

Empirical evidence on cross-country differences in explaining accruals anomaly

Authors:

Diana MUREȘAN*,
Monica Ioana POP SILAGHI**

A*bstract:* This paper examines whether accruals anomaly is related to cross-country factors of the developed stock markets. The paper finds that the extensive use of an accrual accounting system or accounting standards with a spread ownership concentration may impact negatively the accruals anomaly in various countries. The cross-sectional regression reveals that the legal system has no influence in the occurrence of accruals anomaly. Moreover, accruals anomaly is positively affected by the tax regulations. Overall, our results suggest that cross-country differences in the accounting and institutional systems allow for accruals anomaly with prevalence in some countries.

Keywords: accruals anomaly, accounting systems, institutional factors, developed countries

JEL Classification: G15, M40, M41

1. Introduction

This paper investigates the impact of several country factors on the accruals anomaly. We analyse the institutional and accounting factors that may have an

* PhD Candidate, Faculty of Economics and Business Administration, Babeș-Bolyai University, diana.muresan@econ.ubbcluj.ro

** PhD, Associate Professor, Faculty of Economics and Business Administration, Babeș-Bolyai University, monica.pop@econ.ubbcluj.ro

influence in the occurrence of accruals anomaly. The selection of these factors was made in order to highlight possible differences between countries where accruals anomaly exists. The current evidence provides mixed results regarding possible country influences on accruals anomaly existence. While LaFond (2005) wasn't able to find any dominant factor for the occurrence of accruals anomaly, other authors (Pincus *et al.*, 2007; Dechow *et al.*, 2011) attribute it to the legal system of the countries.

Our approach to the factors that may impact on accruals anomaly has two directions: one related to accounting influences and one related to institutional effects. We follow Pincus *et al.* (2007) in developing our model for ascertaining what factors drive cross-country differences. In addition to Pincus *et al.* (2007) model we test for the significance of two other factors such as: tax accrual index and accounting standards index. Also, we use Leippold and Lohre (2010) results for the occurrence of accruals anomaly.

In this paper, we conduct a comprehensive examination of cross-country factors and their impact on accruals anomaly. We develop and test prediction concerning the properties of accounting and institutional system and their impact. Our empirical test involves a cross-sectional regression in which we find that accruals anomaly has a significantly negative relation with accruals accounting, accounting standards, legal enforcement and ownership concentration. Also, tax accruals index is significantly positive for accruals anomaly, while legal system has no influence in the occurrence of accruals anomaly.

Our paper contributes to the existing literature on international accruals anomaly by providing evidence for new factors (tax regulations and accounting standards) that may impact accruals anomaly at a country level. The remainder of the paper is structured as follows: Section 2 presents the literature review, Section 3 describes the research design and conclusions, Section 4 highlights the conclusions.

2. Literature review

Starting with Sloan (1996), who initiated a revolutionary research in accruals anomaly, many studies tried either to extend his work or to provide explanations for the occurrence of accruals anomaly. According to him, accruals anomaly represents the negative relation between stock returns and accruals. He attributes this relation to naïve fixation of investors. Accrual anomaly occurs when market participants either cannot perceive correctly or are not well informed about the different persistence between accruals and cash flow

components of current earnings when predict future earnings (Sloan, 1996). Meanwhile, other papers (Kraft *et al.*, 2006; Khan, 2008; Beaver *et al.*, 2007) consider that abnormal returns are just a compensation for the assumed risk or a consequence of earnings management (Xie, 2001). Nevertheless, Richardson *et al.*, (2010) view the accruals anomaly as the wrong perception of information contained in accruals and cash flows when investors forecast earnings. The consequence of this misunderstanding is a biased forecast of future earnings and an incorrect current price.

