude that there is a difference in manipulation over the years.

Studies confirmed that increasing globalization, strengthening of the competition, changing of the firms' environment; among others influence managers' decisions. The managers of emerging countries must respond to those changes of companies' background. Managers try to cope with the fluctuations of the firms' environment and they respond to these fluctuations by variations in earnings management. [92] shows that earnings management is changing due to the level of firm's risk and the volatility of the company. [62] points out, as well, that environmental uncertainty is likely to involve firms' performance.

Additionally, we detected two main trends in our results: a gradual decrease in manipulation in our countries (mean ranks) between 2003 and 2007, and a rise in manipulation between 2008 and 2009.

The first trend, which did not include the Polish sample, and was only present in Slovakian companies between

2003 and 2006, which can be explained by the joining the European Union. Entry into the global marketplace and higher competition no doubt had a significant impact on these new members. They had to implement different legislation, prevent corruption and create competent and visible anti-corruption bodies. Adopting these new legislations indeed influence on the manipulation.

Additionally, before the European Union membership the local normative permits more flexibility in terms of accounting norms<sup>15</sup> (always taking into account fulfillment of tax regulations) and managers' decisions. [53] explains that managers make certain choices to reflect better economic position of the company. It is due to the accounting regulation which permits the manager to make judgments and in practice to choose methods and estimations that do not reflect the true economic position of the company but provide a more positive image [38]. Emerging Eastern European countries along with the growing prominence of the business transparency, kept on introducing regulations and extending the scope and scale of the high quality of the information over years. European Union membership influenced significantly in the development and adoption of more transparent regulations and control, see for example, [59], [83], [95], [98], [104].

Additionally, [55] confirms that emerging markets may create incentives for firms to manage reported earnings to satisfy the expectations of various market participants that are often expressed in earnings numbers.

Moreover, the transition process from a socialist economy to a market-oriented economy (from a former Soviet Union country to a capitalist country) is steady and constant process: process of privatization of companies in the nineties, the process of the preparation for EU membership (2003 to 2004), the European Union accession in May 2004, and, finally, between 2005 and 2007, the process of regulation in European rules and standards. This transformation required improving transparency and application European normative, which in effect limit the possibilities for earnings management, resulting in less manipulation, which confirms our results.

However, since 2007 the situation has changed. We observe more manipulation between 2008 and 2009 in the Czech Republic and Hungary, and from one year before in Slovakia, between 2007 and 2009. The global crisis started in late 2007 and early 2008 has impacted on the economic environment worldwide. It became more and more difficult to obtain good results from doing business in the global European market because companies were struggling with the financial crisis as well as the competition.

Advanced economies were battling to maintain their activities and negotiations, shaken by the instability of the markets caused by the recession. Emerging economies were also impacted as the deterioration in the economic environment caused considerable concern around the globe. The emerging region of Eastern Europe was hit with full force in late 2008 and it is counted among the

most adversely affected areas on a global scale [9]. These negative developments dramatically slowed down the convergence of Eastern Europe towards the Euro Area, and the crisis challenged managers to maintain the stability of their companies. [36] explains when the economic situation is bad, companies rely more on manipulation to weather the storm than they do in positive economic circumstances. Consequently, more manipulation is observed in the companies.

### 3. Differences in Earnings Management Among Countries

Our third objective was whether earnings management was homogeneous among our emerging countries sample. We ran the non-parametric Kruskal-Wallis test using the absolute value of discretionary accruals (again we first verified that the absolute values of the discretionary accruals of our companies from sample countries do not follow the normal distribution, see Appendix 5). We were additionally interested in investigating whether the level of discretionary accruals shows significant differences by pairs of countries. To this end, we used the non-parametric Mann-Whitney test.

