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EARNINGS RESPONSE COEFFICIENT ESTIMATION: AN EXPLORATORY AND COMPARATIVE ANALYSIS IN BRICS[1]

ESTIMAÇÃO DO COEFICIENTE DE RESPOSTA AOS LUCROS: UMA ANÁLISE EXPLORATÓRIA E COMPARATIVA NOS BRICS

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ABSTRACT

This paper estimates and compares the long-term market reaction to earnings innovation (ERC) in the five main emerging economies – Brazil, Russia, India, China and South Africa (BRICS) – and analyzes the effects of nonlinearity of unexpected earnings, negative earnings and firm size on ERC. The tests are based on 31,159 firm-year observations from 1995 to 2013 from a total sample of 2,290 listed firms and the econometric estimation process is based on country-specific longitudinal ordinary least squares regressions. The results showed that accounting information has marginal implications for stock prices in all countries; however, the determinants of ERC vary along time and across countries as context-specific components. The results also show that (i) the nonlinear effects of unexpected earnings in ERC are a common trend in all evaluated countries but Russia; (ii) the negative earnings effects on ERC are documented in Brazil, India and Russia, whereas they do not hold true for China and South Africa; and (iii) only in China a significant effect of firm size is observed in the way market agents incorporate earnings information in the long run.

Keywords: accounting earnings, earnings response coefficient, emerging markets, BRICS.

RESUMO

Este artigo estima e compara a resposta de longo prazo do mercado de capitais às inovações nos lucros contábeis (ERC) das cinco principais economias emergentes, Brasil, Rússia, Índia, China e África do Sul (BRICS) e analisa os efeitos da não linearidade dos lucros anormais, dos resultados negativos e do tamanho das empresas no ERC. Os testes estão baseados em 331.159 observações de uma amostra total de 2.290 empresas listadas entre 1995 e 2013 e o processo de estimação econométrica está baseado em regressões longitudinais específicas para cada país por meio de mínimos quadrados ordinários. Os resultados mostram que a informação contábil possui implicações marginais relevantes no preço das ações de todos os países analisados; no entanto, os determinantes do ERC variam ao longo do tempo e entre as empresas como componentes específicos a cada contexto. Os resultados também mostram que (i) os efeitos não lineares dos lucros anormais no ERC são comuns a todos os países, exceto Rússia; (ii) os efeitos

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de resultados negativos nos ERC são documentados no Brasil, Índia e Rússia, enquanto que não se aplicam à China e à África do Sul; e (iii) a presença de efeitos significativos do tamanho das empresas na forma em que os agentes incorporam as informações de lucro no longo prazo é observada apenas na China.

Palavras-chave: lucros contábeis, coeficiente de resposta aos lucros, mercados emergentes, BRICS.

INTRODUCTION

It is well accepted and documented that financial statements provide useful information for market participants. However, the firm-specific information content and the market characteristics have a direct impact on the magnitude in which market agents incorporate new information of accounting numbers in stock prices along time. The long-term dynamic between innovations in reported earnings and stock returns is often measured as the linear combination between unexpected earnings and abnormal return and it is usually denominated as the earnings response coefficient (ERC).

Considering that ERC has cross-sectional differences between firms (Collins and Kothari, 1989; Easton and Zmijewski, 1989; Frankel and Lee, 1998) and cross-sectional differences according to market characteristics (Ariff *et al*., 2013; Ball *et al*., 2009; Bao, 2009), the aim of this paper is to analyze and compare the market reaction to earnings innovation in the five main emerging economies – Brazil, Russia, India, China and South Africa (BRICS). Although ERC is well documented in developed markets, to the best knowledge of the author, there are no studies comparing the informative content of earnings in emerging environments that are characterized by higher economic instability, low levels of corporate governance, low coverage of market agents and, on the other hand, higher-than-average economic growth.

Different from previous literature, this paper accounts for country-specific differences and other relevant well-documented firm-specific aspects, such as non-linear effects in earnings (Freeman and Tse, 1992), effect of negative earnings (Hayn, 1995; Jenkins, 2003), size effect (Collins *et al*., 1987), and time trends. Precisely, the non-linear and the negative earnings effects account for firm-specific earnings patterns and the differences in firm size can account for both information content (Collins *et al*., 1987) and risk (Alford, 1992). Typically, studies of market reaction to accounting information are restricted to one specific market (especially the American one). This paper, on the other hand, allows the direct comparison of the different effects across countries.

The empirical study is based on 31,159 firm-year observations from a total sample of 2,290 listed firms from 1995 to 2013, period that includes the main market liberalization and relative economic stability for all countries. The results show that, although the accounting information has relevant implications to stock prices and firm valuation in all the emerging markets analysed, the determinants of the extension to which market agents incorporate these information in earnings vary across countries and along time as context-specific components. Specifically, this paper documents that the nonlinear effect of unexpected earnings is a common trend in all evaluated countries, with the exception of Russia. The negative effect in ERC is documented in Brazil, India and Russia, whereas it does not hold true for China and South Africa. Finally, only in China a significant effect of firm size is observed in the way market agents incorporate earnings information in the long run. Although this paper does not explicitly analyse potential improvements in the earnings-returns association along time, it does document that controlling for attributes of time is important.

This paper contributes to the literature by expanding the emerging market literature, specifically by documenting significant differences in the way market agents incorporate accounting information and the determinants of these differences. Differently from previous literature, which report systematic effects of ERC in one specific market (especially the US market), this paper documents for the first time – by accounting for potential variations in annual returns, derived from macroeconomic conditions and market sophistication over the years – that effects of non-linearity, negative earnings and size (potential proxy for information content and risk) play different roles in each analysed country. The results documented in this paper suggest that the empirical evidence in the US market does not apply equally and systematically to other markets, particularly when considering the five biggest emerging markets. Finally, this paper contributes to the literature by showing that other economic and institutional determinant variables must be considered in order to enhance results and estimation of market-based research and valuation in emerging markets. While this paper does not explain all the differences across firms and countries, it provides avenues for future extensions and future research problems.

The rest of the paper is structured as follows: *Literature of interest* presents the literature of interest and develops the theoretical basis. *Methodology and expected results* presents the research design and variables. *Sample and Data* describes the data and draws preliminary analysis. *Empirical analysis*

presents and discusses the empirical results. Finally, *Final remarks and future extensions* summarizes the findings and presents final remarks.

