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A New Perspective on Earnings Management in Emerging European Countries: Investigation on Environmental Factors that Explain Differences in Earnings Management

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Abstract

This paper presents a new perspective on earnings management analyzing and comparing emerging European countries in the presence of environmental factors of developing countries. We provide empirical evidence on differences in the extent of earnings management across countries. Developing Eastern European countries experienced important changes. They have been in transition over the past decade, and remain making great strides to overcome the drag exerted by their communist heritage. Nevertheless, the studies on earnings management based on emerging economies are rare and hardly pursued due to the presence of institutional and regulatory differences between developed and emerging economies. Therefore, the present study fulfils the important gap in earnings management literature related to developing countries. Our results confirm that managers from different emerging European countries manage earnings differently. Additionally, we identify that there is not a sole reason affecting the managers' decisions, but a significant number of circumstances and characteristics. Whether a firm's environment offers more protection or is characterized by a higher level of development, higher foreign investments, it helps to limit the earnings management. In addition, when accounting and tax are not as strongly aligned with market approach as expected, it also limits the earnings management behaviour of managers.

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*Earnings management
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1. Introduction

Earnings management has been the topic of multiple research papers. Practitioners and academic literature defined earnings management in a variety of forms using a wide range of expressions to describe it, as a major problems with the definition include ambiguity and immeasurability, see some of the most popular definition of Schipper (1989), Healy and Wahlen (1999), Dechow and Skinner (2000) among others.

Academics have been also interested in the detection of earnings management proposing different methodology. Research studies are still concerned with the problem of measuring earnings management. McNichols (2000) offers important debate on it. However, literature confirms that methodology based on accruals is commonly used by the authors (see for example, (Beaver, McNichols, & Nelson, 2003; Bernard & Skinner, 1996; Ronen & Yaari, 2008; Subramanyam, 1996)).

Nevertheless, a key theme of the earnings management literature is to understand why managers manipulate earnings. This paper presents a new perspective on earnings management analyzing and

comparing emerging European countries in the presence of environmental factors of developing countries. Eastern European countries, like many other developing countries, have had instances of existence of earnings manipulation of financial information. This suggests that even emerging economies were long ago, introduced to earnings management practices. However, this has not been apparent. Most studies on managerial incentives for earnings management have been conducted in the US, Western European countries or Asian market. Very few studies took place in emerging economies like Poland, the Czech Republic, and Slovakia. Studies on earnings management based on emerging economies are rare and hardly pursued. Due to the presence of institutional and regulatory differences between developed and emerging economies.

Therefore, the purpose of this paper addresses the questions of environmental circumstances and characteristics of firms which characterized the panorama of emerging Eastern European countries and their influence on existent earnings management differences among developing countries. We provide empirical evidence on differences in the extent of earnings management across these countries.

Our results confirm that there is not a sole reason affecting the managers' decisions, but a significant number of factors that influence Eastern European companies. These environmental circumstances and characteristics of firms are different among Eastern European countries. There are different levels of investor protection, market development, ownership concentration, board size, inflows of foreign investment, etc., within Eastern European countries. These differences have an important influence on managers' decisions. Therefore, managers of companies from different Eastern European countries manipulate differently.

Additionally, the results confirm that whether a firm's environment offers more protection or is characterized by a higher level of development: market capitalization, higher foreign investments, it helps to limit the earnings management. In addition, when accounting and tax are not as strongly aligned with market approach as expected, it also limits the earnings management behaviour of managers. Additionally, older Eastern European firms, with higher ownership concentration and larger boards, present lower levels of earnings management. Contrary situation leads to increase of earnings management activity. Finally, we confirm that legal enforcement is not sufficiently developed in Eastern European countries to improve the quality of financial reporting and limit the existence of earnings management or at least it is not as effective as it should be.

By providing direct evidence from the developing European markets we contribute to the earnings management literature focusing on the markets until now barely explored. As mentioned previously, studies on earnings management based on emerging economies are rare and hardly pursued due to the presence of institutional elements difficult to investigate.

Second, our study contributes to the debate among investigators, practitioners, regulators and academics about the possible determinants of earnings management in developing countries. This is one of the first studies which try to analyze and compare emerging European countries in the presence of environmental factors. Therefore, we also fill in the research gap of the earnings management investigation.

Finally, our study helps to understand how managers cope with the pressure in developing and growing economies, operating in companies in countries in highly competitive European markets.

The paper comprises of five sections. In the next section we focus on the literature review on earnings management related to emerging European countries. Section 3 outlines the research methodology opted in the study. We discuss factors of the company's environment which influence on the scope of manipulation and which may facilitate or limit earnings management. Section 4 presents and discusses the results of the study. Finally, we outline the conclusion and limitations. We present some of the future possible tendencies towards investigation on earnings management.

2. Literature Review

It is generally perceived that incentives for earnings management are always present in managers' daily activities, as managers always have reasons and possibilities to control information (see for example, (Dechow & Sloan, 1991; Holthausen, Larcker, & Sloan, 1995; Shackelford & Shevlin, 2001)). However, in some circumstances the level of certain incentives may decrease or increase depending on some factors which come from the environment where the company operates. These set of relationships and circumstances may stimulate the managers to earnings management; on the contrary, other set of circumstances or factors may significantly limit the behaviour of the managers. It is because the incentives appear from the unambiguous situations and decisions which managers can undertake. These decisions may derive from specific economic, financial, political or social interest, circumstances of the environment where the company is operating (see for example, (Ball & Shivakumar, 2005; Burgstahler & Dichev, 1997; Healy & Wahlen, 1999; Kasznik, 1999; Teoh, Welch, & Wang, 1998)).

Consequently, regulatory bodies or characteristics of the background of the company may influence on managers' decisions to opt for managing earnings. More favorable conditions may facilitate/ preserve the manipulation. On the other hand, more strict characteristics of the business environment may preserve or in some situations facilitate the manipulation. Cimini and Mechelli (2014) confirm the importance of considering the country characteristics when facing different issues of accounting studies. Markarian and Santalo (2010) add that incentives to engage in earnings management are the effect of product market competition and

crucially depend on the level of visibility of the firm, and on the market characteristics, among other factors. Environmental conditions have a significant impact on the financial reports and affect the managers' actions (Zeff, 1978).

Developing European markets experienced important changes over last decades. Robert M. Solow, former Nobel Memorial Prize winner in Economic Science, noted that "Western economists, don't know how the Eastern bloc institutions and state enterprises work or how to model an economy that is half market driven and half controlled by bureaucrats" (Solow, 1990) referring to an unknown tendency of Eastern European markets. Until the 1980's this market was completely forgotten, as a result of the political situation (the bloc of communist countries and their separation from Europe).

These developing European markets increasingly gain importance within Europe. They have been in transition over the past decade, and remain making great strides to overcome the drag exerted by their communist heritage. They have attempted to accelerate the creation of a free market system through privatization, by reforming the financial system, attracting large inflows of foreign capital, and by working towards the European Union candidacy and membership mentioned (see (Havas, 2002; Mickiewicz & Radosevic, 2001)). Their companies are already among the fastest-growing companies in the Europe. They have large potential to be tapped for further output expansion. Nevertheless, macroeconomic statistics show that developing Eastern European countries are still not at the same economic level as Western European countries. There is still important economic gap in terms of the Gross Domestic Product, unemployment, inflation rate, interest rate, and minimum wages, among others¹. They continue to adapt to the EU model, through constant transformation and development. Given the economic circumstances, it could be expected that there are also possible differences in earnings management between Eastern and Western European countries. This leads us to the conclusion of the necessity and importance of investigating earnings management in developing Eastern European countries because the Eastern and Western European countries are so different; hence, earnings management can be also different.

Additionally, surprisingly, wide earnings management literature barely explored these emerging European countries. Western European countries are well-investigated but we may find only few studies focusing on the earnings manipulation in developing European countries. (Callao, Jarne, & Wroblewski, 2017a, 2017b, 2017c) and Wojtowicz (2015) confirm that earnings management in companies from emerging European countries was the subject of only several studies. Following we present existent literature on emerging European countries, included not only developing Eastern European countries but as well other rising European countries.

Caramanis and Lennox (2008) investigated developing Greek companies, and they confirmed the effect of audit efforts on earnings management. Swiderski, Goncharov, and Bissessur (2010) investigated whether public and private firms in three Eastern European countries: the Czech Republic, Hungary and Poland engage in opportunistic earnings management. The results verified their hypothesis.