First, the results of the non-parametric Kruskal-Wallis test are presented in Table 6. The results of the Kruskal-Wallis test reveal that there is a significant difference in manipulation among emerging Eastern European countries. Additionally, the mean ranks indicate that we observed the lowest manipulation in Czech Republic and Polish companies; followed by Hungarian firms; we detected the highest manipulation in the Slovakian sample.

Although the four emerging countries we considered give the impression of having the same conditions and circumstances –they are all post-communist countries, countries in a transition phase into democratic and market-oriented economies, with recent European Union membership– the above results confirm that there are still differences between them.

Table 6: Differences in earnings management among countries

		Kruskal-Wallis Results
Chi-Square		20.447***
Mean Rank	Czech Republic	15624.94
	Poland	15754.65
	Hungary	16233.31
	Slovakia	16780.77

*Non parametric Kruskal-Wallis test*

\* significance at 10% \*\* significance at 5% \*\*\* significance at 1%

The cultural, social and legal differences of each country have a significant influence on the perception of manipulation. Different emerging Eastern European countries differ considerably in the nature and speed of the development of employment, social and economic situations [91]. [13] and [125] confirm that cultural differences (business and financial culture, accounting culture, auditing culture and regulatory culture) between

<sup>15</sup> See studies on Eastern European countries in terms of the accounting regulations, see for example: [44], [63], [103], [114], [118], among others.

countries are factors that can influence on the existence of incentives to manipulate accounting figures.

Additionally, [6], [89], [108] and [115] explain that firms response to the positive and negative economic changes. They have opportunities and the ability to take advantage of such opportunities (to manage more or less their earnings depending on the situation). Our four emerging countries show difference in response to changes in their environment. Poland and Czech show better resistance, stability and flexibility in response to the greater uncertainty in the operating environment in comparison to the Slovakia and Hungary. In these countries there are lower unemployment, inflation rate, higher foreign investments, etc<sup>16</sup>.

At the same time, greater uncertainty leaves more room for managers’ activities. Hence, managers have flexibility to express their imperfect business assessments through earnings management. As a result, we have observed lower earnings manipulation in Poland and the Czech Republic. Slovakia and Hungary are ranked with a higher score in the Kruskal-Wallis test, which suggests a higher level of earnings management; yet at the same time, both countries show significantly higher rates of unemployment, inflation or lower level of foreign investments, or gross domestic product. This confirms that each emerging country reacts differentially to the economic circumstances. [48] confirms that financial crisis indeed had an influence on managers’ decisions for managing earnings.

Moreover, after running the Mann-Whitney U Test, see Table 7, we observed that there is a statistically significant difference in manipulation among three (of six) pairs of emerging countries: Czech Republic and Hungary; Czech Republic and Slovakia; and Poland and Slovakia. At the same time, we can conclude that there are no statistically significant differences between the Czech Republic and Polish pair, the Hungarian and Slovakian pair, and the Polish sample and Hungarian.

Literature suggests that Poland and the Czech Republic, and on the other hand, Hungary and Slovakia are countries which may have a similar market growth, inflows of foreign investment, size of the companies, among others elements [45], [77], [105]. These environmental circumstances indeed have an impact on doing business by the emerging Eastern European companies and in consequence, have an influence on the managers’ decisions in terms of earnings manipulation, as shown our results.

Therefore, the Mann-Whitney test confirms our previously obtained results: Poland and Czech Republic are significantly better developed countries than Slovakia, as we observe significant difference between these Eastern European countries.