LITERATURE OF INTEREST

The theoretical and empirical literature on ERC is mainly focused on developed countries, especially on US and UK markets. The most influential papers date back to the late 80's and include Collins *et al.* (1987), Kormendi and Lipe (1987), Easton and Zmijewski (1989), and Collins and Kothari (1989). Overall, the literature shows that ERC has cross-section and temporal determinants and that controlling firm valuation and market reaction to earnings for these determinants can substantially improve research design in market-based accounting research and provide more efficient tests for the contracting and political cost hypotheses (Kothari, 2001). Recent evidence in Freeman *et al.* (2011) shows that current ERC is also relevant to estimate future ERC (typically named FERC – forward earnings response coefficient) and, as a consequence, it can significantly improve the design of future (forward-looking) returns-earnings studies and stock prices.

In accounting terms, Dechow *et al.* (2010) claim that the literature of investor responsiveness to earnings provide direct and indirect evidence of ERC as proxy for earnings quality. The general idea is that the higher the magnitudes of ERC and the levels of R^2, the higher the informativeness and the usefulness of accounting earnings to investors. In other words, the value relevance of accounting information is assumed to be higher when the market agents react more to innovation in earnings. Ball and Shivakumar (2008) quantify the relative importance of earnings announcements in total information environment and conclude that accounting usefulness is only incremental when compared to the large set of information for decision making. In this regard, the earnings-return relationship, as an earnings quality proxy, is affected by accounting methods, auditor quality and governance, firm fundamentals and leverage (Dechow *et al.*, 2010). However, the literature is significantly broader to include several other aspects, including non-earnings information, and to develop specific sub-topics.

Freeman and Tse (1992) document that extreme values of transitory unexpected earnings are less persistent and do not affect stock prices in the same magnitude. This is an important variable in emerging markets, because in stressed periods of crisis variation in exchange rates, inflation and international market liquidity, for instance, can cause huge losses (high-magnitudes) to firms exposed to international commerce activities. However, those variations are expected to be transitory and thus affect the ERC in a lower magnitude.

The seminal papers of Hayn (1995) and Basu (1997) are the most influent to predict and document that ERC are lower for firms with negative earnings. The prediction also lays on the fact that losses are likely to be less persistent overtime and are expected to revert to positive numbers. Since the nonlinear effect and the losses effect can be both driven by earnings persistence, Lipe *et al.* (1998) specifically analyse this potential overlap of concepts and they document that nonlinearity and losses effects represent, in fact, distinct factors that affect ERC and both should be considered in ERC research design.

Recent studies assume that the market response to earnings announcement has systematic effects. For instance, Sadka and Sadka (2009) and Ball *et al.* (2009) document that cash flow risk and market return risk are not fully separable and, as a consequence, they are both priced by market agents. The implication is that systematic effects can affect ERC in different ways. This evidence opens avenues for future research that consider different data sets with different systematic effects such as more volatile markets. Similarly, in a review of the literature, Dechow *et al.* (2010) claim that macroeconomic factors, cross-country variation and market development can significantly affect the earning-returns relation.

In this regard, Gordon *et al.* (2013) claim that one of the main challenges of international academic literature is to compare and include most countries and institutional and macroeconomic environments that are often neglected in the international business literature. Specifically, empirical evidence in the BRICS is sparse.

In the Brazilian market, Paulo *et al.* (2013), Santos *et al.* (2013), Pimentel and Lima (2010a, 2010b), Neto *et al.* (2009) and Galdi and Lopes (2008) find significant relationships in the short and long-term market reactions to content information in accounting reported earnings. The Chinese market is the most analysed and documented in the international literature. Wu *et al.* (2014) show that accounting information is relevant for market agents, however, when their local GAAP is compared to the international financial report standard (IFRS), the value relevance of local standard is significantly lower than IFRS.

International evidence of Russia, India and South Africa is especially scarce. India is the only country that has not adopted IFRS for all companies (mandatory adoption) and the empirical evidence on the market reaction to earnings announcement is focused on event studies based on short-term relationships (Iqbal, 2014; Iqbal and Mallikarjunappa, 2007; Mallikarjunappa, 2004). The Russian market seems to be the closest in terms of accounting and finance research, maybe because of the local literature has its own language, but few exceptions can be found in the most respectable data bases. Although not directly related to ERC, some of these exceptions are McGee (2009), who investigates the timeliness of accounting information, Bagaeva (2008), who documents that international stock ownership leads to enhanced quality and adoptions or intentions to adopt IFRS by Russian firms, and Kim (2013), who analyses the value relevance of accounting IFRS adoption. In the South African market, Rahaman (2010) provides an up to date review of local accounting literature and confirms the scarce empirical evidence.

Few papers deal with joint analysis of BRICS countries (Bao, 2009). While those countries have enormous differences in economic, institutional and regulatory environments, they represent the most relevant developing economies in local regions, i.e. Latin America, Western Europe, South and Western Asia and Africa for Brazil, Russia, India, China and South Africa, respectively. The relevance of the group can be illustrated by the recent commercial and financial cooperation agreement and the creation of a common developing bank.

Specifically, the relevance of BRICS to scientific literature lays on the fact that those countries (BRICS) assumed key positions in their geographical locations, acting as main local players due to their size, economic and political relevance. According to Cardoso (2012), soon after the end of bi-polarization of the world between EUA and USSR, several players started to gain relevance due to local and global influence, including the European Union and emerging economies.

METHODOLOGY AND EXPECTED RESULTS

The accounting and finance literature suggests that ERC is a positive and statistically significant coefficient indicating that innovations in earnings are informative about future earnings expectation. In this context, earnings innovation refers to the unexpected portion of earnings. In other words, given that market agents have expectations about future earnings, all variation (or innovation) in expected earnings are supposed to represent new information and this new information will affect stock prices. The ERC is the way (or the magnitude) in which the market agents react to this new information by re-estimating the current stock price. The general basic estimation assumes that ERC is the slope coefficient, γ_1, in the linear regression between stock return, *R*, on unexpected earnings, *UX*, that can be described as:

$$R_{it} = \lambda_0 + \lambda_1 UX_{it} + e_{it} \quad (1)$$

where,
R_{it} = returns for firm *i* cumulated over year *t*,
UX_{it} = unexpected earnings for firm *i* in the year *t*,
e_{it} = error term.

Consistent with the valuation model derived in Collins and Kothari (1989), the measure of unexpected earnings (*UX*) is the widely accepted and well documented earnings change scaled by the beginning-of-period market value of equity. Specifically, *UX* is calculated by the nominal variation of earnings, *E*, in the fiscal year *t* scaled by the market capitalization in the beginning of the period, MV_{t-1}. Thus, $UX_{it} = (E_{it} - E_{i,t-1}) / MV_{i,t-1}$, where the implicit assumption is that earnings follow a random walk process which assumes that the current period's annual earnings is the best unbiased expectation of the next period's earnings (Ariff *et al*., 2013).

In this paper, the return related to market reaction to innovation in earnings is the annual returns calculated from April of year *t* to March of *t* + 1 to capture any return reaction associated with the announcement of earnings for year *t*, for each firm.