Sloan (1996) confirmed the accruals anomaly in US and since then the idea has been spread out that this is a phenomenon met only in the US or countries with similitudes to the US such as countries based on the common law system or accruals accounting system. But many researchers (Pincus *et al.* 2007, Leippold and Lohre, 2010; LaFond, 2005 etc.) proved that accruals anomaly exists outside the US and exists in both common and code law systems. Once ascertained the globalization of accruals anomaly, an immediate question should be addressed: what factors determine the accruals anomaly in some countries. Current research (Pincus *et al.*, 2007, Leippold and Lohre, 2010; LaFond, 2005, Xu and Lacina, 2009) supports that accruals anomaly rather occurs in countries with an accrual accounting system, weak shareholder protection or low ownership concentration. Pincus *et al.* (2007) test for a possible relation between accruals anomaly and some country factors, in order to establish potential differences between countries, in the incidence of accruals anomaly. By employing an OLS regression, authors conclude that accruals anomaly is related to common law countries with accruals accounting system and a spread shares ownership. These results are strengthened by the different accruals measures and accounting systems which may lead to significantly country returns variations. Leippold and Lohre (2010) consider that accruals anomaly may be encountered in countries where earnings have a lower relevance for stock prices. Meanwhile, Dechow *et al.* (2011) relate accruals anomaly to countries which react promptly to the release of news about earnings.

Furthermore, the literature continues the research on global accruals anomaly in an attempt to find solid explanations for the occurrence of accruals anomaly based on risk or tax codes. Fan and Yu (2013) study also demonstrates the existence of accruals anomaly globally, but they contribute to the literature by establishing that the idiosyncratic risk is responsible for the occurrence of accruals anomaly. The paper examines 43 countries during the 1989-2009 period and show a strong positive correlation between abnormal returns and idiosyncratic risk. They employ the Fama-French three factor model, including

also a momentum factor in addition to the market index, size and book-to-market factors. They do this in order to verify whether risk may explain abnormal accruals. Results are robust after controlling for country-level characteristics. On the other hand, Goncharov and Jacob (2012) establish that countries with high accruals are predisposed to tax revenues less volatile and easier to predict than countries with low accruals. Authors propose an accruals tax index based on accruals regulations imposed by the tax code. Their sample is formed of 26 OECD countries between 1997 and 2009.

3. Research methodology and results

3.1. Sample and variables definition

Our sample consists of 24 developed countries from all over the world. The list with selected countries is detailed in Appendix A. The information on accruals anomaly is collected from the Leippold and Lohre (2010) study. Accruals represent anticipated future benefits recorded as change in current net assets and computed according to the balance sheet method. The results for the accruals anomaly were obtained by the authors when testing several null hypotheses simultaneously. The research design involved examining one country at a time. Accruals anomaly has been confirmed in ten countries after adjusting for common risk factors. For the country factors that may influence the existence of accruals anomaly we selected eight variables following Pincus *et al.* (2007), Fan and Yu (2013) and Goncharov and Jacob (2012). Our selected variables are: legal system, insider restrictions, legal enforcement, ownership concentration, accrual index, tax accrual index and accounting standard index. Below we present in detail the definitions of these variables and the summary statistics of these variables are described in Appendix A.

a. Legal system

The legal system is used as a proxy for the institutional structure, also considered by Pincus *et al.* (2007), Ball *et al.* (2000) and Bushman and Piotroski (2004). Thus, we want to see whether the accruals anomaly is determined by the legal system.

LaFond (2005) and Xu and Lacina (2009) highlight the idea that accruals anomaly is a global phenomenon wherever there is an accrual accounting system, independent of the legal system, investor protection or accrual intensity. Further, Pincus *et al.* (2007) provide evidence that the legal system may

influence the accruals anomaly. Next, Dechow *et al.* (2011) acknowledge that countries with a legal system similar to the US (common law system) are more predisposed to encounter accruals anomaly than countries with a civil law system. Leippold and Lohre (2010) and Pincus *et al.* (2007) both conduct analyses on multiple countries classified by their legal system. Leippold and Lohre (2010) search for accruals anomaly in 26 developed countries for the period 1994-2008 and find results in both types of legal systems. On the contrary, Pincus *et al.* (2007) discover the accruals anomaly only in common law countries for their sample of 20 developed countries between 1994 and 2003. Further, the accruals anomaly has been confirmed in other civil code countries in singular country studies as Germany (Kaserer and Klingler, 2008), Spain (Goncharov *et al.*, 2013), Korea (Kho and Kim, 2007), China (Li *et al.*, 2011), Tunisia (Mehdi, 2011). Therefore, the current evidence shows that accruals anomaly is not a phenomenon met only in countries with legal or accounting system similar to the US.