Table 7: Differences in earnings management by pairs of countries

Countries Pairs	Mann-Whitney Results		
	Z		
Czech Republic-Poland		-1.214	
	Mean Rank	Czech Republic	14704.57
		Poland	14825.06
Czech Republic-Hungary		-1.792*	
	Mean Rank	Czech Republic	7472.55
		Hungary	7764.22
Czech Republic-Slovakia		-4.303***	
	Mean Rank	Czech Republic	7679.83
		Slovakia	8252.78
Poland- Hungary		-1.386	
	Mean Rank	Poland	8011.34
		Hungary	8252.67
Poland- Slovakia		-3.750***	
	Mean Rank	Poland	8221.25
		Slovakia	8753.66
Hungary - Slovakia		-1.287	
	Mean Rank	Hungary	959.43
		Slovakia	993.34

*Non-parametric Mann-Whitney test*

\* significance at 10%

\*\* significance at 5%

\*\*\* significance at 1%

## VI. CONCLUSION

Our objective of the study was to determine whether earnings management is being practiced in emerging Eastern European countries, and whether they do it to increase or decrease the earnings figure. The question arises as these countries increasingly have more importance in the European market, and till now have been barely explored.

Therefore, we have analyzed unlisted firms from four emerging Eastern European countries: Poland, Hungary, Slovakia and the Czech Republic, in the period of 2003 to 2009.

The results show that unlisted firms from emerging European countries indeed manage their earnings, and they do it to decrease them. The companies smooth good results to avoid reporting high earnings.

We also observe that this manipulation varies over the years. We detect two trends: from 2003 to 2007 we observe a decrease in earnings management; and between 2008 and 2009 a rise in the level of earnings management.

Finally, Kruskal-Wallis and Friedman’s tests confirm that there is a significant difference in discretionary accruals among the countries and over the years. Therefore, the former communist countries do not show similar earnings manipulation.

Our findings contribute to the recent debate among practitioners, regulators and academics about the determinants of earnings management in developing economies and their impact on the markets. Investors and

<sup>16</sup> For details see World Bank Database, www.worldbank.org



analysts try to look for clues and new tendencies in earnings manipulation. New emerging economies may help to understand how managers cope with the pressure in highly competitive European markets. It is important for investors to obtain a true and fair view of this reality, as no longer Europe is only designate by Western European countries.

Emerging Eastern European countries, as recent members of the European Union (EU), have taken significant steps in the development and economic growth of their companies. These countries experienced dramatic change when they found themselves within the Former Soviet Union bloc. Nevertheless, they are barely explored in terms of earnings management. Incorporation of Eastern European countries into the global European market is accompanied by the possible new ways and incentives for earnings management.

In addition, the study may be useful for academics, as it investigates new markets opening new discussions and debates on the comparison of both European markets (Western and Eastern).

Although we have filled in some gaps in our knowledge, other issues are still pending. A potential future line of research could include a comparative study of earnings management between Eastern and Western Europe to understand both markets. The issue of earnings management in Europe as a whole has so far remained unanswered.

Future studies could investigate the factors and incentives for manipulation in Eastern European countries

as well. We have verified and confirmed that Eastern European countries manage their earnings. Nevertheless, the reasons are still unknown. We have presented some descriptive analysis of the possible set of incentives and factors. However, we believe this manipulation may stem from also different set of factors, for example: low investor protection, gaps in accounting, low audit quality, information asymmetry, or the characteristics of the firms, among others; and further empirical analysis is needed on the incentives and factors. It must be pointed out the importance of the agency theory: the classical manager/shareholder, owner-manager or owner-manager investor conflicts.

Other possible future research would also focus on the possible control safeguards to earnings quality such as auditor certification, accounting expertise in firm, among others.

Another possible future research could centre on developing a model that can better explain non-discretionary accruals in emerging Eastern European countries to then obtain a more adjusted measurement of discretionary accruals and earnings management.

Lastly, future research could be carried out based on consolidated financial statement of listed companies to compare the results with those obtained for separate financial statements. Moreover, it would allow us to test the effect of IFRS adoption on the quality of financial reporting.