The variables were collected on a firm-level for each country and the analyses were conducted considering each specific country and their specific market components and parameters. In other words, considering differences in currency, accounting standards and market and macroeconomic characteristics, the analyses were conducted separately for each country without grouping all countries in one regression.

Since this paper focuses mainly on the comparison of estimated ERC across countries controlled for (i) non-linear effect, (ii) negative numbers, (iii) firm size and (iv) time component (years), the next step was to control for these variables. The two first controlling variables account for earnings patterns. The third variable, size, can account for both information content and risk. Finally, the time component accounts for potential variations in returns derived from year-specific macroeconomic conditions and for an eventual improvement in the market ability to recognize information in earnings.

The control for the non-linear relationship between unexpected earnings and return follows the same methodology presented in Freeman and Tse (1992) and Chambers *et al*. (2005), who measured the non-linear effects, *NLEF*, as the rank-order of absolute values of unexpected earnings (*UX*): $NLEF_{it} = (|UX|Ranq_{it} - 1) / (N - 1)$, where $|UE|Ranq_{it}$ is the rank of the absolute value of *UX* of firm *i* at year *t* with *N* being the number of observations at a given year. The interactive term of *NLEF* is expected to have a negative and significant effect on ERC, since a higher absolute value of *UX* tends to decrease in the magnitude of ERC. The empirical model is:

$$R_{it} = \lambda_0 + \lambda_1 UX_{it} + \lambda_2 NLEF_{it} * UX_{it} + e_{it} \quad (2)$$

Similar to Hayn (1995), a second dimension of earnings patterns is the presence of negative unexpected earnings, *NEG*, measured as a dummy variable that assumes 1 for negative unexpected earnings and 0 otherwise. The interactive term of *NEG* is expected to have a negative and significant effect on ERC, since the information content of losses suggests that managers are likely to promptly act in order to revert unexpected and sometimes transitory earnings, generating lower market reactions. The empirical model is:

$$R_{it} = \lambda_0 + \lambda_1 UX_{it} + \lambda_2 NEG_{it} * UX_{it} + e_{it} \quad (3)$$

In both cases, i.e., non-linear and negative earnings effects, the underlying idea is that unexpected extreme values of transitory earnings and unexpected negative earnings are less persistent and do not affect stock prices in the same magnitude

(Freeman and Tse, 1992; Hayn, 1995). As a consequence of both effects (non-linearity and losses), one can expect the ERC to be a decreasing function of both variables *NLEF* and *NEG* (i.e. negative relations between ERC and losses and non-linear effects are expected).

The empirical literature has documented that firm size is a determinant of earnings quality (Dechow *et al*., 2010). In this paper, size (*SIZE*) is the standardized total assets, in which, $SIZE_{it}$ = ($TAssets_{it}$ - 1) / (N - 1), where $TAssets_{it}$ is the natural logarithm of total assets of a firm i in year t, and N represents the number of observations in that year. Typically, firm size can be correlated to other economic variables such as risk (negative relation), stock liquidity (negative relation) and information environment (positive relation). As a consequence, the role of size can be puzzling. However, given the exploratory nature of this paper and considering that the level of market efficiency in emerging markets is not fully known, one should expect a positive effect of size in the ERC derived from the higher information content, analyst coverage and contractual costs (Collins *et al*., 1987). The empirical model becomes:

$$R_{it} = \lambda_0 + \lambda_1 UX_{it} + \lambda_2 SIZE_{it} * UX_{it} + e_{it} \quad (4)$$

Finally, the entire period (1995-2013) includes significant shifts in capital market structure, macroeconomic and institutional environments and accounting standards. In particular, one can expect higher market development and enhancement in the later years compared with the early periods of market liberalization in the 90s and beginning of 2000's. Thus, annual dummy variables were included in the empirical model in order to control for those changing macroeconomic and institutional aspects. The dummy variables are included in all the empirical models presented above to control for market (returns) variations and other macro aspects common to all firms in a specific market.

This paper also analyzed the joint interactions of all variables in one broader equation:

$$R_{it} = \lambda_0 + \lambda_1 UX_{it} + \lambda_2 NLEF_{it} * UX_{it} + \lambda_3 NEG_{it} * UX_{it} + \lambda_4 SIZE_{it} * UX_{it} + e_{it} \quad (5)$$

Eq. 5 was estimated with and without the annual dummy variables. Equations were estimated in STATA and the econometrical specifications are presented and discussed in the following sections. The estimations of ERC can be conducted in firm-specific or pooled regressions. This paper uses pooled regressions by following recent evidence documented in Freeman *et al*. (2011, p. 35), who document that "ERCs from firm-specific regressions provide less accurate predictions of price responses to future earnings surprises than ERCs from pooled regressions".

SAMPLE AND DATA

The sample is composed by firms listed in the five main emerging markets in terms of size and local geographical influence (Brazil, China, India, Russia and South Africa – BRICS). Data were collected from Datastream database from 1995 to 2013 and the sample includes a total of 2,290 listed firms in all the BRICS stock markets. Specifically, data were collected from 2,22 firms listed in Brazil, 174 in Russia, 373 in India, 1,287 in China, and 234 in South Africa.

The sample consists of non-financial firms and the selection was driven by data availability and minimum stock liquidity. All firms with a minimum of six consecutive observations were included in the sample. Since the unexpected earnings measure considers the earnings variation, each company should have at least five observations. The liquidity criteria required for Brazilian, Russian and South African firms is a minimum of one stock price information per month and for Indian and

Table 1. *Sample description and relevance.*

	Market capitalization at the end of 2013 (in US$ million)			Number of firms		
	Available at Datastream	Sample	Sample/ Datastream (in %)	Available at Datastream	Sample	Sample/ Datastream (in %)
Brazil	1.020.455	657.405	64,4%	352	222	63,1%
Russia	770.657	603.320	78,3%	261	174	66,7%
India	2.251.786	925.081	41,1%	6.972	373	5,3%
China	3.949.143	2.104.287	53,3%	2.489	1287	51,7%
SouthAfrica	942.812	361.332	38,3%	322	234	72,7%
BRICS	**8.934.854**	**4.651.425**	**52,1%**	**10.396**	**2.290**	**22,0%**

Note: The first columns in each panel show market capitalization and number of firms of all firms available at Datastream at the end of 2013. The "sample" refers to firms included in the current study that attended the selection process that included the following requisites: (1) not to be a financial firm or a firm of financial services; (2) to have a minimum liquidity threshold; and (3) to have a minimum number of observations.

Chinese firms, the liquidity criteria is to be a member of the local Thomson Reuters index. Overall, the empirical analysis consists of 24,437 firm-year observations (BR:2779, CH:13675, IN:4207, RS:1042, SA:2734).