Matis, Vladu, Negrea, and Sucala (2010) found that Romanian economic environment has significant influence on earnings management. Brzeszczyński, Gajdka, and Schabek (2011) presented results on the existence of earnings management based on the listed companies from Poland. Wojtowicz (2015) focused on the detection of any signals of earnings management to achieve zero or small positive earnings surprises in Polish listed companies. Callao, Jarne and Wroblewski first, investigated which earnings management accruals model is the most reliable model for measuring earnings management for developing market of Eastern European countries (Callao et al., 2017c). They also investigated whether earnings management is being practiced in unlisted firms from emerging Eastern European countries (Callao et al., 2017b). In their third research study, based on the same sample of developing Eastern European countries, they provided evidence in terms of the incentives which lead managers from four emerging European countries to manage earnings (Callao et al., 2017a). Finally, in their last study they compare four Eastern and four Western European countries in terms of the earnings management behaviour taking into consideration the particularities and differences of both markets Callao, Jarne, and Wróblewski (2018).

Some other recent studies focus on developing countries but not from Europe. We may observe intensification of research papers based on the countries till now not explored, such as: Serbia (Bešlić, Bešlić, Jakšić, & Andrić, 2015) Jordan (Almasarwah, 2015), Kenya (Chelogoi, 2017; Waweru, 2018; Waweru & Riro, 2013), Vietnam (Khanh & Khuong, 2018), Nigeria (Obigbemi, Omolehinwa, Mukoro, Ben-Caleb, & Olusanmi, 2016; Uwuigbe, 2017; Uwuigbes, Olubukunola, & Bernard, 2015), Kuwait (Arkan, 2015), Jordan (Abbadi, Hijazi, & Al-Rahahleh, 2016), Taiwan (Tai, 2017), Tanzania (Waweru, 2018), India (Kumasi & Pattanayak, 2015; Shette, 2018) Turkey (Altıntaş, Sari, & Otluoğlu, 2017), among others.

Hence, we confirm that developing market of Eastern European countries needs further investigation. New research questions must be developed.

Therefore, based on the previous literature, examining the environment of emerging Eastern European countries we may observe that economic policies vary from country to country because different countries

¹See statistics: Eurostat database (<http://epp.eurostat.ec.europa.eu>), World Bank databank (<http://data.worldbank.org>), Doing business database (<http://doingbusiness.org>).

have different national ideologies. Therefore, the present study extends the earnings management research. We take into consideration the changing and specific circumstances of developing European companies investigating environmental factors which influence on the managers' decisions and may explain the differences in earnings management among different emerging Eastern European countries.

3. Sample and Methodology

3.1. Sample and Analysis Period

Following research of Callao et al. (2017a) who focused on study of earnings management based on the evidence from the Eastern European companies, we use the same sample as used in their study. Their study confirmed that managers from emerging European companies manage earnings. Additionally, they found differences in earnings management among firms within different countries. Therefore, we extend their study providing empirical evidence on environmental factors which explain those differences in the extent of earnings management across countries. Therefore, the sample comprises a total of 4,627 non-financial firms from the emerging European countries: Poland, Hungary, Slovakia and the Czech Republic. The analysis covers the period of 2002 to 2009². The AMADEUS database was used to generate the sample.

Following Callao et al. (2017a) sample selection methodology, data were available for the variables considered for all the years included in the study (2003-2009) and for the prior period (2002) was used to calculate changes in certain variables. For each variable, outliers were eliminated³. Additionally, a sample comprises of the following number of listed companies of the Eastern European countries: 16 listed companies from the Czech Republic, 65 listed companies from Poland, 8 listed companies from Hungary, and 39 listed companies from Slovakia. Therefore, we may confirm that research includes mainly non-listed companies, as financial sectors in Eastern European countries is still relatively unfavourable and underdeveloped (Köke & Schröder, 2006).

We work with non-consolidated financial statements prepared under local GAAP. The sample selection was restricted by data base limitation. Data of financial statement prepared under IFRS was available only for small number of companies, listed companies⁴. The final sample is presented in Table 1.

Table-1. Sample selection procedure.

No. of companies	Czech R.	Poland	Hungary	Slovakia	Total
Total number of firms available in Amadeus data base	3,006	2,609	183	398	6,196
Incomplete data (missing data)	(779)	(208)	(62)	(163)	(1,212)
Extreme values	(178)	(150)	(7)	(22)	(357)
Total sample firms	2,049	2,251	114	213	4,627
Number of observations	14,343	15,757	798	1,491	32,389

Source: Callao et al. (2017a).

3.2. Methodology

First, based on the large earnings management literature we identify variables which may give explanation of existent differences in earnings management among Eastern European countries. We predict the sign of the coefficients of the variables.

Second, we use a regression model to examine the influence of each of the independent variables on changes in the scope of earnings management between Eastern European countries.

3.2.1. Variables Definition and Predicted Sign of the Coefficients of the Variables

In the literature we may 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 (McNichols, 2000). 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:

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

where, $\Delta Re ceivables$ 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

² In addition, we have not included more years into the research, as emerging Eastern European countries are not widely presented with full data in Amadeus database, and we wanted to see further implications related to Callao et al. (2017a) study.

³ Outliers, observations those falling outside the range set by the mean value plus/minus three times the standard deviation.

⁴ Different studies examining developing countries confirm that introduction of IFRS does not necessarily influence on earnings management by private companies (see studies, (Doukakis, 2014; Hasan & Rahman, 2017; Kersten, 2011)).

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, $TA = NDA + DA$.

The discretionary and non-discretionary components of accruals are not directly observable (Jones, 1991) consequently, we used model employed by Yoon and Miller (2002) in cross sectional version to estimate the DA. Previous studies verified the importance of the selection of the appropriate model for the measuring earnings management for the each environment (Bartov & Gul, 2000; Dechow, Sloan, & Sweeney, 1995; Kothari, Leone, & Wasley, 2005; Siregar & Utama, 2008). The success of any earnings management study critically depends on the precise methodology used to measure it (Callao et al., 2017c).

Callao et al. (2017c) confirmed that the cross-sectional model by Yoon and Miller (2002) (1) is an effective model for our Eastern European countries in detecting earnings management: higher level of adjusted R square, lower level of standard error, and more significant values of the parameters Table 2 shows results on adjusted R²)⁵. Therefore, we used this model to estimate discretionary accruals.

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

where, TA_{it} is total accruals in year *t* booked by firm *i* in period *t*; ΔREV_{it} is the change in net sales revenue; ΔREC_{it} is the change in receivable accounts; ΔEXP_{it} is the change in operating expenses excluding non-cash expenses; ΔPAY_{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 and is used as a deflator to avoid problems of heteroscedasticity, ε_{it} is the error term.

Moreover, in the lineal regression model the dependent variable is the absolute value of discretionary accruals because we want to measure the magnitude of manipulation without regard to its sign.

Table-2. Mean values of adjusted R² by models and across the countries' samples.

Measurement model	Sample countries				Mean
	The Czech Republic	Poland	Hungary	Slovakia	
Jones (1991)	0.0947	0.0666	0.0890	0.0996	0.0875
Dechow et al. (1995)	0.0452	0.0617	0.0511	0.0806	0.0597
Kang and Sivaramakrishnan (1995)	0.0973	0.0796	0.0821	0.0900	0.0872
Shivakumar (1996)	0.0995	0.1449	0.1200	0.0953	0.1149
Key (1997)	0.0957	0.0705	0.0796	0.0906	0.0841
Teoh et al. (1998)	0.0120	0.0287	0.0192	-0.0060	0.0135
Kaszniak (1999)	0.0953	0.1423	0.1177	0.1106	0.1165
Yoon and Miller (2002)	0.3490	0.3733	0.3500	0.4292	0.3754
Dechow and Dichev (2002)	0.0668	0.0848	0.0800	0.1079	0.0849
Kothari et al. (2005)	0.0405	0.0661	0.0599	0.0910	0.0644

Source: Callao et al. (2017c).