## APPENDIX

*Appendix I: Macroeconomic statistics of emerging Eastern European countries*

Country	2003	2004	2005	2006	2007	2008	2009
<b>Panel A: Unemployment rate (%)</b>							
Czech Republic	7.80	8.30	7.90	7.10	5.30	4.40	6.70
Hungary	5.90	6.10	7.20	7.50	7.40	7.80	10.00
Poland	19.60	19.00	17.70	13.80	9.60	7.10	8.20
Slovakia	17.50	18.10	16.20	13.30	11.00	9.60	12.10
<b>Panel B: Inflation rate (%)</b>							
Czech Republic	0.11	2.83	1.85	2.53	2.93	6.35	1.04
Hungary	4.65	6.78	3.55	3.88	7.94	6.07	4.21
Poland	0.79	3.58	2.11	1.11	2.39	4.35	3.83
Slovakia	8.55	7.55	2.71	4.48	2.76	4.60	1.62
<b>Panel C: GDP</b>							
Czech Republic	9,348	11,177	12,738	14,491	17,524	21,708	18,881
Hungary	8,247	10,085	10,937	11,174	13,535	15,365	12,635
Poland	5,675	6,62	7,963	8,958	11,157	13,886	11,295
Slovakia	8,53	10,438	11,415	12,842	15,649	18,201	16,196

Source: Database of World Bank (2010).

*Appendix 2: Studies on earnings management in emerging countries*

Author (year)	Country	Companies number	Objective of the study	Obtained results
<b>PANEL A: ASIAN STUDIES</b>				
Razzaque, Rahman and Salat (2006)	Bangladesh	14	To evaluate the earnings management in the textile sector	They found significant discretionary accruals in more than 35% of firms.
Lee and Xue (2004)	China	329	To examine the earnings management by loss-firms during 1995-2000.	They found that, before the loss year, firms increase the discretionary accrual to defer the occurrence of losses.
Yu, Du and Sun (2006)	China	5,921 observations	They examine whether Chinese firms manipulate their earnings to meet the regulatory requirements	Their empirical findings indicated that Chinese firms changed their behavior in response to changes in regulatory requirements.
Lin (2006)	China	112	To investigate the companies behavior in response to tax-rate changes	The firms showed significant higher discretionary accruals for the years before tax-rate increases. So, they take advantage of lower tax rates that are available for certain years.
Liu, Lu and Wang (2007)	China	5,977 firm-year observations	To examine the relationship between earnings management and corporate governance.	They found that agency conflicts between controlling shareholders and minority investors account for a significant portion of earnings management in China's firms.
Lo, Wong and Firth (2010)	China	266	To investigate whether the governance structures help constrain management opportunistic behavior.	The findings revealed that the quality of corporate governance (higher percentage of independent directors, lower percentage of "parent" directors, different people occupying the chair and CEO positions, financial experts on audit committees) is important in deterring the use of manipulated transfer prices.
Yoon and Miller (2002)	Korea	663	To explore the relationship between the operating performance of industrial firms and discretionary accruals.	The results evidence that when operating performance is poor, the firms tend to choose income-increasing strategies. In addition, when operating performance is extremely poor, some firms tend to take a big bath, while some of the exceptionally well-performing firms tend to select income-decreasing strategies.
Kim and Yi (2005)	Korea	63,386 firm-year observations	To analyze the effects of some factors (control from ownership) on earnings management.	First, controlling shareholders tend to engage more in opportunistic earnings. Second, the magnitude of discretionary accruals is greater for group affiliated firms than for non-affiliated firms.
Johl, Jubb and Houghton (2003)	Malaysia	596 firm observations	To analyze the relationship between audit quality and earnings management, over different macroeconomic periods.	Audit quality is found to be associated with abnormal accruals, and this association varies depending on the macroeconomic period.
Saleh, Iskandar and Rahmat (2005)	Malaysia	559	To assess the effectiveness of some board characteristics to monitor management behavior with respect to their incentives to manage earnings.	The result showed multiple board characteristics are negatively related to earnings management, but only in firms with negative unmanaged earnings.
Rahman, Dowds and Cahan (2005)	Malaysia	99	To study the differences between the earnings management practices by the Muslim-managed firms and the non-Muslim-managed firms.	The study found no significant differences between Muslim-managed firms and the non-Muslim-managed.
Bukit and Iskandar (2009)	Malaysia	155	To examine whether high surplus free cash flow is related to earnings management.	The study showed that companies with high surplus free cash flow reduce income increasing earnings management practices.