Table 1 shows the description of the sample in terms of its representativeness according to the market capitalization and the number of firms in relation to the total information available at Datastream. In average, the sample in this paper represents 54% of total market capitalization of BRICS stock exchanges according to the data available at Datastream. The Russian sample is the most representative in terms of market capitalization (78.3% of the total in Datastream) and South Africa has the lowest representativeness in market capitalization terms (38.3%). In terms of number of firms, the representativeness is low (22% of the total), where Russia has the most representative sample (66.7%) and India the least (5,3%). The difference between representativeness according to market capitalization and number of firms is caused by concentration of the market. For instance, Russia is the country with the lowest number of companies and most concentrate market capitalization into a small number of firms. On the other hand, India has the least concentrate market with many small firms that have little relevance to the total market capitalization in the country.

Most of the difference between the total information available at Datastream and the sample in this paper is explained by financial institutions and financial service firms and related by firms which did not achieve the minimum data requirement of stock liquidity and a minimum data availability of six consecutive year-observations.

The total period of analysis (1995-2013) coincides with the reductions in and/or eliminations of commercial barriers to international market and international capital movements in most of the countries analysed. Additionally, most of the data availability for the five emerging countries starts during the second half of the 90's. Thus, the length analysed covers the entire period of consistent dada available in Datastream. This period is strongly characterised by several economic, political and institutional changes in each country. As stated previously in this paper, the ERC is typically measured in terms of a long-term relationship between stock market movements and innovation in earnings. Thus, events like financial crises, such as that in 2008, can significantly affect the magnitude of ERC, especially towards zero. However, these events and macro changes can easily be accommodated in the ERC estimation process, since transitory or non-transitory effects have an impact in the magnitude of ERC. Financial crisis, for instance, usually leads to overreaction of markets participants in relation to future earnings expectation; however, this overreaction is not persistent overtime (Chen and Sauer, 1997), suggesting ERC can return to equilibrium in the long run.

In order to account for theses macro changes in economic e institutional environment, this paper also includes in the empirical analysis year-specific dummy variables and analyses the effects of non-linearity in unexpected earnings, negative earnings and size.

Historical earnings (*X*) is the reported earnings in local currency and under local accounting practices, which include the later earnings lengths of IFRS for all countries but India. The unexpected earnings (*UX*) is calculated as the annual earnings variation scaled by market price, $UX_{it} = (E_{it} - E_{i,t-1}) / MV_{i,t-1}$, where the market value of equity is the market capitalization at the end of year *t*. Under this unexpected earnings estimation, variations in accounting practices along time are also assumed to provide new information in earnings as a measure of fundamental financial performance. Thus, market agents react in response to changes in fundamental performance and accounting methods, provided that the former is more (or less) informative about the "true" fundamental financial performance (Dechow *et al.*, 2010).

The annual returns are calculated from April of year *t* to March of $t + 1$ to capture any return reaction associated with the announcement of earnings for year *t*, for each firm. The return is measured as continuous capitalization by considering a buy-and-hold strategy as: $RET_t = \ln(P_t / P_{t-1})$, where P_t is the closing price at the end of the month adjusted to dividends. Thus, returns are estimated from the end of March (of year *t*) to the end of April and it is commonly assumed that a twelve-month period of return accumulation reflects the "surprise" of new information caused by earnings report (Collins and Kothari, 1989). Particularly, Collins and Kothari (1989) suggest that, in earnings-returns studies, the nominal *ex post* return can be an appropriate measure of return for three reasons: (1) *ex ante* measures of riskless rates and risk premia are not readily available; then, return expectation conditional to the realized market return introduces error into the return metric; (2) the variability in unexpected return is small when compared to the temporal and cross-sectional variability in RET; (3) earnings/returns relation is essentially the same whether one uses R_{it}, inclusive or exclusive of dividends or market model prediction errors.

In accordance with the literature (Frankel and Litov, 2009), unexpected earnings and stock returns were winsorized at 1%, in order to attenuate effects of outliers. Finally, information of total assets was also collected as a proxy for size.

EMPIRICAL ANALYSIS

ESTIMATION OF THE BASIC EMPIRICAL MODEL

The empirical estimation of Eq. 1, with and without annual dummy variables, was conducted under pooled ordinary least squares (OLS) methodology. The choice of econometric estimation is based on both an economic reason and the nature of the data characteristics. First, this paper mainly compares the ERC among the five BRICS countries and the main focus is on

Table 2. *Basic estimation of ERC across the five countries (Eq. 1).*

Panel A – Basic ERC estimation					
	Brazil	**China**	**India**	**Russia**	**South Africa**
Const.	0,068***	0,025***	0,116***	-0,020	0,041***
	[7.8]	[11.9]	[17.2]	[-1.3]	[3.9]
UX	0,031***	1,986***	0,305***	0,277***	0,015***
	[2.9]	[20.3]	[4.3]	[3.9]	[3.0]
Obs	2779	13680	4209	1042	2736
Rquad	0,006	0,067	0,006	0,025	0,006
Wald χquad	8,5***	412,4***	18,4***	15,7***	9,0***
Hausman	1,8	3,8*	3,5*	0,0	6,4**
Breusch & Pagan	0,0	0,0	0,0	0,0	0,1
Panel B – Basic ERC estimation with dummy variables for year					
	Brazil	**China**	**India**	**Russia**	**South Africa**
Const.	-0,008	0,698***	-0,102***	0,349	-0,259***
	[-0.1]	[11.0]	[-2.6]	[1.3]	[-5.3]
UX	0,024**	1,086***	0,272***	0,185***	0,012***
	[2.3]	[16.3]	[4.9]	[3.3]	[2.7]
1997	-0,111	-0,629***	-0,096**		0,041
1998	-0,363***	-0,781***	0,172***		0,029
1999	0,538***	-0,451***	0,548***	1,044***	0,422***
2000	0,157	-0,357***	-0,264***	-0,653**	0,013
2001	-0,146	-1,146***	-0,141***	0,219	0,351***
2002	-0,036	-0,625***	0,311***	-0,123	0,361***
2003	0,408***	-0,883***	0,851***	-0,081	0,449***
2004	0,265***	-1,017***	0,467***	-0,221	0,507***
2005	0,169*	-0,799***	0,635***	0,356	0,595***
2006	0,365***	-0,129**	0,346***	-0,121	0,487***
2007	0,304***	-0,017	0,253***	-0,341	0,282***
2008	-0,517***	-1,433***	-0,746***	-1,533***	-0,146**
2009	0,510***	-0,064	0,966***	0,566**	0,341***
2010	0,018	-0,657***	0,193***	-0,067	0,362***
2011	-0,086	-1,012***	-0,040	-0,699**	0,270***
2012	-0,080	-0,638***	0,312***	-0,435	0,306***
2013	-0,133	-0,714***	0,071*	-0,614**	0,263***
Obs	2779	13680	4209	1042	2736
Rquad	0,243	0,689	0,496	0,539	0,142
Wald χquad	650,5***	25436,4***	2482,8***	887,1***	409,5***
Hausman	5,4	14,9	27,7*	6,2	50,2***
Breusch & Pagan	0,0	0,0	3,1**	0,0	1,8