Having estimated the parameters of Equation 1, we applied 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 2:

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

where, DA_{it} are discretionary accruals for firm *i* in period *t*, and α_0 , α_1 , α_2 and α_3 are the estimated values of α_i . To explain the dependent variable we include the following independent variables Table 3. Selection of the variables is based on previous earnings management literature, as well as on the particular characteristics of the environment of the emerging Eastern European countries. Investor protection (*Investor*)

⁵ For details of levels of standard error, significance values of the parameters see research paper of Callao et al. (2017c).

is the first variable considered. We investigate the relationship between country-level investor protection and earnings management. Literature confirms that investor protection has an important effect on earnings management. We measure it as an index of investor protection. Previous literature, [Leuz, Nanda, and Wysocki \(2003\)](#); [La Porta, Lopez-de-Silanes, Shleifer, and Vishny \(1998\)](#) identified this variable as outside investor rights. They measured it as an aggregate measure of minority shareholder rights. It ranged from 0 to 5, where five designated strong investor rights. Nevertheless, their studies were constructed only for Western European countries, and they used data from 1990 to 1999, which are not current for our investigation.

Table-3. Variables definition and predicted sign of the coefficients of the independent variables.

Variable	Definition	Expected sign
Dependent variable:		
$ DA $	Absolute value of discretionary accruals	
Independent variables:		
Investor	Index of investor protection. The index is constructed based on the Leuz et al. (2003) ; Djankov, La Porta, Lopez-De-Silanes, and Shleifer (2008) and Doing Business database (2012). It ranges values from 0 to 10.	-
Listedtomean	Number of listed companies in each country to the mean of total listed companies in all four Eastern European countries. $\frac{Nrlisted_t}{Mean4Country_t}$	-
Marketcapit	The market capitalization to gross domestic product of each country sample. $\frac{MarketCapit_t}{GDP_t}$	-
Strengthrights	Index of legal rights. The index is constructed based on the Doing Business database (2012). It ranges values from 0 to 10.	-
Accountax	Accounting and tax connection variable. A dummy variable taking the value 1 if the firm-year observation is Hungary or Slovakia; 0 for Poland and Czech.	+
Foreigninvest	A value of net inflows in each country to the gross domestic product of the country. $\frac{ForeignInvest_t}{GDP_t}$	-
Ownership	The number of recorded major shareholders in each company to the mean of the number of shareholders within each sample country. $\frac{NrShareholders_t}{MeanNrSharehCountry_t}$?
Board	Number of boards' members in each company to the mean of members within each sample country. $\frac{NrBoard_t}{MeanNrBoardCountry_t}$?
Legalenforc	Index of legal enforcement. The index is constructed based on three databases: World Economic Forum database (2012) ; World Justice Project database (2012) ; and Transparency International (TI) (2012) . It ranges values from 0 to 10.	-
Years	Number of years of each company to the mean age of firms in each country. $\frac{NrYears_t}{MeanNrYearsCountry_t}$?
Control variables:		
Size	Total assets scaled by assets from $t-1$ $\frac{Assets_t}{Assets_{t-1}}$	
Listed	Dummy variable taking the value 1 if the company is listed and 0 otherwise	
Industry	Nine dummy variables according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry ($Nr=1, \dots, 9$), otherwise 0, industry classification is described in Table 2 .	

* where t is a period from 2003 to 2009.

Source: The author.

Therefore, we construct our investor protection index based on the dimensions of investor protection proposed by the above authors. The indicator distinguishes three dimensions of investor protections: transparency of related-party transactions⁶, liability for self-dealing⁷ (called by the literature as extent of director liability index) and shareholders' ability to sue officers and directors for misconduct⁸ (ease of shareholder suits index). All three dimensions range from 0 to 10, where the 0 indicates no transparency, no liability for self-dealing, no shareholders' ability to sue officers and directors for misconduct. On the other hand, the value 10 indicates perfect transparency, liability for self-dealing and ideal shareholders' ability to sue officers and directors for misconduct.

To obtain the values of the index, we follow the study of Djankov et al. (2008) and the Doingbusiness database (www.doingbusiness.org, 2012). Thus, we obtain the index, see Table 4.

Table-4. Investor protection index.

Sample countries	Transparency of related-party transactions (index 0-10)	Liability for self-dealing (index 0-10)	Shareholders' ability to sue officers and directors for misconduct (index (0-10))	Strength of investor protection (index 0-10)
Czech Republic	2	5	8	5.0
Poland	7	2	9	6.0
Hungary	2	4	7	4.3
Slovakia	3	4	7	4.7

Source: The author based on: Leuz et al. (2003); Djankov et al. (2008), Doing business (www.doingbusiness.org, 2012).

Consequently, we define investor protection as the power to prevent managers from expropriating minority shareholders and creditors within the constraints imposed by law (see (La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 2002; Leuz et al., 2003)).

Ample literature confirms that weak legal protection appears to result in poor-quality financial reporting, and in consequence leads to increase in earnings management (Leuz et al., 2003). Nenova (2003) indicate that earnings management is more pervasive in countries where the legal protection of outside investors is weak, because in these countries insiders enjoy greater private control benefits and hence they have stronger incentives to obfuscate firm performance.

La Porta et al. (1998) point out that strong investor protection may be a particularly important manifestation of the greater security of property rights against political interference. Shen and Chih (2005) show, as well, that earnings management declines in countries with stronger investor protection and more transparent accounting disclosure.

Therefore, according to prior literature we expect negative sign of the coefficient of the variable. Companies in countries with high investor protection will use less earnings management compared to similar companies in countries with lower investor protection due to stricter regulations.

We include the (*Listedtomean*) variable. It designates the development of the capital market in each of our sample countries. It is measured as a relation of the number of listed companies in each country to the mean of total listed companies in Eastern European countries.

We include the variable because the literature shows that capital market efficiency indeed affects earnings management of firms. Cheng and Hsueh (2012) find that a stable capital market keeps managers allocating resources, while at the same time reducing opportunities and managers' motivation to manipulate earnings.

Eastern European countries capital market is quite small compared to Western European countries. However, they are considerably growing. This is due to positive impulses from the European Union membership, globalization, market liberalization, etc. Nevertheless, Eastern European countries need still to develop their capital markets.

By introducing this variable we attempt to answer if the role of capital markets in the new market economies of each of our Eastern European countries has an important influence on managers' decisions. Alternatively, will the development of capital markets encourage managers of enterprises to undertake earnings management? According to the literature, we expect negative sign of the coefficient of the variable. In countries with better developed markets firms will engage less in earnings management (Leuz et al., 2003).

⁶ This variable has the following dimensions: whether the corporate body can provide legally sufficient approval for the transaction; whether immediate disclosure of the transaction to the public is presented; whether disclosure in the annual report is required; whether disclosure to the board of directors or the supervisory board is required; whether it is required that an external body, for example, an external auditor, review the transaction before it takes place.

⁷ This variable has the following dimensions: whether a shareholder applicant is able to hold liable for the damage the Buyer-Seller transaction causes to the company; whether a shareholder plaintiff is able to hold the approving body (the CEO, members of the board of directors, or members of the supervisory board) liable for the damage the transaction causes to the company; whether a court can void the transaction upon a successful claim by a shareholder plaintiff; whether damages are paid for the harm caused to the company upon a successful claim by the shareholder plaintiff; whether shareholder plaintiffs are able to sue directly or derivatively for the damage the transaction causes to the company.

⁸ This variable has the following dimensions: what range of documents is available to the shareholder plaintiff from the defendant and witnesses during trial; whether the plaintiff can directly examine the defendant and witnesses during trial; whether the plaintiff can obtain categories of relevant documents from the defendant without identifying each document specifically; whether shareholders owning 10% or less of the company's share capital can request that a government inspector investigate the Buyer-Seller transaction without filing suit in court; whether shareholders owning 10% or less of the company's share capital have the right to inspect the transaction documents before filing suit; whether the standard of proof for civil suits is lower than that for a criminal case.

We also consider market capitalization variable (*Marketcapit*). This variable is measured as market capitalization to the gross domestic product of each country sample. Direct comparisons between the emerging markets of developing countries over years may help to compare the environment in which companies are operating.

Although the value of a business does not change immediately, it can be interesting to observe the effect of growth of country markets. Figure 1 presents the evolution of the market capitalization of Eastern European countries. We may observe slight differences between countries; hence, we are interested in whether these changes may influence the differences in earnings management among Eastern European countries.