b. Insider restrictions

We use the year of insider trading enforcement as a proxy for insider trading restrictions based on Bhattacharya and Daouk (2002) measure. Similarly with Pincus *et al.* (2007) we consider 1996 as a critical year in establishing the existence of significant insider restrictions. Given that a strong enforcement of the insider trading laws could determine an increase in the quality of financial reporting (Zhang and Zhang, 2012), we believe that powerful restrictions to insiders will make them less capable to trade on accruals and have larger impact on the occurrence of accruals anomaly.

c. Legal enforcement

Legal enforcement is used together with investor rights as a proxy for the shareholders protection similar with Pincus *et al.* (2007) and Hung (2001). This variable is based on La Porta (1998) and consists of the mean of other three variables: efficiency of legal code, assessment of rule of law and corruption index. The mean varies from 0 to 10, based on the strength of legal enforcement. A strict legal enforcement will conduct to smaller earnings manipulations and thus to less chances to meet accruals anomaly.

d. Ownership concentration

We use La Porta (1998) measure for the ownership concentration, which is based on the median of the percentage of common shares owned by the three largest

shareholders in the ten largest privately owned nonfinancial firms. If the ownership concentration is low, this should enhance the attention of investors and analysts on earnings and thus mitigate the probability of accruals anomaly existence.

e. Accruals index

We use the accruals index determined by Hung (2001) as a measure for the use of accruals accounting. Accruals index is an equally weighted procedure of 11 questions related to accounting standards. We use the values determined by Hung (2001) for 23 countries and for India we use the index determined by Pincus *et al.* (2007). The index reflects the extent to which the accounting system moves away from a cash method measure and comprises the answers to important questions related to the use of accounting standards like: the capitalization of goodwill, the requirement of equity method, depreciation, capitalization of purchased intangibles, developed intangibles, R&D expenditure, interest capitalization and finance leases, the allowance of percentage of completion, the accrualment of future pension costs or other post-retirement benefits. The expectations regarding the sign come from the fact that the existence of an accruals accounting system may determine the appearance of the accruals anomaly. Thus, we expect that the accruals index may have a positive influence on accruals anomaly.

f. Importance of equity market

This variable is calculated as the average of market capitalization held by minorities relative to Gross National Product (GNP), the number of listed domestic firms relative to the population and the number of IPOs relative to the population. It has been developed by La Porta *et al.* (1997) and actualized by Pincus *et al.* (2007). Higher values of this variable indicate the importance of stock market. More significant the equity market becomes, much higher the chances that managers manipulate earnings are, and thus the chances to occur accruals anomaly are higher.

g. Tax accruals index

The tax accruals index is based on the accruals regulations defined in the tax code. This index reflects a tendency for more accruals regulations requirements than cash norms in tax accounts. This variable is an equally weighted sum of eight answers based on Goncharov and Jacob (2012) questions. The first three questions are similar to Hung (2001) and the other questions are related to: buildings and equipment and machinery depreciation, the low cost of PPE, inventory valuation and contingent provisions. Higher values represent a higher

reliance on accruals regulations in taxable income. This may imply a positive impact on the accruals anomaly.

h. Accounting standard index

We use the measure of La Porta *et al.* (1998) for accounting standards following Fan and Yu (2013). This variable is an index created by examining and rating the company's 1990 annual report, based on the inclusion or omission of 90 items. These items fall into seven categories covering general information, income statements, balance sheets, fund flow statements, accounting standards and stock data. Higher values should indicate a higher reliance of the companies on the accounting standards. If accounting standards are well defined, they involve higher expectations from earnings which may induce a positive impact on accruals anomaly. In Table 1, we present a synthesis with the description of the variables, presented above.

