Financial indicators, informational environment of emerging markets and stock returns

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Abstract

Purpose – The purpose of this paper is to evaluate the influence of the informational environment on the relevance of accounting information in companies traded in stock exchanges of emerging markets.

Design/methodology/approach – For this purpose, the authors calculated indicators based on figures derived from the financial statements and variables that sought to capture the influence of the economic and institutional environment. The sample consisted of publicly traded companies from 20 countries classified as emerging by Standard & Poors. Macroeconomic information was obtained through the International Country Risk Guide database. The analysis period ranged from 2004 to 2013, excluding missing data, variables considered as outliers, besides the exclusion of data from companies that presented negative equity.

Findings – It was observed that the financial variables presented signs consistent with the literature, except for the price-to-book variable and the asset change variable. The inclusion of variables related to the accounting informational environment offered evidence that the more opaque the accounting environment in the country, the lesser the ability of the profits to portray the variations of stock returns. The variable that captured the adoption of international standards was consistent with expectations, i.e. the adoption of international standards would increase the quality of accounting information, showing a positive signal. Moreover, the variable aggressiveness of the earnings was statistically significant and negative, consistent with the literature.

Research limitations/implications – The variables earnings smoothing and aversion to losses did not show the expected behaviour though, highlighting the possible limitations of these proxies used to capture the opacity of the earnings.

Originality/value – When institutional moderators were included, it was observed that the adoption of the IFRS standards positively affected the relationship, which is more relevant when the accounting figures were under its aegis. Recently, countless nations' transition to international accounting standards has been justified by the need to use high-quality reporting standards. The research sought to contribute to strengthen this dimension, presenting evidence that the dummy variable included to capture the adoption of international standards had a positive effect on the relationship.

Keyword Emerging markets

Paper type Research paper

1. Introduction
The financial statements are intended to provide their users with relevant information about the entity which is being reported. Such information should be useful to existing and potential investors, creditors and other stakeholders when making a decision regarding the provision of funds (Accounting Pronouncements Committee, 2012).

Generally speaking, this decision is based on the premise that financial information is used to estimate profits, cash flows and stock returns. Thus, it is implicitly assumed that accounting assists the projections of future events and evaluations regarding the firm's risk, performance and value (Lewellen, 2010). The financial literature, based on the Capital Asset Pricing Model (CAPM), began to evaluate which factors are able to explain the return of the assets traded in the capital market. In addition to the traditional market beta, which measures the sensitivity of stock returns to market fluctuations, other additional variables were included to explain asset price changes. The most recurrent variables in the literature in this respect include factors based on firm characteristics, such as profitability, size and investment levels (Fama & French, 2016).

In addition to issues inherent to firms, Bhattacharya, Daouk, and Welker (2003) point out the differences in equity markets among countries because of peculiar characteristics related to economic, political and legal infrastructure. Such phenomena influence how accounting figures are used and interpreted by users of accounting in the capital market. Given this context, a body of consistent research has come to appreciate how the peculiarities of each country and its capital markets generate differences in the content and timing of financial statements.

Foster, Kasznik, and Sidhu (2012) point out that previous literature is robust in describing which country-specific variables are responsible for delineating variations among countries. Despite the growth of empirical research on the influence of country-level variables at the enterprise level, a substantial part of the specialised literature is directed to developed capital markets (Dong & Stettler, 2011). Kearney (2012) points out that the nuances and financial, economic, cultural, social and institutional characteristics are useful to provide knowledge about emerging economies and also about the entire world. This fact opens up space for discoveries and knowledge that can help the development not only of emerging countries but also of those with fewer resources or even those considered developed.

Given the context presented, the main goal of this research is to evaluate the influence of the countries' informational environment on accounting information, considering controlled economic factors. Specific objectives of the research are:

- to detect the characteristics of the companies that explain the behaviour of the stock returns of firms that trade their securities in emerging markets;
- explain how the adoption of international standards interferes in the relations analysed; and
- indicate how the level of information opacity of the companies in the sample affects the explanatory capacity of accounting information in explaining the variations in the stock returns in emerging countries.

The study integrates the growing international accounting literature that examines the association between economic profit, measured by stock returns and financial information, such as accounting profitability. From this perspective, a model with a long window of stock returns at the contemporary level and changes in the accounting variables was estimated. Through this procedure, we tried to show which aspects of the capital market entail an active implication to generate differences in the usefulness of the financial statements.