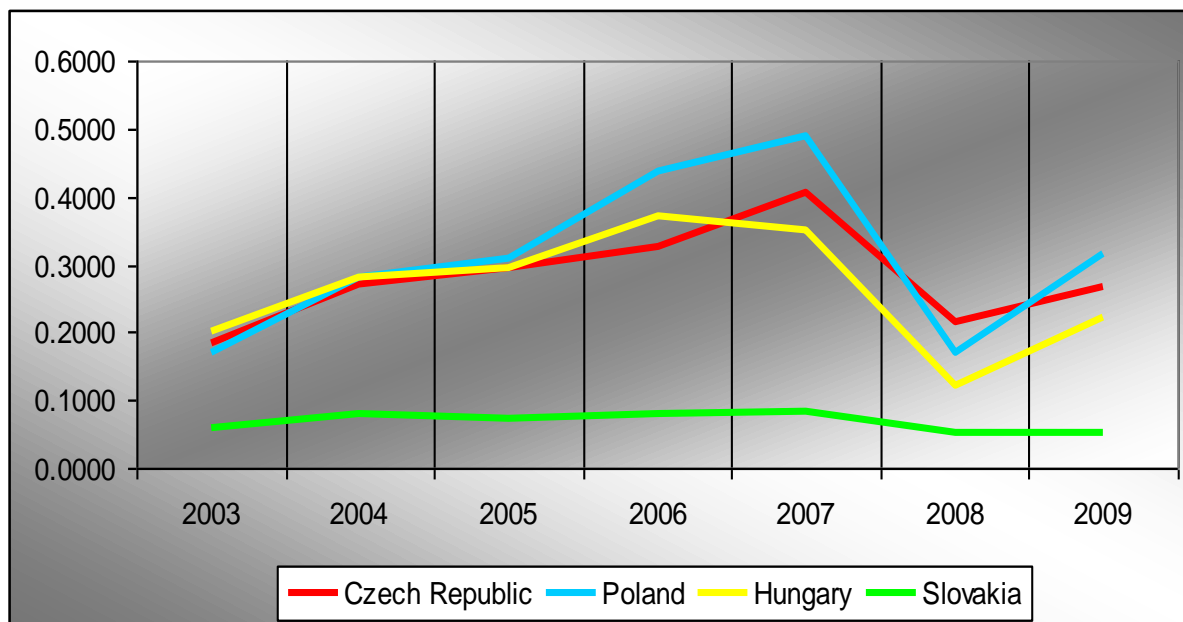


Figure-1. Market capitalization index over years in Eastern European countries (relation of market value to gross domestic product). Source: Doing business database (<http://www.doingbusiness.org/> 2012).

Companies highly depend on the development and conditions of country market capitalization. Kothari, Mizik, and Roychowdhury (2012) explain that managers are expected to exercise their judgment to determine the best course of action given the economic circumstances. This provides managers incentives to engage in earnings management activities.

Companies operating in better market conditions tend to have more assets, capital and higher revenues than those with lesser market capitalization (Hamel, 2013). This is because countries' market development improves the climate for capital inflows by pursuing macroeconomic stabilization, better business environments, and stronger institutional and economic fundamentals (Torre & Schmukler, 2006). Firms in countries with higher levels of capitalization are frequently better organized in terms of financial condition. It is also expected that a positive environment may help them to be more stable and solid companies, and in consequence, they will manage their earnings less.

Hence, we expect that companies operating in highly developed and capitalized countries' markets manage their earnings (it to increase or decrease earnings), as a country's environment creates more opportunities to have a competitive advantage. Therefore, companies have less incentives for earnings management (negative predicted sign).

The strength of legal rights of lenders is another variable considered in our model (*Strengthrights*). We measure the strength of rights based on the index proposed by business database Doingbusiness (<http://www.doingbusiness.org/> 2012). The index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending. The index ranges from 0 to 10, with higher scores indicating stronger legal rights. Table 5 presents the index values for Eastern European countries.

Table-5. Index of strength of legal rights.

Country	2003	2004	2005	2006	2007	2008	2009
Czech Republic	7	7	7	7	7	6	6
Poland	8	8	8	8	8	8	9
Hungary	7	7	7	7	7	7	7
Slovakia	8	8	8	8	8	8	8

Source: Doing business database (<http://www.doingbusiness.org/> 2012).

We include this variable because, as explained [Djankov, Mcliesh, and Shleifer \(2007\)](#) less developed countries, with poorly functioning legal systems, might be unable to sustain an effective lending channel based on ex-post creditor rights. They may depend on information sharing for their credit markets to function. In contrast, richer countries might develop more functional systems of bankruptcy, so that lender power can be particularly important in these countries ([Djankov et al., 2007](#)) and in effect a lower level of earnings management may be observed.

Eastern European countries are still less developed in the ongoing process of growth. This is because, countries with a higher degree of creditor and lender protection can be expected to enjoy deeper debt markets since they can take advantage of mitigated problems derived from information asymmetries, reduced market instability and reduced financial constraints ([Galindo & Micco, 2003](#)) including reduced incentives for earnings management.

Although previous studies have barely analyzed the influence of creditor rights on earnings management we predict a negative coefficient. This means that the better legal rights of lenders, the less earnings management is expected. The predicted sign is also according to the study of [Fonseca and González \(2008\)](#) who assumed stronger creditor rights would reduce incentives to manage earnings.

The accounting and tax connection variable (*Accounttax*) is a variable which explains the connection of the accounting practice and tax requirements. Authors explained that it is reasonable to believe that the tax environment in which a firm is involved, is a strong stimulus for discretionary judgment by managers in financial statements (e.g. ([Badertscher, Phillips, Pincus, & Rego, 2009](#); [Beatty & Harris, 1998](#); [Chen & Daley, 1996](#))).

The trend (and need) toward international accounting homogenization has been increasingly recognized ([Goldberg et al., 2006](#)) however, the behaviour of accounting measures across countries is still quite dissimilar because of differences in business or tax regulations ([Biscarri & Espinosa, 2007](#)). Therefore, include the variable.

Moreover, earnings management studies point out that if accounting practice in the country is strongly aligned with tax practice a higher level of earnings management is expected in firms from this country, as managers try to meet the tax requirements according to companies' objectives. In contrast, in countries where tax regulation does not influence financial reporting, earnings management is lower (see for example studies of ([Burgstahler, Hail, & Leuz, 2006](#); [Caramanis & Lennox, 2008](#); [Coppensa & Peek, 2005](#); [Herrmann & Inoue, 1996](#); [Muramiya & Takada, 2010](#))).

Additionally, literature on earnings management points out that within the Eastern European countries Poland and the Czech Republic represent countries with a perspective focused to some extent on "investor oriented" directives having slight flexibility in terms of the fulfilment of the tax requirements, (see studies, ([Jaruga, Walinska, & Baniewicz, 1996](#); [Mackevicius, Strouhal, & Zverovich, 2008](#); [Sucher & Jindrichovska, 2004](#); [Vellam, 2004](#))). On the other hand, Slovakia and Hungary are much more orientated towards the strong and strict connection of the accounting and taxation system.

Therefore, we measure our variable as a dummy variable which takes the value 1 if the firm-year observation is from countries with strongly aligned tax practice (Hungary or Slovakia); 0 for Poland and Czech. We expect a positive relationship between accounting and tax connection variable and earnings management. This means that the higher tax connection between the accounting practice and tax requirements, the higher the level of predicted earnings manipulation.

The foreign investment variable (*FOREIGNINVEST*) specifies a positive symptom of foreign investments in a country and influences on managers' decisions regarding earnings management. We measure the variable as a value of net inflows of foreign investment into a country to the gross domestic product.

[Guo, Huang, Zhang, and Zhou \(2014\)](#) identify foreign investments as a factor in controlling earnings management. Foreign investments bring investors and improve economic growth, as well as raising the level of accounting information. [Errunza \(2001\)](#) and [Hunter \(2005\)](#) show, as well, that indirect barriers may arise from different elements (available information, accounting standards, investor protection), including differences in foreign investments, which may result in further information asymmetry and in effect in earnings manipulation.

[Figure 2](#) shows mean values of foreign investments over the period of 2003-2009 indicating important differences in terms of inflows of foreign investments for different emerging Eastern European countries. We expect negative sign of the coefficient of the variable as the higher foreign investment, the lower manipulation is expected.