Note: Const. is the constant term. The dependent variable is stock returns estimated from April of year *t* to March *t+1*. UX is the measure of unexpected earnings, earnings changes scaled by the beginning-of-period price. ***, ** and * indicates significance at 1%, 5% and 10% levels, respectively.

country characteristics, not at a firm level, necessarily. Thus, it is not unacceptable to assume unique coefficients for all firms in a given country, since the estimated coefficients should proxy for a country-level ERC. Second, recent evidence in Freeman *et al*. (2011) shows that pooled regressions outperform firm-specific regressions in estimating the ERC. Finally, the pooled assumptions are confirmed by considering the nature or the data, that is, poolability tests do not reject the null hypothesis that specific variance components are equal to zero ($H_0 : \sigma_u^2 = 0$), suggesting statistical homogeneity of the variable of interest between individuals for the majority of the countries. In this regard, Table 2 shows diagnostic Hausman's and Breusch-Pagan's tests for potential correlations between the error components and regressors and for homogeneity of variance components, respectively. All the estimations considered White's robust estimation with diagonal heteroskedasticity corrections.

Table 2 presents the results of the basic model where Panel A does not account for controls in annual stock return variations and Panel B includes dummy variables to control for variations in annual stock returns. The results for the basic model suggest, as expected, a positive and significant relationship between earnings innovation (unexpected earnings) and stock return variations. Although the coefficients are positive and significant, the R^2 is low (close to zero) for all countries, suggesting, as expected, that other variables can better explain the variations in stock returns. When dummy variables are included in the model, the R^2 is sharply increased to higher levels. Moreover, most part of the dummy variables is statistically significant at standard levels, suggesting that variations in macroeconomic conditions are more relevant to explain stock prices. This evidence is substantially consistent with Ball and Shivakumar (2008), who suggest that reported earnings are just a small portion component of stock price movements and that earnings have marginal explanatory power for price components, since it mainly has confirmatory properties.

When the countries are compared, Brazil and South Africa seem to have lower ERC and R^2, suggesting a lower relevance of earnings news to market agents when compared to the three other countries. On the other side, earnings innovation seems to play a more relevant role in the Chinese market, since earnings are assumed to have the higher marginal explanatory power to define stock prices.

Overall, Table 2 documents that, for all evaluated countries, the innovation in reported earnings is significant and marginally incremental in different magnitudes to explain stock prices variation. While the results documented in Table 2 are highly expected and documented in the literature, the reasons for the low relevance and for the differences between the countries can provide avenues for future research. The next sections start with some straightforward analyses aiming to explain the results by specifically analysing firm-specific earnings patterns (the non-linear effect and the negative earnings effect) and both information content and risk (proxied by firm size).

EFFECTS OF NON-LINEARITY, NEGATIVE EARNINGS AND SIZE

Considering the well documented effects of non-linearity, negative earnings and size effects and the potential higher explanatory ability of these variables in emerging markets (as discussed before), Table 3 analyses each effect individually for the five countries in the Panel A, B and C, respectively. Annual dummy variables are included in the estimation but they are not presented for brevity purposes.

Panel A shows negative and significant non-linear effects of extreme earnings in the ERC in all countries but Russia. This means that high magnitudes of earnings changes (high unexpected earnings) are likely to be related to lower responsiveness of market agents (low ERC). The explanation to this phenomenon is simple: extreme earnings variations are expected to revert in the medium and long-term. As a consequence, market agents do not react in the same magnitude as the earnings variation, reducing the ERC. In the Russian case, although the coefficient is negative, it is not possible to strongly support this effect.

The second effect of earnings pattern in the market responsiveness to earnings announcement is the effect of losses. Specifically, negative unexpected earnings are assumed to revert more quickly to positive earnings and, as a consequence, negative earnings should be negative related to ERC. Put in other words, given the assumption of entity going concern and firm growth, market agents are expected to put lower relevance on unexpected losses (since it tends to revert) rather than in positive news. The significant negative effect of unexpected losses is documented in Panel B of Table 3 for Brazil, India and Russia, while results for China and South Africa are intriguingly positive and significant. On the one hand, Brazil, India and Russia confirm the negative hypothesis, since negative unexpected earnings lead to lower revision of earnings expectation and lower ERC, whereas China and South Africa show that market agents put more weight on unexpected losses by increasing the reaction to negative information in earnings. While the Chinese and South African evidence are not expected from a theoretical point of view, at least two potential explanations can be highlighted: first, in those countries, negative news can be more persistent over time and impact future financial performance in a negative way. Second, given the set of alternative options of investments available to investors, negative earnings can lead to significant reduction in the attractiveness of firm-specific option; as a consequence, investors can overreact to negative news in earnings.

Panel C of Table 3 finally displays the results considering firm size as a determinant of ERC by proxying for information content and risk. Here, results are also conflicting across countries, since SIZE is significant only for the Brazilian and the Chinese market. The results, however, are not surprising because the evidence regarding size is also conflicting in the

Table 3. *Estimation of ERC controlled for non-linear, negative and size effects individually (Eq. 2, 3, 4).*