2. Theoretical framework

2.1 Market efficiency and expected returns

The efficient market hypothesis defines a market as being informationally efficient if prices are, on average, "correct" given the information available and presents a rapid reaction to new events, correctly incorporating new information. The presence of three conditions is observed, which are sufficient but not necessary to verify the market efficiency hypothesis:

(1) absence of transaction costs;

(2) information free of charge and fully available to all market participants; and

(3) homogeneous expectations of all agents operating in the capital market (Fama, 1970).

Fama (1970) segregated the empirical tests for price adjustment into three groups, based on the nature of the relevant information. In the weak form of efficiency, historical asset prices would be reflected in the stock price. The semi-strong form, in addition to historical prices, covers all information publicly available in period t. Finally, the strong form of market efficiency considers that all available information would be reflected at time t, including private information not yet published.

Capital market research generally takes the form of semi-strong efficiency, which assumes that competition among investors makes stock prices reflect all publicly available information in a rapid, complete and unbiased manner. Kearney (2012) emphasises that, specifically concerning the behaviour of emerging markets, they tend to present a smaller development of their capital markets, a characteristic that has a direct influence on empirical evidence related to market efficiency.

The theory of market efficiency assumes that the expected return on any asset is compatible with the level of the risk assumed. In this context, there is a need for a model that estimates returns compatible with the level of risk of each company, highlighting the need for an asset-pricing model. In this context, the CAPM gained emphasis, which establishes the expected return of a stock as a function of a risk-free return and a risk premium. Among the assumptions of the model, it was highlighted that investors have the same expectations for the distribution of future returns, unlimited resources exist to borrow and lend at a risk-free rate and that investors can engage in unlimited short-term sale transactions among risky assets. Despite unrealistic assumptions, this is a limitation of the theoretical models, as this is the only alternative for the simplification and feasibility of a model (Burger, 2012).

With the development of this field, it was detected that the beta was not able to fully explain the cross-sectional variations in the average returns of the assets traded in stock markets all over the globe. Thus, other factors began to be identified, significant in explaining the average returns that the companies achieved. Among these factors, we can highlight size, price/earnings, leverage, profit (Novy–Marx, 2013), level of investments (Titman, Wei, & Xie, 2004), accruals (Sloan, 1996) and book-to-market ratio.

Later, Fama and French (2016) demonstrated the superiority in predicting the expected returns of a five-factor model, including variables related to size, book-to-market, profitability and investments of companies. Thus, the financial literature demonstrated the robustness of including more risk factors, capturing the effect of both company-specific variables and variables at the macroeconomic level.

2.2 Institutional factors that interfere in the relevance of financial information

The corporate finance literature shows that the portfolio developed by investors largely depends on the information available in the capital market. In general terms, comparative

empirical studies among companies from different countries have shown considerable differences in legal structure, enforcement mechanisms and corporate governance (Li & Sullivan, 2015).

This literature includes the work of Ali and Hwang (2000), which has been impacted by national factors of relevance regarding accounting information (measured by the capacity of profits and equity values to explain returns). Among the factors that stood out, the author highlighted the fact that the economy is either bank-oriented or capital-market driven. The authors also identified as relevant factors the possible private involvement with the establishment of norms, legal regime and amount spent on the audit.

The level of opacity of the countries' accounting environment was taken into account by Bhattacharya et al. (2003). In a survey based on a sample of 34 countries between 1985 and 1998, the authors assessed measures of "earnings opacity". The opacity of the profits was captured by three proxies, namely, earnings smoothing, earnings aggressiveness or the practice of avoiding loss reporting. The authors found that the increase in the opacity of the earnings resulted in an increase in the cost of capital and a reduction in the number of transactions in the market, demonstrating that the opacity actually interferes in the characteristics of the stock markets in the countries analysed.

Focusing on the cost of capital, Hail and Leuz (2006) examined the international differences of firms in 40 countries. The results indicated that the stronger the enforcement mechanisms and the disclosure requirement, the lower the cost of capital. Complementary to these findings, Papaioannou (2009) examined the determinants of banks' international financial flow in 50 countries. The author found the significance of the institutional quality, the protection of owners' rights and risk of expropriation as explanatory factors of the growth of foreign capital in banks.