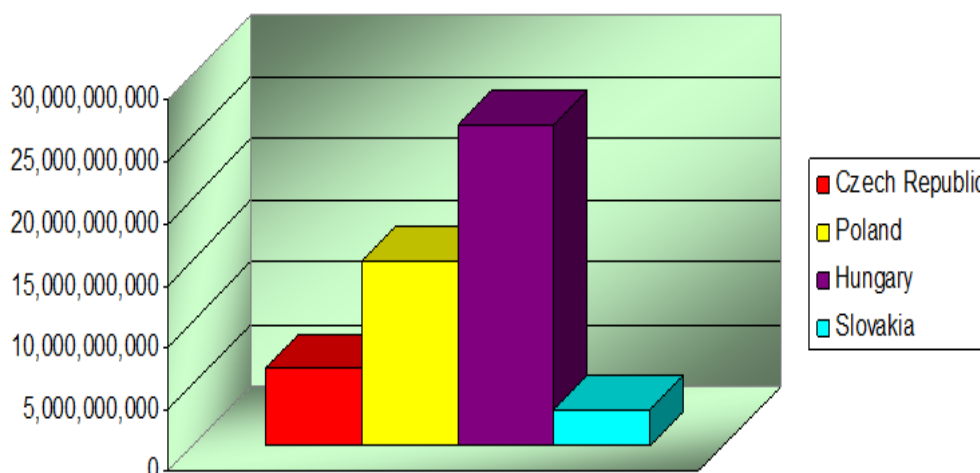


Figure-2. Foreign investments of Eastern European countries (mean values over 2003-2009 in \$).
 Source: Doingbusiness database (<http://www.doingbusiness.org/> 2012).

We also introduce the ownership variable (*Ownership*). In order to examine the ownership structure of Eastern European firms, we focus on the number of major shareholders⁹ for each of our sample countries, as provided in the Amadeus database. In particular we define the variable in a number of recorded major shareholders in firms to mean number of recorded major shareholders in firms within each country sample. Thomsen and Pedersen (2000) and Roodposhti and S. (2011) explain that ownership concentration can be measured as the existence and number of shareholders in firms and in effect their influence on managers' decisions.

Earnings management literature considers ownership structure as an important managers' monitoring mechanism. They may have a monitoring role in constraining the existence of earnings management. Extent literature suggests two different views in relation to the expectation for firms in terms of ownership concentration.

On one side, some studies suggest that ownership concentration is negatively related to earnings management. This indicates that higher ownership concentration improves the quality of managerial decisions. This is because the presence of a small number of holders leads to closer monitoring of management, implying less opportunity for earnings manipulation. Managers of firms that are highly concentrated tend to be highly monitored (Dechow, Sloan, & Sweeney, 1996; Dempsey, Hunt, & Schroeder, 1993; Jiambalvo, 1996; Yeo, Tan, Ho, & Chen, 2002).

However, other studies document evidence suggesting that ownership concentration may actually induce earnings management (e.g. (Abdoli, 2011; Djankov et al., 2008; Leuz et al., 2003; Morck, Scheifer, & Vishny, 1998; Wang, Xu, & Zhu, 2001).

Large shareholders have the capacity to pressure managers to increment earnings manipulation (increasing or decreasing earnings) so that their expected market value is obtained. Moreover, it is also observed a pursuing their own interest rather than the company's, among other reasons.

As a consequence, there is no consensus in terms of relationship between managerial ownership and earnings management, so we do not predict the sign of the coefficient of the variable. Moreover, we find that Eastern European countries show mostly very high ownership concentration (we measure it as a number of major shareholders' members).

This is because they are mostly small and medium size firms¹⁰. Additionally, we also identify that Eastern European countries slightly differ in terms of ownership concentration. Therefore, we include the variable to evaluate the impact of ownership concentration on the existence of differences in managing earnings among Eastern European firms.

We include, as well, board variable (*Board*) to measure the impact of boards in constraining earnings management. We define the variable as the number of boards' members in each company to the mean of members in each country. The effect of board composition has been tested in numerous studies, see for example Rosenstein and Wyatt (1990); Jones (1991); Beasley (1996); Eisenberg, Sundgren, and Wells (1998); Klein (2002); Saleh, Iskandar, and Rahmat (2005). Nevertheless, literature pointed out several characteristics of boards of directors: board composition, board size, board ownership, or duality status of the chairman and Chief Executive Officer.

⁹ Major shareholder is defined as a person or entity that owns more than 5% of a company. The majority shareholder is often the founder of the company, or in the case of long-established businesses, the founder's descendants.

¹⁰ Eastern European companies are characterized by small and medium companies (see for example, (Kaminska & Mularczyk, 2006; Sirák, Salner, & Druga, 2004; Vanek, 2002).

In the complexity of the characteristics of the board of directors we focus on board size as a variable to measure the effectiveness in monitoring and constraining earnings management¹¹. Previous empirical studies, for one side, indicate that smaller boards are commonly considered more effective monitors than larger boards. Alternately, other studies point out contrary results.

A larger board may be able to draw from a broader range of experience, may have independent directors with corporate or financial experience, and might be better at preventing earnings management. Consequently, no prediction on the sign of the coefficient of the variable is made.

The legal enforcement variable (*Legalenfore*) is included in order to test its impact on earnings management. We measure the variable using an index based on three legal variables: (1) the efficiency of the judicial system, (2) an assessment of the rule of law, and (3) the corruption index. All three variables range from zero to ten, where 0 indicates weak and 10 indicates strong legal enforcement, see Table 6.

Table-6. Legal enforcement index for Eastern European countries.

Sample countries	Rule of law index	Legal efficiency system index	Transparency index	Legal enforcement index (mean of 3 variables)
Czech Republic	7.1	4.1	4.4	5.2
Poland	7.8	4.7	5.5	6.0
Hungary	6.3	4.0	4.6	5.0
Slovakia	7.0	3.4	4.0	4.8

Source: (World Economic Forum database, 2012). (World Justice Project database, 2012). Transparency International Index (www.transparency.org, 2012).

This index was first proposed by La Porta et al. (1998) and Leuz et al. (2003) (these are widely cited studies in terms of legal enforcement)¹². To construct the legal enforcement index, we use three different databases. The efficiency of the judicial system variable (1) is obtained from the World Economic Forum database (<http://www.weforum.org/>, 2012). An assessment of the rule of law (2) is taken from the World Justice Project database (<http://worldjusticeproject.org/>, 2012). And finally, the corruption index (3) is based on the Transparency International Index (www.transparency.org, 2012). Thereby, we obtain the legal enforcement index.

Literature points out that legal enforcement has positive impact on the quality of financial reporting, and on the reduction of earnings management (Ball, Kothari, & Robin, 2000; Burgstahler et al., 2006; Leuz et al., 2003; Rahman, 2000). A strong legal enforcement limits the ability of insiders to acquire private information that leads to a decrease in management incentives. It increases the earnings quality. Additionally, a lack of enforcement mechanisms, might tempt auditors to compromise their independence and hence, neglect to constrain earnings management or issue a qualified opinion when necessary. Therefore, in line with previous studies we expect negative sign of the coefficient of the variable. Higher levels of legal enforcement will constrain earnings management incentives.

We consider also the *YEARS* variable which designates the operating years of the company on the market (age of the firm). We measure the variable as the number of years of each firm to the mean age of firms in each sample country. We may observe in Figure 3 differences in age between Eastern European firms. Companies from Poland are almost twice as old as other Eastern European countries. Slovakian firms seem to be the youngest within our country sample firms, among other differences.

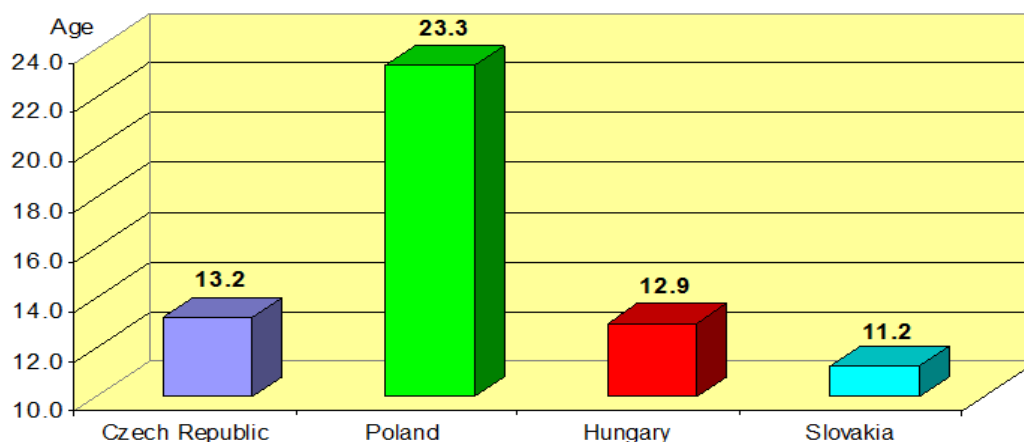


Figure-3. Age of Eastern European firms (mean by country).