<b>PANEL B: EUROPEAN STUDIES</b>				
Caramanis and Lennox (2008)	Greece	633	To test the effect of audit efforts on earnings management based on the hours worked by auditors.	The study concluded that low audit effort increases the extent to which managers are able to report aggressively high earnings.
Swiderski (2010)	Czech Republic, Hungary and Poland	94 firms from Czech Republic, 121 from Hungary and 2,136 from Poland	To investigate whether public and private firms in three Central and Eastern European countries engage in opportunistic earnings management. Nevertheless, his methodology was based on phenomenon of benchmark. Additionally, as he pointed out there is a lacks a well-specified benchmark for net income and changes in net income prior to earnings management against which the main results could be compared (moreover, this paper is only working paper).	Public and private firms engage in earnings management. Private firms to reduce tax expenses and public firms to be better rated by capital markets.
Prusak (2003)	Poland	Descriptive research	To expose the problem of financial statements distortion, explaining the occurrence of accounting scandals and the role of the investor and the board in order to control.	Descriptive research
Tokarski and Tokarski (2007)	Poland	Descriptive research	To debate on the topic of creative accounting.	Descriptive research
Wiercińska (2008)	Poland	Descriptive research	To study the differences between terms connected with accounting scandals, such as creative accounting or aggressive and fraudulent accounting.	Descriptive research.
Jackowicz and Kozłowski (2010)	11 different countries in Central and Eastern Europe	382 banks	To examine the importance of profitability thresholds in the operation of commercial banks from the Central and Eastern Europe.	The results evidenced discontinuities in profitability distributions around the threshold.
Matis (2010)	Romania	101	To detect earnings management by Romanian companies using three econometric models: Jones (1991), Dechow, Sloan and Sweeney (1995) and Kasznik (1999)	Jones (1991) model was found to be more significant for Romanian economic environment than Dechow, Sloan and Sweeney (1995) and Kasznik (1999) models.

<b>PANEL C: SOUTH AMERICAN STUDIES</b>				
Feres de Almeida <i>et al.</i> (2005)	Brazil	156	To investigate the role of industrial organization on earnings management by Brazilian firms.	The results did not confirm that industrial organization influences earnings management.
Lopes, Tukamoto and Galdi (2006)	Brazil	1,026 observations	To investigate the impact of cross listing and adjustments to US GAAP on the earnings management.	They found evidence that adjustments to US GAAP do not have a significant impact on earnings management.

Source: The author

*Appendix 3: Results on Normality test of our four samples*

Tests of Normality							
	country	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
DA	Czech Republic	.113	14,231	.000	–	–	–
	Hungary	.142	15,302	.000	–	–	–
	Poland	.158	742	.000	.671	731	.000
	Slovakia	.113	1,218	.000	.921	1,238	.000

a. Lilliefors Significance Correction

Source: The author

*Appendix 4: Estimation of parameters of regression of the Yoon and Miller model per country and per industry (2)*