Table 1. Description of the variables

Variables	Explanations
<i>Accruals anomaly</i>	1 - accruals anomaly exists; 0 - accruals anomaly doesn't exist
<i>Legal system</i>	1 - common law system; 0 - code law system
<i>Insider restrictions</i>	1 – if the country has at least one prosecution under insider trading law; 0 – otherwise
<i>Legal enforcement</i>	Vary from 0 to 10; 0 means low legal enforcement and 10 higher legal enforcement
<i>Ownership concentration</i>	The average of the percentage of common shares owned by the three largest stockholders in the ten largest private-owned nonfinancial firms. Lower values mean a lower ownership concentration, and higher values a higher concentration,
<i>Accrual index</i>	An equally weighted index of 11 procedures related to the accounting standard, developed by Hung (2001). Higher values of accrual index mean a higher use of accrual accounting.
<i>Importance of equity</i>	The mean of market capitalization held by minorities to GNP, number of listed domestic firms relative to the population and number of IPOs relative to the population developed by La Porta <i>et al.</i> (1997). Higher numbers indicate higher significance of stock market.
<i>Tax accrual index</i>	An equally weighted sum of 8 answers based on Goncharov and Jacob (2012). Higher values represent a higher reliance on accruals regulations in taxable income.
<i>Accounting standards index</i>	Examine the company's 1990 annual report on the inclusion or omission of 90 items.

3.2. Regression results

We estimate whether different institutional factors are related to the occurrence of accruals anomaly and whether these factors can establish what drives cross-country differences. Our model is estimated by an OLS regression with all institutional factors included. The estimated equation is given below:

$$\begin{aligned}
 AccAnomaly_j &= \beta_0 + \beta_1 LegSys_j + \beta_2 InsiderRes_j + \beta_3 LegEnf_j + \beta_4 OwnConc_j + \\
 &\quad \beta_5 AccIndex_j + \beta_6 ImpEquity_j + \beta_7 TaxAcc_j + \beta_8 AccStand_j + \varepsilon_j \\
 AccAnomaly_j &= \beta_0 + \beta_1 LegSys_j + \beta_2 InsiderRes_j + \beta_3 LegEnf_j + \beta_4 OwnConc_j + \\
 &\quad \beta_5 AccIndex_j + \beta_6 ImpEquity_j + \beta_7 TaxAcc_j + \beta_8 AccStand_j + \varepsilon_j \quad (1)
 \end{aligned}$$

In order to check if the results are affected by multicollinearity, we tested the Variable Influence Factor (VIF). The highest VIF found was 5.25, which proves that our results seem not be affected by multicollinearity.

Estimation results for the equation 1 are presented below.

Table 2. OLS regression for accruals anomaly

Accruals anomaly	Coefficient (t-statistics)
Constant	7.26*** (5.40)
Legal system	0.68 (1.43)
Insider restrictions	0.32 (1.19)
Legal enforcement	-0.27* (-2.02)
Ownership concentration	-2.82** (-3.67)
Accrual index	-3.41*** (-4.79)
Equity market	0.01 (0.63)
Tax accrual index	1.63* (2.17)
Accounting standards	-0.04** (-2.87)
R ²	0.78

Notes: Values in parenthesis are t-statistics. *, ** and *** denote significance at the 10%, 5% and 1%

We notice that the ownership concentration influences negatively the accruals anomaly at 5% significance level, meaning that a 1% increase in the ownership concentration decreases the accruals anomaly by 2.82%. This is expected, since a higher concentration ownership is expected to reduce the existence of the accruals anomaly as the attention on earnings of investors is affected. Legal enforcement has a weakly negative influence on accruals anomaly while accruals index and accounting standards influence negatively the accruals anomaly. Tax accrual index affects positively (at 10% significance level) the accruals anomaly. The results also show that the legal system, insider restrictions and equity market, although found with a positive sign, they are not significant. Thus, accruals anomaly is not a phenomenon affected by the legal system but rather connected to the use of accruals accounting, accounting standards or tax regulations, with a dispersed ownership and strong legal enforcement. The accruals index and the accounting standards, having a negative sign, may imply that accruals anomaly starts to diminish in countries where the investors may become more aware of the existence of this phenomenon. As our sample is formed of developed countries, the reason could be that in these countries there is a threshold for accruals anomaly and thus, the accruals index or accounting standards do not have any more the expected influence.