Source: The author based on the Amadeus database.

¹¹ Analyzing all of board's characteristics is beyond the scope of our investigation and would not provide additional conclusions.

¹² Leuz et al. (2003) and La Porta et al. (1998) constructed their index only for Western European countries. They used data from 1990 to 1999.

According to the literature, there are rather mixed results in terms of predicted sign and age of the firm. On one side, younger and less experienced companies are more likely to manage more earnings, as their management and accounting systems become less established, they have limited resources or they are more likely to be liquidated due to their early stage of operating on the markets (Chiraz & Anis, 2013; Lee & Masulis, 2011).

Consequently, they may decide to improve their earnings. On the other side, older firms are normally well-established; therefore they have more incentives and more opportunities to engage in earnings management activities to fulfil market expectations, or previously settled targets (Habbash & Xiao, 2014). Therefore, we have no prediction on the coefficient of the variable.

Finally, we include three control variables: the size effect, being listed, and firm's industry. Studies on earnings management points out the difference in the way of earnings management related to the firm size (*SIZE*), see studies of Watts and Zimmerman (1990), Burgstahler and Dichev (1997), Young (1999), Dechow and Dichev (2002), Kim, Liu, and Rhee (2003), Othman and Zeghal (2006), Paiva and Costa (2013).

There is empirical evidence that both large- and small-sized firms manage earnings. We measure the variable by the relation of the total assets in each company in each sample, by year scaled by total assets from $t-1$.

We also include *LISTED* variable. The *LISTED* variable represents firms listed on the Czech, Polish, Hungarian, or Slovakian Stock Exchanges. Studies confirm that listed and non-listed companies differ in managing earnings, see studies of Fama and Jensen (1983), Rangan (1998), Erickson and Wang (1999), Ball and Shivakumar (2005), Burgstahler et al. (2006), Skarda (2010) among others. We measure it as a dummy variable taking the value 1 if the company is listed and 0 if not.

Finally, we include the *INDUSTRY* variable. Literature indicates that firm's industry influences on earnings management. A firm operating within one industry may manage earnings distinctly from one operating in another. (see for example, (Beneish, 2001; Callao & Jarne, 2011; Godfrey & Koh, 2001; Palepu, Healy, Bernard, Wright, & Lee, 2004; Verrecchia, 1983; Watts & Zimmerman, 1986)).

Following, we measure firm's industry as a multiple dummy variable (nine dummies), which receives 1 if the company belongs to a certain industry ($Nr=1, \dots, 9$), otherwise 0¹³.

3.2.2. Model Specification

We estimate the coefficients of the variables by maximum likelihood using an ordinary least squares regression. The model is as follows:

$$\begin{aligned} |DA_{it}| = & \beta_0 + \beta_1 INVESTOR + \beta_2 LISTEDTOMEAN_t + \beta_3 MARKETCAPIT_t + \\ & + \beta_4 STRENGTHRIGHTS + \beta_5 ACCOUNTAX + \beta_6 FOREIGNINVEST_t + \\ & + \beta_7 OWNERSHIP_{it} + \beta_8 BOARD_{it} + \beta_9 LEGALENFORC + \beta_{10} YEARS_{it} + \beta_{11} SIZE_{it} \\ & + \beta_{12} LISTED + \beta_{13} INDUSTRY_1 + \dots + \beta_{21} INDUSTRY_9 \quad (3) \end{aligned}$$

$|DA|$, is an absolute value of discretionary accruals of the firms; *INVESTOR* is an index of investor protection; *LISTEDTOMEAN_t* is the number of listed companies in each country to the mean of total listed companies in all four Eastern European countries; *MARKETCAPIT_t* is the market capitalization to the gross domestic product of each country; *STRENGTHRIGHTS* is an index which measures the strength of legal rights of lenders; *ACCOUNTAX* is a dummy variable taking value 1 if the firm observation is from Hungary or Slovakia, 0 otherwise; *FOREIGNINVEST_t* is the relation between the value of net inflows in each country to the gross domestic product; *OWNERSHIP_{it}* is the number of major shareholders in each company to the mean within each sample country; *BOARD_{it}* is defined as the number of board members in each company to the mean within each sample country; *LEGALENFORC* is an index of legal enforcement; *YEARS_{it}* is the age of the company to the mean of age of the firms in each sample country; *SIZE_{it}* is a total assets scaled by assets from $t-1$; i is firm observation; t is a period of 2003 ... 2009; *LISTED* is a dummy variable equals 1 if firm is a listed company, 0 otherwise; *INDUSTRY_{1...9}* represents nine dummy variables according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry ($Nr=1, \dots, 9$), otherwise 0.

¹³ According to SIC-code, industries: 1 - agriculture, forestry and fishing industries; 2 - manufacturing, mining and quarrying and other industry; 3 - construction; 4 - wholesale and retail trade, transportation and storage, accommodation and food service activities; 5 - information and communication industry; 6 - financial and insurance activities; 7 - real estate activities; 8 - professional, scientific, technical, administration and support service activities; 9 - public administration, defence, education, human health and social work activities; 0 - other services (group "other" comprises establishments engaged in providing services not specifically in previous category of public services, for example, Hunting, trapping and related service activities; Marine services).

4. Empirical Results

Table 7 provides the results of regression. The adjusted R^2 of the model is at 13.1% level. This is a good result in terms of discretionary accruals models. F-test, as well, confirms that the model is significant ($F=234.457$). We may observe that coefficients on two of our variables: *Strengthrights* variable and *Listedtomean* variable are not significant.

This indicates that the degree of creditor and lender protection in emerging Eastern European firms is not significantly related to earnings management and does not explain the differences among Eastern European countries in terms of managers' decisions regarding earnings management.

At the same time we also do not find a significant relationship between the development of capital markets of Eastern European countries (number of listed companies) and differences in terms of earnings manipulation among countries. Other variables show significant coefficients at 1% (most of the variables) and at 10% (one variable). Consequently, we present the influence of each independent variable on the existent differences in managing earnings among developing Eastern European countries.

4.1. Investor Protection (*Investor*)

The investor protection variable has a significant at 5% negative coefficient (-0.033) consistent with our prediction. This confirms that investor protection is becoming an important aspect in explaining the differences in the scope of earnings management among Eastern European countries, as we have observed important variations in the level of investor protection between countries.

Additionally, the negative sign indicates that stronger investor protection leads managers to decrease earnings management. We observe that the highest value of index of investor protection is in Poland, followed by the Czech Republic and the lowest in Hungary and Slovakia. At the same time, Callao et al. (2017c) confirm that the highest earnings manipulation within emerging Eastern European countries is observed in Hungary than in Slovakia, following by the Czech Republic.

The lowest earnings manipulation is observed in Poland, see Annex 1. Hence, our results are consistent indicating that investor protection represents an important tool for limiting managing earnings in companies. Other studies also confirm that there is considerable variation in the legal regimes across countries. La Porta et al. (1998) found that certain countries afford greater investor protection than others. Ball et al. (2000) confirm that better investor protection improves the informativeness of reported earnings. Consequently, firms from countries with stronger investor protection show less evidence of earnings management because all the financial information is published and well-known.

Table-7. Results of ordinary least square regression.