Measurement model: Yoon and Miller (2002) Model					
$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$					
	Intercept	$\Delta REV - \Delta REC$	$\Delta EXP - \Delta PAY$	NCASH-1xGPPEGRW	Adjusted R <sup>2</sup>
<i>Period of 2003-2009</i>					
<b>Czech Republic</b>					
Industry 0	-0.0571	-0.2264***	0.3079***	-1.0447***	31.75%
Industry 1	-0.0484	-0.4716***	0.5098***	0.3527***	32.43%
Industry 2	-0.0411	-0.2084***	0.3277***	0.7416***	29.70%
Industry 3	-0.0368	-0.4813***	0.5583***	0.2483*	28.20%
Industry 4	-0.0044	-0.4770***	0.5045***	-0.1350	35.86%
Industry 5	-0.0446	-0.6149***	0.6503***	-0.1568	50.24%
Industry 6	-0.0507	-0.7074***	0.7942***	-0.0473	45.06%
Industry 7	-0.0115	-0.3956***	0.4452***	-0.2905**	23.43%
Industry 8	-0.0254	-0.5470***	0.5954***	0.0095	39.79%
Industry 9	-0.0293	-0.2904***	0.3000***	-1.0435***	21.73%
<b>Poland</b>					
Industry 0	-0.0425	-0.1716***	0.3142***	-0.2329	24.37%
Industry 1	-0.0484	-0.3163***	0.3661***	-0.0500	17.46%
Industry 2	-0.0388	-0.4498***	0.5613***	0.0284	29.20%
Industry 3	-0.0480	-0.4662***	0.5126***	-0.1337**	27.07%
Industry 4	-0.0193	-0.6097***	0.6817***	0.0821***	44.20%
Industry 5	-0.0591	-0.4003***	0.4537***	-0.0521	31.62%
Industry 6	-0.0191	-0.1292***	0.1835***	-0.3138***	13.26%
Industry 7	-0.0402	-0.4906***	0.5682***	-1.2094***	43.03%
Industry 8	-0.0524	-0.5082***	0.5396***	-0.1065**	16.17%
Industry 9	-0.0652	-0.1844***	0.1673***	-0.8992***	40.01%
<b>Hungary</b>					
Industry 0	-0.0367	-0.3106	0.5513	-2.2582	49.07%
Industry 1	-0.0178	-0.2428	0.2621	-0.3137	7.09%
Industry 2	-0.0487	-0.3457***	0.4154***	0.2743	17.15%
Industry 3	-0.0673	-0.7783***	0.8278***	-0.9826	68.42%
Industry 4	0.0101	-0.2197***	0.2303***	-0.5877	7.04%
Industry 5	-0.0444	-0.6266***	0.6681***	0.1308	49.80%
Industry 6	-0.0436	-0.9038***	0.8541***	0.9692**	75.82%
Industry 7	-0.0352	-0.4333*	0.4381*	-0.7641	11.88%
Industry 8	-0.0141	-0.6744***	0.6875***	-1.2637	45.99%
Industry 9	-0.1009	-0.4608***	0.4765***	-0.6381*	48.35%



Measurement model: Yoon and Miller (2002) Model					
$\frac{TA_{it}}{A_{it-1}} = \alpha_0 \frac{1}{A_{it-1}} + \alpha_1 \frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}} + \alpha_2 \frac{\Delta EXP_{it} - \Delta PAY_{it}}{A_{it-1}} + \alpha_3 \frac{NCASH_{it-1} \times GPPEGRW_{it}}{A_{it-1}} + \varepsilon_{it}$					
	Intercept	$\Delta REV - \Delta REC$	$\Delta EXP - \Delta PAY$	NCASH-1xGPPEGRW	Adjusted R <sup>2</sup>
Slovakia					
Industry 0	-0.0795	-0.4055***	0.4857***	1.5234	72.95%
Industry 1	-0.0469	-0.3169***	0.3406***	0.8069*	29.37%
Industry 2	-0.0525	-0.4921***	0.5771***	0.0160	35.75%
Industry 3	-0.0590	-0.3097***	0.3718***	0.2937	48.73%
Industry 4	-0.0325	-0.0294	0.0716*	0.5467	10.16%
Industry 5	-0.0511	-0.5677***	0.5946***	-0.2855	56.17%
Industry 6	-0.0323	-1.0387***	1.1132***	2.3247***	92.27%
Industry 7	-0.0563	-0.4754***	0.4617***	0.4197	26.85%
Industry 8	-0.0631	-0.8226***	0.8958***	-0.2433	77.29%
Industry 9	-0.0565	0.1585	-0.1561	-2.4429*	15.65%