Lang, Lins, and Maffett (2012) examined the relationship among transparency, stock valuation and market liquidity, analysing how this interconnection varied according to firm characteristics and the economic environment. The results showed that the incidence of lower transaction costs and greater liquidity for firms with a higher level of transparency was linked to the institutional environment of the countries.

Regarding accounting standards, Clarkson, Hanna, Richardson, and Thompson (2011) investigated the impact of the adoption of international standards in Europe and Australia and the relevance of equity value and profits for asset valuation. The results indicated that there were changes in the relevance of accounting, regardless of the legal origin. Thus, the assumption is made that the accounting data may be more informative if the firm follows international standards, particularly if the firm is from a country with low quality local accounting standards. Daske, Hail, Leuz, and Verdi (2013), however, point out that it is relatively simple for companies to adopt an IFRS label, without substantive changes, with no real economic effect.

The research presented showed how differences in the relationship between financial information and capital markets could be consistently influenced by factors peculiar to each country, specifically, in what concerns transparency, governance, legal enforcement and accounting standards adopted.

3. Method

3.1 Delimitation of the research sample

The sample consisted of companies trading their securities in the capital market classified as "emerging" according to Standard and Poor's (2013) criteria. The period of analysis covered the years 2004 to 2013. Countries that had recent reclassifications and were included in the emerging group according to Standard & Poor's criteria were not considered.

Firms with missing data, outliers and those with negative equity were excluded. To identify sample components that could distort a characteristic behaviour of the analysed population, two detection techniques were used. For the detection of outliers in the dependent variable, the Box plot was used. For the detection of outliers in the independent variable, we used the bacon algorithm, described by Weber (2010) and Fávero and Belfiore (2017). The research sample consisted of 60,121 observations, as presented in Table I.

Company-level data were extracted from the S & P Capital IQ database. Country-level information was obtained from the International Country Risk Guide, which compiles countries' macroeconomic information.

3.2 Company-level variables
To assess how the economic and institutional environment affects the relationship between information and stock return in emerging countries, some preliminary indicators were calculated based on financial statement figures. Among the variables that explain the return, size and price-to-book (Fama & French, 2016), capital investment (Titman et al., 2004), accruals (Sloan, 1996), gross profit (Novy–Marx, 2013) and sales growth (Chan, Karceski, Lakonishok & Sougiannis, 2008) stand out (Table II).

The beta variable, one of the most traditional in the financial literature, derived from the CAPM and used to measure the sensitivity of stock returns against variations at market rates. Given the limitations related to stock liquidity and the operational difficulties of the variable, however, an alternative was the inclusion of the average performance indicator of the stocks traded according to the respective stock exchanges. Based on this indicator, it was possible to capture how the stock returns of the analysed companies behaved in the face of market variations.

3.3 Country-level variables
In addition to the measures estimated at the company level, information was also estimated at the country level, calculated on the basis of the same financial statements, in addition to information extracted from the International Country Risk Guide. The systematic calculation of each of the three variables is described in Table III.

There are possibilities to use alternative metrics to analyse accounting quality, such as quality perceived accounting, which measures the strength of audit standards and financial reports, through an executive opinion survey used by authors such as Knack and Xu (2017) and Malagueño, Albrecht, Ainge, and Stephens (2010). However, in our study, we used the earnings properties to analyse accounting quality, predominant in the literature and independent of the subjective opinions of its users.

País	Final sample	Country	Final sample	Country	Final sample	Country	Final sample
Brazil	1.419	Egypt	492	Mexico	619	Russia	293
Chile	963	Hungary	110	Morocco	364	South Africa	1.406
China	12.693	India	16.889	Peru	486	Taiwan	9.719
Colombia	220	Indonesia	2,074	Philippines	1,107	Thailand	3.227
Czech Republic	49	Malaysia	5,360	Poland	1,115	Turkey	1.516
Total							60.121