Variables	Unstandardized coefficients		Standardized coefficients	t	Significance
	B	Std. error	Beta		
(Constant)	-.112	.023		-4.978	.000
Investor	-.033	.010	-.148	-3.272	.001
Listedtomean	-.001	.002	-.006	-.406	.685
Marketcapit	-.054	.007	-.046	-7.233	.000
Strengthrights	-.003	.002	-.017	-1.406	.160
Accountax	.008	.005	.017	1.767	.077
Foreigninvest	-.070	.018	-.025	-3.922	.000
Ownership	.004	.001	.030	5.655	.000
Board	-.005	.001	-.023	-4.264	.000
Legalenforc	.054	.011	.192	4.799	.000
Years	-.002	.001	-.018	-3.332	.001
Size	.102	.002	.345	65.710	.000
Listed	.013	.006	.013	2.391	.017
Industry1	.008	.004	.019	2.061	.039
Industry2	.011	.003	.039	3.303	.001
Industry3	.001	.004	.003	.393	.694
Industry4	.025	.003	.097	7.454	.000
Industry5	.010	.005	.013	2.003	.045
Industry6	-.007	.004	-.014	-1.793	.073
Industry7	.023	.005	.035	5.029	.000
Industry8	-.002	.004	-.004	-.422	.673
Industry9	.047	.008	.035	6.112	.000
Adjusted R ²	0.131				
F-value	234.457*				

$$|DA_{it}| = \beta_0 + \beta_1 INVESTOR_{it} + \beta_2 LISTEDTOMEAN_{it} + \beta_3 MARKETCAPIT_{it} + \beta_4 STRENGTHRIGHTS_{it} + \beta_5 ACCOUNTAX_{it} + \beta_6 FOREIGNINVEST_{it} + \beta_7 OWNERSHIP_{it} + \beta_8 BOARD_{it} + \beta_9 LEGALENFORC_{it} + \beta_{10} YEARS_{it} + \beta_{11} SIZE_{it} + \beta_{12} LISTED_{it} + \beta_{13} INDUSTRY_{it} + \dots + \beta_{21} INDUSTRY_{it}$$

INVESTOR is an index of investor protection; *LISTEDTOMEAN*_{*it*} is the number of listed companies to the mean of listed companies in all Eastern European countries; *MARKETCAPIT*_{*it*} is market capitalization of each country to the gross domestic product of each country; *STRENGTHRIGHTS* is an index of strength of legal rights of lenders; *ACCOUNTAX* is a dummy variable taking value 1 if the firm observation is from Hungary or Slovakia, 0 otherwise; *FOREIGNINVEST*_{*it*} is the relation of value of net inflows of each country to the gross domestic product; *OWNERSHIP*_{*it*} is the number of major shareholders in each company to the mean within each sample country; *BOARD*_{*it*} is the number of board members in each company to the mean within each sample country; *LEGALENFORC* is an index of legal enforcement; *YEARS*_{*it*} is a age of the company to the mean of age of th firms in each sample country; *SIZE*_{*it*} is a total assets scaled by assets from *t-1*; *i* is firm observation; *t* is a period of 2003 ... 2009; *LISTED* is a dummy variable equals 1 if firm is a listed company, 0 otherwise. *INDUSTRY*_{*1...9*} variable represents nine dummy variable according to one digit SIC code, it takes values 1 if firm belongs to correspondent industry (Nr=1, ..., 9), otherwise 0.

*Significant at 1%

Source: The author.

4.2. Market Capitalization Variable (Marketcapit)

The market capitalization variable has a significant negative coefficient (-0.054). This is in accordance with our prediction. The previously observed evolution of market capitalization of Eastern European countries confirmed our expectation.

The singularity of capitalization of each of the Eastern European markets has an impact on the changes in the scope of earnings management. Companies operating in highly developed and capitalized countries' markets manage their earnings less, as a country's environment creates more opportunities to have a competitive advantage for doing business and limit earnings management possibilities. A better level of market capitalization improves the environment for capital inflows by pursuing macroeconomic stabilization, better business environments, and stronger institutional and economic fundamentals (Torre & Schmukler, 2006) thereby reducing managers' earnings management activities.

Among our four Eastern European countries, Poland and the Czech Republic present higher market capitalization Figure 1 and at the same time they present lower earnings manipulation in comparison to our other two Eastern European countries: Hungary and Slovakia (Annex 1).

Therefore, the results confirm that firms operating in different market capitalization environments have different access to assets, and capital. The higher level of market capitalization secures more resources for companies to limit earning management.

4.3. Accounting and Tax Connection Variable (Accountax)

The accounting and tax connection variables show significant at 10% positive coefficient (0.008). This is according to our prediction. A tax-driven nature of accounting requirements persists in Eastern European countries (Mackevicius et al., 2008). It comes from the historic development of the relationship between taxation and accounting. Until the 1990s there was an absence of specific accounting legislation. The tax law arbitrated without regard to either accounting theory or existing accounting practices (Fortin, 1991; Frydlander & Pham, 1996).

Nowadays, even though the trend toward international accounting homogenization has been increasingly recognized in Eastern European countries (see, for example, (Goldberg et al., 2006)) the tax environment still remains as an important stimulus for discretionary judgment by managers (Badertscher et al., 2009; Desai & Dharmapala, 2009) of Eastern European firms.

Additionally, the accounting and financial directives among Eastern European countries are still quite dissimilar which result in different accounting and tax regulations. Among Eastern European countries we may find countries where accounting and tax practice are highly aligned (Slovakia and Hungary), and on the other hand, there are countries, despite the important tax and accounting connection, focusing their normative more on the investor perspective (Poland and the Czech Republic) (see, (Jaruga et al., 1996; Sucher & Jindrichovska, 2004; Vellam, 2004)).

Therefore, our results confirm that tax requirements are important factors of the Eastern European environment which have an impact on firms' decisions for earnings management and explain the existent differences in earnings management among emerging Eastern European countries.

4.4. Foreign Investment Variable (Foreigninvest)

The coefficient on foreign investment variable (-0.070) is negative and significant. We have previously indicated significant differences among Eastern European countries in terms of the values of foreign investments. These differences within Eastern European countries indeed influence on managers' decisions for managing earnings.

Our results are also in accordance with the literature. Earnings management studies indicate that foreign investment is a factor in controlling earnings management (Guo et al., 2014). Foreign investors tend to invest in countries with high disclosure accounting quality (Leuz, Lins, & Warnock, 2009), attracting by well-governed firms (Errunza, 2001) and where high transparency is observed (Aggarwal, Klapper, & Wysocki, 2005).

In particular, it is highly important for Eastern European companies, where a range of circumstances such as: continuing transformation into the market and investor-oriented perspective, recent European Union membership, positive changes in the accounting normative, among others, bring important impulses for optimistic foreign investment inflows, and in consequence, give companies a new constructive and beneficial background. Therefore, we may affirm that foreign investment is indeed a relevant factor in terms of explaining the existent differences in the scope of earnings management among Eastern European countries.

4.5. Ownership Variable (Ownership)

The ownership variable shows positive and significant coefficient (0.004). It indicates that ownership concentration explains the existent differences in earnings management among Eastern European countries, as the structure of ownership in firms differs among Eastern European countries.

Positive sign of the coefficient of the variable indicates the higher ownership concentration, the earnings management is reduced. It is explained by the capacity of the ownership to pressure managers to improve earnings quality and limit earnings management (Guthrie & Sokolowsky, 2009) to improve control in the company and restrain earnings manipulation (Shleifer & Vishny, 1997) and to minimize the use of private information by the managers (Jaggi & Tsui, 2007) and offer high transparency of the accounting numbers.

4.6. Board Variable (Board)

The board size variable presents significant at 1% value of coefficient (-0.005) indicating that board composition explain differences in earnings management among Eastern European countries. Emerging European countries present diverse composition of boards resulting in dissimilar countries' environment and companies' circumstances, and in consequence, it is affecting earnings manipulation activity. Additionally, negative sign of the coefficient shows that when larger number of board members is observed, the lower earnings management is than expected.

Xie, Davidson, and Da Dalt (2003) confirm that a larger board is associated with lower levels of discretionary current accruals, indicating that a larger board is more effective in monitoring accruals than a smaller one. Moreover, Dalton, Daily, Johnson, and Ellstrand (1999) document that a larger board provides better environmental links. Finally, Xie et al. (2003) support that larger boards have a broader range of experience, so they are better in preventing earnings management. Therefore, our results are consistent with the literature.

4.7. Legal Enforcement Variable (Legalenforc)

Coefficient on legal enforcement is significant at 1%. Our results confirm that legal enforcement has an impact on the existent differences in earnings management among Eastern European countries (significant variable) as all four Eastern European countries show different levels of legal protection. Nevertheless, the coefficient presents the contrary sign to our prediction.

A positive relationship is observed (0.054). This is due to the legal enforcement that is not developed sufficiently in Eastern European countries, or at least it is not as effective as it should be. Hence, we do not observe the expected negative influence on the scope of earnings management.

Hope (2003) points out that in the absence or underdevelopment of adequate legal enforcement, even the best accounting standards will be insufficient to improve the quality of accounting information (and in effect to constrain earnings management).

Another possible explanation may come from the fact that in Eastern European countries there are mechanisms to secure effective legal enforcement; nevertheless, in practice one does not perceive these measures, as the results indicate that legal enforcement does not prevent earnings management in Eastern European firms.

Literature assures that efficient legal enforcement instruments can improve the quality of accounting information (Ball et al., 2000; Leuz et al., 2003). However, it seems that in the daily activities of Eastern European firms legal enforcement is far from adequate to improve financial information.