\* significance at 10%      \*\* significance at 5%      \*\*\* significance at 1%

$NDA_{it}$  - Non-discretionary accruals in year t;  $A_{it-1}$  - Total Assets in year t-1;  $\Delta REV_{it}$  - Annual change in revenues in year t;  $\Delta REC_{it}$  - Annual change in receivables accounts in year t;  $\Delta EXP_{it}$  - Change in operating expenses excluding non-cash expenses in year t;  $\Delta PAY_{it}$  - Change in payables accounts in year t;  $NCASH_{it-1}$  - Non-cash expenses such as depreciation in year t-1;  $GPPEGRW_{it}$  - A rate of growth in gross property, plant and equipment in year t.

Source: The author

### Appendix 5: Results on Normality test of our four samples (absolute values of discretionary accruals)

Tests of Normality							
	country	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
DA	Czech Republic	.241	14,231	.000	–	–	–
	Hungary	.231	15,302	.000	–	–	–
	Poland	.257	742	.000	.532	753	.000
	Slovakia	.142	1,218	.000	.769	1,243	.000

a. Lilliefors Significance Correction

Source: The author

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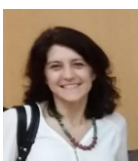
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## AUTHORS' PROFILES



### Susana Callao Gastón

Lecturer in Accounting at the University of Zaragoza (Spain), Faculty of Economy and Business. Doctor in Accounting and Finance (University of Zaragoza).  
*Research topics:* Earnings management, Quality of the Accounting Information, Financial analysis, International Financial Information.

#### *Selected publications:*

- Callao, S., Jarne, J., and Wróblewski, D. (2017) "Why do companies from emerging countries manage earnings?", *Eurasian Journal of Business and Management*, 5 (2), pp. 60–84.
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Callao, S., Jarne, J. and Lainez, J. (2007) "Adoption of IFRS in Spain: Effect on the comparability and relevance of financial reporting", *Journal of International Accounting, Auditing and Taxation*, 16, pp. 148–178.

E-mail: scallao@unizar.es



### José Ignacio Jarne Jarne

Lecturer in Accounting at the University of Zaragoza (Spain), Faculty of Economy and Business. Doctor in Accounting and Finance (University of Zaragoza).

*Research topics:* Earnings management, Quality of the Accounting Information, Financial analysis, International Financial Information.

#### *Selected publications:*

Callao, S., Jarne, J., and Wróblewski, D. (2017) "Why do companies from emerging countries manage earnings?", *Eurasian Journal of Business and Management*, 5 (2), pp. 60–84.

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E-mail: jijarne@unizar.es



### Wróblewski, David Radosław

Associate Professor at the University of Zaragoza (Spain), Faculty of Economy and Business.

Associate Professor at CRETA Associate Centre of University Pontifical of Salamanca

Doctor in Accounting and Finance (University of Zaragoza), Bachelor Degree in Theology (University

Pontifical of Salamanca), Bachelor Degree in Business Administration (University of Zaragoza), Bachelor Degree in Accounting and Finance (University of Lodz, Poland), Master degree in Education (University of Zaragoza), Master degree in Accounting and Finance (University of Zaragoza).

*Research topics:* Earnings management, Emerging countries, Financial analysis.

#### *Selected publications:*

Callao, S., Jarne, J., and Wróblewski, D. (2017) "Why do companies from emerging countries manage earnings?", *Eurasian Journal of Business and Management*, 5 (2), pp. 60–84.

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Callao, S., Jarne, J., and Wróblewski, D. (2012) "Earnings Management: Evidence from Eastern European Countries", *European Accounting Association (EAA), Annual Congress*, 35, Ljubljana.

E-mail: david.wroblewski@cretateologia.es