Panel A – ERC estimation interacted with non linear measure (non linear effect)					
	Brazil	**China**	**India**	**Russia**	**South Africa**
Const.	-0,022	0,684***	-0,120***	0,309	-0,260***
	[-0.2]	[11.4]	[-3.0]	[1.1]	[-5.4]
UX	1,196***	15,128***	4,187***	0,336	1,109***
	[7.2]	[27.9]	[6.7]	[0.6]	[6.6]
UX*NLEF	-1,210***	-14,824***	-4,092***	-0,158	-1,122***
	[-7.1]	[-25.6]	[-6.3]	[-0.3]	[-6.5]
Rquad	0,262	0,712	0,502	0,540	0,163
Wald χquad	729,2***	29243,9***	2632,5***	977,1***	430,4***
Hausman	5,7	18,0	51,0***	7,1	24,5
Breusch & Pagan	0,0	0,0	0,0	0,0	0,7
Panel B – ERC estimation interacted with negative earnings (negative earnings effect)					
	Brazil	**China**	**India**	**Russia**	**South Africa**
Const.	-0,026	0,711***	-0,107***	0,295	-0,257***
	[-0.3]	[11.1]	[-2.7]	[1.0]	[-5.3]
UX	0,049***	0,890***	0,383***	0,296***	0,007*
	[3.3]	[10.9]	[5.6]	[4.2]	[1.7]
UX*NEG	-0,045***	0,614***	-0,360***	-0,290***	0,028**
	[-2.8]	[5.6]	[-2.5]	[-2.6]	[2.0]
Rquad	0,246	0,690	0,497	0,544	0,143
Wald χquad	654,1***	25990,5	2532,3	1676,9	412,9
Hausman	19,8	78,4	84,0***	19,9	96,8***
Breusch & Pagan	0,0	0,0	0,8	0,0	2,0*
Panel A – ERC estimation interacted with size (size effect)					
	Brazil	**China**	**India**	**Russia**	**South Africa**
Cons	0,012	0,704***	-0,102***	0,344	-0,259***
	[0.1]	[10.9]	[-2.6]	[1.3]	[-5.3]
UX	-0,007	0,494***	0,285**	0,238**	0,034
	[-0.5]	[4.4]	[2.1]	[2.3]	[1.3]
UX*SIZE	0,121***	1,209***	-0,028	-0,117	-0,032
	[2.5]	[6.6]	[-0.1]	[-0.5]	[-1.0]
Rquad	0,247	0,692	0,496	0,540	0,142
Wald χquad	676,5***	25686,2***	2514,7***	1174,7***	410,1***
Hausman	5,6	17,4	27,5*	6,5	40,9***
Breusch & Pagan	0,0	0,0	3,2**	0,0	1,9*

Note: Const. is the constant term. The dependent variable is stock returns estimated from April of year *t* to March *t+1*. UX is the measure of unexpected earnings, earnings changes scaled by the beginning-of-period price. NLEF is the standardized rank of magnitude of unexpected earnings (*UX*). NEG is a dummy variable assuming 1 for negative unexpected annual earnings. SIZE is the standardized rank of total assets. ***, ** and * indicates significance at 1%, 5% and 10% levels, respectively.

Table 4. *Estimation of ERC controlled for join effects of non-linearity, negative earnings and size (Eq. 5).*

	Brazil	China	India	Russia	South Africa
Const.	-0,024	0,687***	-0,127***	0,303	-0,260***
	[-0,3]	[11,3]	[-3,2]	[1,1]	[-5,4]
UX	1,108***	14,506***	4,854***	0,681	1,089***
	[6,1]	[26,8]	[7,8]	[1,2]	[6,7]
UX*NLEF	-1,115***	-14,622***	-4,600***	-0,377	-1,100***
	[-6,2]	[-26,1]	[-7,1]	[-0,7]	[-6,7]
UX*NEG	0,0**	-0,1	-0,5***	-0,3***	0,0
	[-2,2]	[-0,8]	[-3,3]	[-2,7]	[0,4]
UX*SIZE	0,055	0,934***	-0,062	-0,052	-0,004
	[1,4]	[5,9]	[-0,3]	[-0,2]	[-0,2]
Obs	2779	13675	4207	1042	2734
Rquad	0,3	0,7	0,5	0,5	0,2
Wald χquad	756,0	29356,1	2704,0	3501,3	438,7
Hausman	17,8	57,6***	93,7***	20,2	55,4***
Breusch & Pagan	0,0	0,0	0,0	0,0	0,7
Chow	0,8	0,6	1,1	0,8	1,3***

Note: Const. is the constant term. The dependent variable is stock returns estimated from April of year *t* to March *t+1*. UX is the measure of unexpected earnings, earnings changes scaled by the beginning-of-period price. NLEF is the standardized rank of magnitude of unexpected earnings (*UX*). NEG is a dummy variable assuming 1 for negative unexpected annual earnings. SIZE is the standardized rank of total assets. ***, ** and * indicates significance at 1%, 5% and 10% levels, respectively.

international literature. As discussed previously in this paper, firm size can be correlated to other economic variables, such as risk (negative relation), stock liquidity (negative relation) and information environment (positive relation). In Brazil and China, the information content of larger firms (or other variable positive related with size and ERC) seems to offset the other variables. This means that the magnitude of ERC is higher for larger firms, typically with higher analyst coverage and higher public exposition than for small firms. This positive relation does not hold true in India, Russia and South Africa.

Since, in practice, these three effects (non-linear, negative and size effects) jointly affect firms along the years, this paper also estimates the joint effect of interactions of the variables in one broader equation (Eq. 5). Empirical estimations also consider the annual dummy variable, but the coefficients for annual effect are not displayed for brevity purposes.

The results are presented in Table 4 and, in general, they support the individual evidence with a few differences: first, when the variables are simultaneously analysed the negative effect of NLEF loses its significance in Russia, suggesting that, for this country, the negative effect is more relevant and offsets the other effects in ERC. Second, and more importantly, the positive and significant coefficients in NEG, documented in China and South Africa lose their significance when jointly analysed with other variables. This evidence sheds some light in the intriguing findings displayed in Table 3, since it suggests that the positive effect of unexpected losses on ERC is offset by NLEF, which can indicate a significant association between NLEF and NEG in the sense that more extreme magnitudes of unexpected earnings are associated with losses (correspondence analysis confirm this idea). Finally, the firm size effect in Brazil loses its significance, suggesting that, when jointly estimated, the two first effects (NLED and NEG) are more relevant to explain differences in ERC than size.

The results in this paper support the incremental relevance of earnings innovation to market agents in all BRICS countries. However, the relevance of earnings surprise is a decreasing function of non-linear effects (extreme unexpected values) for all countries but Russia. This means that extreme unexpected magnitudes of earnings are not incorporated by market agents in the same manner. This non-linear effect is explained by the transitory nature of extreme values. Additionally, the relevance of earnings surprise is a decreasing function of negative effects of unexpected earnings in Brazil, India and Russia, while it does not hold true for China and South Africa. Finally, this paper does not document a relevant effect of firm size in any of the evaluated countries, except in China.

Overall, this paper shows that, although the accounting information has relevant implications to stock prices and firm valuation in all analysed emerging markets, the determinants

of the extension to which market agents incorporate this information in earnings vary across countries as a context-specific component. While this paper accounts for firm-specific earnings patterns in earnings (non-linear and negative effects) and for firm size (potential proxy for information content and risk), other economic and institutional determinant variables can enhance results and estimation of market-based research and valuation in emerging markets. A direct implication to the differences across countries is that researchers and practitioners should continuously investigate the determinants and differences in the earning-return studies in order to build up a solid and comprehensive body of literature indicating how agents in emerging markets valuate their firms and how they incorporate accounting information into stock prices.