4.8. Age of Firm (Years)

Years variable presents negative (-0.002) significant at 5% coefficient. It shows that younger and less experienced companies are more likely to manage earnings. We observe that Eastern European countries differentiate in terms of age. We observe the higher age of Polish firms, followed by those of the Czech Republic, then Hungarian and Slovakian companies. At the same time, literature confirms that within the emerging Eastern European countries, companies from Slovakia and Hungary manage more earnings than firms from Poland and the Czech Republic (Annex 1).

In consequence, we must consider the age of companies when explaining the existent difference in earnings management among Eastern European countries.

Additionally, we observe that younger companies manipulate more their earnings. The literature provides important reasons to explain such activity of managers.

On one side, the management and accounting systems of younger companies become less established so it is easier to manage earnings. Younger firms have limited resources. They are more likely to be liquidated due to their early stage of operating on the markets. Therefore, younger firms may decide to improve their earnings (Chiraz & Anis, 2013; Fan, 2007; Lee & Masulis, 2011).

On the other side, managers of older firms have weaker incentives to manage earnings because they are well-established and they know well markets opportunities. They have fewer needs to opt for earnings manipulation. They may achieve competitive advantage differently: using elaborated market strategies, using their experience of doing business, etc.

Moreover, market pressure for quality information, does not pressure the managers of older firms to manage earnings. When managers approach the age of retirement, they became more risk averse (Gibbons & Murphy, 1992; Matta & Beamish, 2008) and consequently, they opt for less risky strategies.

Finally, we explain three *control variables*: size, listed and industry variables.

4.9. Size Variable (Size)

Size variable shows positive (0.102) significant at 5% coefficient. Therefore, we may observe that company size plays an important role in determining differences in earnings management among Eastern European companies.

Additionally, the sign of the coefficient of the variable indicates that managers of large firms are more likely to manage more earnings. Literature explains that big companies present more information asymmetries and managers can use this advantage to exacerbate earnings management for their own benefit (Mohd & Ahmed, 2005; Othman & Zeghal, 2006). Larger firms face higher political costs and hence they have stronger incentives to fulfil political expectations (Watts & Zimmerman, 1990).

4.10. Listed Variable (Listed)

The coefficient on *LISTED* variable is positive (0.013) and significant at 5%. It explains the difference in earnings management between listed and non-listed firms among different Eastern European countries. The positive sign indicates that listed Eastern European firms engage more in earnings management than non-listed companies.

The structures of the Czech, Polish, Hungarian, and Slovakian Stock Exchanges are different; therefore, this variable helps to explain the existent difference observed among Eastern European countries in earnings management.

4.11. Industry Variable (Industry)

Finally, difference within industry structures among different Eastern European countries also influences on the observed dissimilarity in earnings management among our developing countries. Companies that are operating in one industry in one of the Eastern European countries may show different earnings manipulation than companies operating in the same industry but in other Eastern European countries, as circumstances, and the sector background within the different countries are not the same.

5. Conclusions

Earnings management is well investigated. Nevertheless, markets of emerging European countries are still barely explored. The general background and characteristics of these countries indicate that the environment where the companies are operating is very complex. They are facing market-oriented transition. It is observed important influence of the process of privatization. Companies are characterized by the underdeveloped audit environment, low level of accounting transparency influenced by the tax requirements. It is perceived still important weight of the former communist heritage, among others factors. At the same time, taking into consideration the economic aspect, it is observed that emerging Eastern European countries

are still not at the same economic level as Western European countries. Nevertheless, they increasingly gain experience and importance on the European market. Their companies are already among the fastest-growing companies in the Europe.

Besides, little earnings management literature found indicates that companies from emerging countries manipulate earnings and they do it differently. However, there is no comparative study based on the sample of emerging European countries comparing them in terms of the earnings management and explaining the environmental factors which influence on the earnings manipulation. Therefore, our study focus on four developing Eastern European countries: the Czech Republic, Poland, Hungary and Slovakia. Our research question focuses on the environmental factors of the Eastern European countries, which have an influence on the existence difference in earnings management among countries.

Our results identify a set of factors that explain why managers of companies from different developing Eastern European countries manipulate differently. We identified that there is not a sole reason affecting the managers' decisions, but a significant number of environmental factors that influence Eastern European companies, such as:

- Legal enforcement.
- Investor protection.
- Market capitalization.
- Board structure.
- Ownership structure.
- The scope of foreign investments.
- The accounting and tax connection.
- Firms' age.

Complexity and multiplicity of elements create the panorama of each Eastern European countries' environment.

These environmental circumstances and characteristics of firms are different among Eastern European countries. There are different levels of investor protection, market development, ownership concentration, board size, inflows of foreign investment, etc., within Eastern European countries. We confirm that these differences have an important influence on managers' decisions. Therefore, managers manage earnings differently. [Table 8](#) presents the connection between the level of earnings management among Eastern European countries and the different factors involved. We may report that each of the elements influence in a particular way on the scope of earnings management. Some of them induce managers to manage more earnings. Other set of aspects may importantly limit managers' decisions as regards earnings manipulation.

As observed, on one side, we may observe that whether a firm's environment offers more protection (stronger investor protection) or is characterized by a higher level of development (higher market capitalization, higher foreign investments) it helps limiting earnings management activities of managers. At the same time, the singularity of capitalization of each of the Eastern European markets, differences in foreign investments and differences in investor protection explain the existent differences in earnings manipulation among emerging European countries.

Moreover, the accounting and financial directives among Eastern European countries are still quite dissimilar which result in different accounting and tax regulations. Whether accounting and tax are not as strongly aligned with market approach as it may be expected in former communist Eastern European countries, the earnings management is lower. Additionally, older Eastern European firms, with higher ownership concentration and larger boards, limit levels of earnings management.

On the other hand, an Eastern European firm's environment, which does not ensure a high level of protection (lower investor protection) or is characterized by a lower level of development (lower market capitalization, lower foreign investments), and is strongly aligned with tax requirements, may create circumstances in which managers may opt for more earnings management activities.

Finally, legal enforcement is not sufficiently developed in Eastern European countries to improve the quality of financial reporting and limit the existence of earnings management. This is due to the legal enforcement is not as effective as it should be; or, in Eastern European countries there are mechanisms to secure effective legal enforcement; nevertheless, in practice one does not perceive these measures. It seems that in the daily activities of Eastern European firms legal enforcement is far from adequate to improve financial information.

Table-8. The connection between level of earnings management and the level of each of the factor ranked by countries.

Earnings management ¹⁴	Lower manipulation → Higher			
	Czech R.	Poland	Hungary	Slovakia
	16092.93	16143.23	16769.69	17416.34
Investor protection	Higher invest. protec. → Lower			
	Poland	Czech R.	Slovakia	Hungary
Market capitalization	Higher capitalization → Lower			
	Poland	Czech R.	Hungary	Slovakia
Accounting and tax connection	Lower connection → Higher			
	Czech R.	Poland	Hungary	Slovakia
Foreign investment	Higher foreign inv. → Lower			
	Hungary	Poland	Czech R.	Slovakia
Ownership concentration	Higher concentration → Lower			
	Czech R.	Poland	Hungary	Slovakia
Board size	Bigger size → Lower			
	Czech R.	Poland	Hungary	Slovakia
Legal enforcement	Lower legal enforce. → Higher			
	Poland	Czech R.	Hungary	Slovakia
Age of the firms	Older → Younger			
	Poland	Czech R.	Hungary	Slovakia

Besides, these factors are interconnected and have their own respective impact. Therefore, to explain the reasons for existent differences observed in earnings management among Eastern European it is necessary to focus on factors and characteristics as a block of reasons and their mutual association rather than on one factor.

A potential future line of research could include a comparative study of earnings management between Eastern and Western European countries. The issue of earnings management in Europe as a whole has so far remained unanswered. Future studies could also incorporate other developing countries to the analysis. 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.

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¹⁴ Mean ranks of discretionary accruals measured by Kruskal-Wallis test. See the results, Annex 1.

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Annex 1. Differences in earnings management among Eastern European countries.

Test	Sample countries	Kruskal-Wallis results
Chi-square		30.647***
	Czech R.	16092.93
Mean	Poland	16143.23
Rank	Hungary	16769.69
	Slovakia	17416.34

Non parametric Kruskal-Wallis test.

* significance at 10%; ** significance at 5%; *** significance at 1%.

Source: The author based on the study of Callao et al. (2017a).