4. Conclusions

In this study, we examined the impact of cross-country factors on accruals anomaly. Our results proved that tax accruals index has a weak positive influence on accruals anomaly while accrual index, accounting standards, ownership concentration and legal enforcement negatively influence accruals anomaly for our sample of developed countries. Contrary to previous research, we found that the legal system has no influence on accruals anomaly. Overall, we prove that cross-country differences in accounting and some institutional factors allow for accruals anomaly, while factors such as the legal system do not have any influence.

The policy implication that may be drawn from the present study refers to strategies that must be considered by potential investors in these countries. An analysis of the cross-country differences should be carried, with a focus on factors which may enhance the accruals anomaly. While the decision to invest is taken, one has to carry out an analysis or to get informed regarding the ownership concentration. A small concentration is a sign of the existence of accruals anomaly, while a high ownership concentration means a small accruals

anomaly. The accrual index and the accounting standards proved, in our case, to have a negative sign on accruals anomaly which may imply that the threshold level may have been attained and the extensive use of accruals anomaly based on accounting standards and accrual index may in fact impede accruals anomaly. In what concerns the legal enforcement, the strongest the legal enforcement is, the smaller earnings manipulations happen and thus, the accruals anomaly decreases. Although the level of significance is low (10%), there is a sign that this may count when the decision to invest is made, being aware of the chances to decrease or increase the possibility of accruals anomaly existence. When a different proxy for the legal factor is used (i.e. legal system), no significant influence is found. Tax accruals index has a positive impact on accruals anomaly, expecting that higher values represent a higher reliance on accruals regulations in taxable income which sustains the positive relation with accruals anomaly. This is, again, an important signal for potential investors to be aware of the tax norms in these countries.

By examining new factors that may impact the accruals anomaly on a sample of 24 developed countries (such as tax regulations and accounting standards), alongside with other well-known and widely used factors, we contribute to the existent literature. Further research is needed in the area to fully understand the impact of cross-country differences on accruals anomaly, such as building multidimensional indexes which may capture multiple facets of the legal system and institutional factors, implementing more complicated estimation methods so as to capture the dynamics of the accruals anomaly, include more sophisticated factors and employ robustness checks.

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Appendix A. Entry data by countries

Country	Accruals anomaly	Legal system	Insider restrictions	Legal enforcement	Ownership concentration	Accrual index	Importance of equity market	Tax accruals index	Accounting standards index
Australia	1	1	1	9.5	0.28	0.82	24	0.565	75
Belgium	0	0	1	9.4	0.55	0.68	11.3	0.683	61
Canada	0	1	1	9.8	0.24	0.82	23.2	0.479	74
Denmark	1	0	1	10.0	0.4	0.55	20	0.465	62
France	1	0	1	8.7	0.24	0.64	9.3	0.65	69
Germany	1	0	1	9.1	0.5	0.41	5	0.488	62
Greece	0	0	1	6.8	0.68	-	11.5	0.349	55
Hong Kong	1	1	1	8.9	0.54	0.64	28.8	-	69
India	0	1	0	5.6	0.43	0.41	14	-	57
Ireland	0	1	0	8.4	0.36	0.82	17.3	0.763	-
Italy	1	0	1	7.1	0.6	0.45	6.5	0.475	62
Japan	1	0	1	9.2	0.13	0.55	16.8	0.264	65
Malaysia	0	1	1	7.7	0.52	-	25.3	-	76
Netherlands	0	0	1	10.0	0.31	0.73	19.3	0.379	64
New Zealand	0	1	0	10.0	0.51	0.73	-	0.388	70
Norway	0	0	1	10.0	0.31	0.82	20.3	-	74
Singapore	0	1	1	8.9	0.53	0.64	28.8	-	78
South Korea	0	0	1	5.6	0.2	-	11.7	0.513	62
Spain	0	0	0	7.1	0.5	0.77	7.2	0.588	64
Sweden	0	0	1	10.0	0.28	0.59	16.7	0.425	83
Switzerland	1	0	1	10.0	0.48	0.32	24.8	0.558	68
Thailand	0	1	1	4.9	0.48	-	14.3	-	64
UK	1	1	1	9.2	0.15	0.82	25	0.603	78
US	1	1	1	9.5	0.12	0.86	23.3	0.468	71