ADDITIONAL TESTS FOR CONSISTENCY AND LIMITATIONS OF THE STUDY

As many market-based accounting studies, the conclusions of this paper are subject to measurement error in the variables and bias in the sample selection. Although this paper follows the most relevant literature in this subject, there are still possibilities of measurement error for the most 'unobserved' variables. In order to deal with return expectation conditioned to market realization, this paper also applied the market model to estimate expected stock returns and treated unexpected stock returns as the difference between expected return (according to market model) and realized (current) return. Although some punctual differences across countries were found, the nature of the overall results remains the same.

Additionally, different periods of market return accumulation can generate different results in market return association (Collings and Kothari, 1989). Following the relevant literature, this paper assumed the twelve-month accumulation period of market returns from April to March can reflect the surprise of new information in earnings. Implicitly to this idea is the fact that all firms have reported their financial information during the accumulation period. We did not control if one specific firm in one specific year reported earnings after this accumulation period. While this can have a more relevant impact on (short-term) event studies, it can, however, affect in the long run ERC by systematic and recurrent delay in reporting earnings.

As the Hausman's, Breusch-Pagan's and Chow's tests displayed in the tables show, some of the country-specific regressions violate the poolability assumption in favour of fixed or random effects (especially South Africa and India). As a consequence, the specific estimations considering fixed or random effects were performed and the results remained the same under the fixed and/or random effects. All the estimations considered White's diagonal heteroskedasticity corrections and are available under request.

FINAL REMARKS AND FUTURE EXTENSIONS

This paper analyzed and compared the market reaction to earnings innovation in the five main emerging economies – Brazil, Russia, India, China and South Africa (BRICS) – by, differently from previous literature, focusing on the comparison of estimated ERC across countries controlled for (i) non-linear effect, (ii) negative numbers, (iii) firm size, and (iv) time component (years). The analysis was based on 31,159 firm-year observations from a total sample of 2,290 listed firms from 1995 to 2013.

The results showed that although accounting information has marginal relevant implications to stock prices and firm valuation in all the emerging markets analysed, the determinants of the extension to which market agents incorporate these information in earnings vary across countries as a context-specific component. Particularly, during the period analysed, Brazil and South Africa presented the lowest market reaction to earnings news (measured by R^2), whereas China presented the highest. These results can be interpreted in two different ways: first, earnings-returns association with low R^2 can be explained by low market efficiency in incorporating new information about earnings *and/or* low relevance of accounting earnings to equity valuation. Second, low R^2 can be due to a high market ability to anticipate variation in future earnings; this would suggest that market agents are efficient with regard to future information. The appropriate answer to these alternative hypotheses lies on the differences in timeliness between the markets. While this paper contributes to the literature by documenting these differences, future studies can benefit from the results to analyse timeliness differences, value relevance and other dimensions of the relation between accounting numbers and capital markets.

Additionally, this paper documents that controlling ERC estimation for time (annual) variation is important and that the nonlinear effect of unexpected earnings in ERC is a common trend in all evaluated countries (i.e. a negative and significant relationship between ERC and nonlinear effects was documented) with the exception of Russia. The negative earnings effect in ERC is documented in Brazil, India and Russia (i.e. a negative and significant relationship between ERC and unexpected losses was documented) while it does not hold true for China and South Africa. Only in China a significant effect of firm size in the way market agents incorporate earnings information in the long run is observed (i.e. only China showed a significant and positive effect of firm size on ERC).

Overall, this paper documents that effects of non-linearity, negative earnings and size (potential proxy for information content and risk) play different roles in each analysed country. The results suggest that the empirical evidence in the US market does not apply equally and systematically to all other markets, particularly when considering the five biggest emerging markets. Hence, this paper contributes to the

literature by showing that other economic and institutional determinant variables must be considered in order to enhance results and estimation of market-based research and valuation in emerging markets.

While this paper accounts for firm-specific earning patterns in earnings (non-linear and negative effects) and for firm size, other economic and institutional determinant variables can enhance results and estimation of market-based research and valuation in emerging markets. Thus, researchers and practitioners should continuously investigate the determinants and differences in the earning-return studies in order to build up a solid and comprehensive body of literature, indicating how agents in emerging markets valuate their firms and how they incorporate accounting information into stock prices. Hence, future research may decompose earnings in order to address the reasons why market model beta fails to explain cross-sectional variance in ERC and/or explore the time-determinants of ERC in Brazil or other emerging markets.

REFERENCES

ALFORD, A.W. 1992. The effect of the set of comparable firms on the accuracy of the price-earnings valuation method. *Journal of Accounting Research,* **30**(1):94-108. http://dx.doi.org/10.2307/2491093

ARIFF, M.; FAH, C.F.; NI, S.W. 2013. Earnings response coefficients of OECD banks: Tests extended to include bank risk factors. *Advances in Accounting,* **29**(1):97-107. http://dx.doi.org/10.1016/j.adiac.2013.03.003

BAGAEVA, A. 2008. An examination of the effect of international investors on accounting information quality in Russia. *Advances in Accounting,* **24**(2):157-161. http://dx.doi.org/10.1016/j.adiac.2008.08.001

BALL, R.A.Y.; SADKA, G.I.L.; SADKA, R. 2009. Aggregate Earnings and Asset Prices. *Journal of Accounting Research,* **47**(5):1097-1133. http://dx.doi.org/10.1111/j.1475-679X.2009.00351.x

BALL, R.A.Y.; SHIVAKUMAR, L. 2008. How Much New Information Is There in Earnings? *Journal of Accounting Research,* **46**(5): 975-1016. http://dx.doi.org/10.1111/j.1475-679x.2008.00299.x

BAO, D.-H. 2009. Usefulness of financial information in evaluation of BRIC firms. *Advances in Accounting,* **25**(2):200-207. http://dx.doi.org/10.1016/j.adiac.2009.08.006

BASU, S. 1997. The conservatism principle and the asymmetric timeliness of earnings1. *Journal of Accounting and Economics,* **24**(1):3-37. http://dx.doi.org/10.1016/S0165-4101(97)00014-1

CARDOSO, F.H. 2012. *Xadrez internacional e social-democracia*. Alfragide, Don Quixote, 3992 p.

CHAMBERS, D.J.; FREEMAN, R.N.; KOCH, A.S. 2005. The effect of risk on price responses to unexpected earnings. *Journal of Accounting, Auditing & Finance,* **20**(4):461-482.

CHEN, C.R.; SAUER, D.A. 1997. Is stock market overreaction persistent over time? *Journal of Business Finance & Accounting*, **24**(1):51-66. http://dx.doi.org/10.1111/1468-5957.00094

COLLINS, D.W.; KOTHARI, S. 1989. An analysis of intertemporal and cross-sectional determinants of earnings response coefficients. *Journal of Accounting and Economics*, **11**(2):143-181. http://dx.doi.org/10.1016/0165-4101(89)90004-9

COLLINS, D.W.; KOTHARI, S.P.; RAYBURN, J.D. 1987. Firm size and the information content of prices with respect to earnings. *Journal of Accounting and Economics*, **9**(2):111-138. http://dx.doi.org/10.1016/0165-4101(87)90002-4

DECHOW, P.; GE, W.; SCHRAND, C. 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics,* **50**(2-3):344-401. http://dx.doi.org/10.1016/j.jacceco.2010.09.001

EASTON, P.D.; ZMIJEWSKI, M.E. 1989. Cross-sectional variation in the stock market response to accounting earnings announcements. *Journal of Accounting and Economics,* **11**(2):117-141. http://dx.doi.org/10.1016/0165-4101(89)90003-7

FRANKEL, R.; LEE, C. 1998. Accounting valuation, market expectation, and cross-sectional stock returns. *Journal of Accounting and Economics*, **25**(3): 283-319. http://dx.doi.org/10.1016/S0165-4101(98)00026-3

FRANKEL, R.; LITOV, L. 2009. Earnings persistence. *Journal of Accounting and Economics*, **47**(1):182-190. http://dx.doi.org/10.1016/j.jacceco.2008.11.008

FREEMAN, R.N.; KOCH, A.; LI, H. 2011. Can historical returns-earnings relations predict price responses to earnings news? *Review of Quantitative Finance and Accounting,* **37**(1):35-62. http://dx.doi.org/10.1007/s11156-010-0194-z

FREEMAN, R.N.; TSE, S.Y. 1992. A Nonlinear Model of Security Price Responses to Unexpected Earnings. *Journal of Accounting Research,* **30**(2):185-209. http://dx.doi.org/10.2307/2491123

GALDI, F.C.; LOPES, A.B. 2008. Relação de longo prazo e causalidade entre o lucro contábil eo preço das ações: evidências do mercado latino-americano. *Revista de Administração,* **43**(2):186-201.

GORDON, E.A.; GREINER, A.; KOHLBECK, M.J.; LIN, S.; SKAIFE, H. 2013. Challenges and Opportunities in Cross-Country Accounting Research. *Accounting Horizons,* **27**(1):141-154. http://dx.doi.org/10.2308/acch-50301

HAYN, C. 1995. The information content of losses. *Journal of Accounting and Economics,* **20**(2): 125-153. http://dx.doi.org/10.1016/0165-4101(95)00397-2

IQBAL, T.H. 2014. Seasonal Analysis of Abnormal Returns after Quarterly Earnings Announcements. *International Journal of Accounting and Financial Reporting,* **4**(2):501-519.

IQBAL, T.H.; MALLIKARJUNAPPA, T. 2007. Stock price reactions to earnings announcement. *ACRM Journal of Business and Management Research,* **2**(1):10-15.

JENKINS, D.S. 2003. The transitory nature of negative earnings and the implications for earnings prediction and stock valuation. *Review of Quantitative Finance and Accounting,* **21**(4):379-404. http://dx.doi.org/10.1023/B:REQU.0000004784.30694.0c

KIM, O. 2013. Russian Accounting System: Value Relevance of Reported Information and the IFRS Adoption Perspective. *The International Journal of Accounting,* **48**(4):525-547. http://dx.doi.org/10.1016/j.intacc.2013.10.007

KORMENDI, R.; LIPE, R. 1987. Earnings innovations, earnings persistence, and stock returns. *Journal of business,* **60**(3):323-345. http://dx.doi.org/10.1086/296400

KOTHARI, S.P. 2001. Capital markets research in accounting. *Journal of Accounting and Economics*, **31**(1-3):105-231. http://dx.doi.org/10.1016/S0165-4101(01)00030-1

LIPE, R.C.; BRYANT, L.; WIDENER, S.K. 1998. Do nonlinearity, firm-specific coefficients, and losses represent distinct factors in the relation between stock returns and accounting earnings? *Journal of Accounting and Economics*, **25**(2):195-214. http://dx.doi.org/10.1016/S0165-4101(98)00022-6

MALLIKARJUNAPPA, T. 2004. How do the Indian stock prices react to quarterly earnings? *ICFAI Journal of Applied Finance*, **10**(3):37-48.

MCGEE, R. 2009. The Timeliness of Financial Reporting in Russia: A Trend Analysis. *In:* R. MCGEE (ed.), *Corporate Governance in Transition Economies*. Springer US, p. 181-188. Disponível em: http://link.springer.com/book/10.1007/978-0-387-84831-0. Acesso em: 17/05/2016.

NETO, A.S.; GALDI, F.C.; DALMÁCIO, F.Z. 2009. Uma pesquisa sobre o perfil das ações brasileiras que reagem à publicação dos resultados contábeis. *Revista de Contabilidade e Organizações*, **3**(6):22-40.

PAULO, E.; NETO, A.S.; SANTOS, M.A.C.D. 2013. Reação do preço das ações e intempestividade informacional do lucro contábil trimestral no Brasil. *ASAA-Advances in Scientific and Applied Accounting*, **5**(1):54-79.

PIMENTEL, R.C.; LIMA, I.S. 2010a. Is the Annual Earnings Response Coefficient Statistically Significant in Brazil? *Latin American Business Review*, **11**(3):267-291. http://dx.doi.org/10.1080/10978526.2010.513273

PIMENTEL, R.C.; LIMA, I.S. 2010b. Time-series properties of earnings and their relationship with stock prices in Brazil. *Business and Economics Research Journal*, **1**(4):43-65.

RAHAMAN, A.S. 2010. Critical accounting research in Africa: Whence and whither. *Critical Perspectives on Accounting*, **21**(5):420-427. http://dx.doi.org/10.1016/j.cpa.2010.03.002

SADKA, G.; SADKA, R. 2009. Predictability and the earnings–returns relation. *Journal of Financial Economics*, **94**(1):87-106. http://dx.doi.org/10.1016/j.jfineco.2008.10.005

SANTOS, M.A.C.D.; MOL, A.L.R.; ANJOS, L.C.M.D.; SANTIAGO, J.S. 2013. Prices lead earnings in Brasil? *Revista Contabilidade & Finanças*, **24**(63):243-256. http://dx.doi.org/10.1590/S1519-70772013000300007

WU, G.S.-H.; LI, S.-H.; LIN, S. 2014. The effects of harmonization and convergence with IFRS on the timeliness of earnings reported under Chinese GAAP. *Journal of Contemporary Accounting & Economics*, **10**(2):148-159. http://dx.doi.org/10.1016/j.jcae.2014.06.002

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