Table I.
Sample composition

Variable	Description	Formula
Return (dependent variable)	The returns were calculated for an annual period. In stocks not quoted on the day analysed, the quotes of the immediately subsequent day were used	$ret_{it} = \dfrac{p_t - p_{t-1}}{p_{t-1}}$
Size	The Proxy used for this size is given by the natural logarithm of total assets	$Tam = \ln(AT_t)$
Price–to–book	The ratio between the market value and the book value is commonly called price–to–book in the literature. Where: NE – net equity value of the company MV – market value, calculated by the multiplication of the number of stocks traded in the capital market by the respective price of each of the stock modalities	$PBV = \dfrac{MV}{NE}$
Capital investment	The past capital investments for end June of each calendar year t are measured by the change in PPE (plant, property and equipment) between the end of year $t-2$ and $t-1$, divided by the firm's total assets at the end of year $t-1$	$Inv_t = \dfrac{VLPPE_t - VLPPE_{t-1}}{TA_{t-1}}$
Accruals	The accruals were calculated based on information from the balance sheet and the income statement. ΔCA = Variation current assets; ΔCx = Variation in cash and cash equivalents ΔCL = Variation current liabilities; ΔDeb = Variation short–term debts; ΔTax = Variation taxes payable; Dep = Variation depreciation and amortisation expenses; TA_{t-1} = Total lagged assets; TA_t = Total current assets	$Acc = \dfrac{\begin{pmatrix} \Delta CA_{t-(t-1)} \\ -\Delta Cx_{t-(t-1)} \end{pmatrix} - \begin{pmatrix} \Delta CL_{t-(t-1)} \\ -\Delta Deb_{t-(t-1)} \\ -\Delta Tax_{t-(t-1)} \end{pmatrix} - Dep}{\frac{1}{2}X(TA_{t-1} + TA_t)}$
Gross profitability	Gross profitability was selected to assess the company's current profitability level	$Prof_t = \dfrac{Gross\ Profit}{\frac{1}{2}X(TA_{t-1} + TA_t)}$
Sales growth	Sales growth was selected as an alternative measure to capture the company growth. $Sales_t$ corresponds to the total gross revenue in period t, $Sales_{t-1}$ to the total gross revenue in the lagged period and TA_{t-1} to the Total Assets in the lagged period	$SaleGrow_t = \dfrac{Sales_t - Sales_{t-1}}{TA_{t-1}}$

Table II.
Company–level variables

A variable was included to capture the effect of the use of international standards in countries. The variable "Use of International Accounting Standards" consists of a variable equal to 0 if the country does not fully adopt the international accounting standards. Otherwise, the indicator is equal to 1. As an assumption, the proposition is accepted that the accounting data can be more informative if the firm follows the international standards (Clarkson et al., 2011).

To capture differences between the economic environments of each country, macroeconomic variables were taken into account. Given the excess of variables, however, which generates problems related to multicollinearity, the principal component factor analysis was used, as recommended by Narayan, Narayan and Thuraisamy (2014). Based on the literature on macroeconomic variables (Chang, 2008; Gay, 2008; Muradoglu, Taskin & Bigan, 2000), the following macroeconomic variables were used (Table IV) to capture the macroeconomic factors of each country.

Variable	Description
Earnings aggressiveness	The measure was calculated by the median quotient between the total accruals and total lagged assets of country i in year t (the use of the median minimises the influence of extreme values). The higher the median accruals, the higher the earnings aggressiveness
Loss aversion	Loss aversion was calculated as follows: Firms with a low earnings level were defined as firms that exhibited a net profit per total assets between 0 and 1%. Similarly, firms with a low level of losses were defined as firms that exhibited a loss per total assets between 0 and -1%. Thus, the ratio is calculated by the difference between the number of firms with small positive profits and the number of companies making losses in the total number of companies. The higher the ratio in country c and year t, the greater the companies' trend towards earnings management to avoid reporting losses
Earnings smoothing	Earnings smoothing is calculated by the cross–sectional correlation between changes in accruals and changes in cash flows, divided by the total lagged assets. The more negative this correlation, the higher the level of earnings smoothing in country c in year t

Source: Bhattacharya et al. (2003)

Table III.
Opacity variables

3.4 Estimated model

The study was based on the panel data analysis technique, allowing the estimation of cross-sectional regressions between 2004 and 2013 (time series). The dependent variable (y) considered was the annual return of the firms. Firm-level variables extracted from the accounting and market information were selected to test the hypothesis considered herein. If they are used in studies on the forecast of returns, they are capable of holding some economic-financial information identified, measured and systematised in the financial statements from they are originated. Thus, if these indicators do not have this informational property, neither will the accounting information represented by the statements themselves. To test this relationship, the variables presented in Sections 3.2 and 3.3 were included in the model.

In this regression model, the β coefficients measure the predictive ability of the variables analysed. When β is not statistically different from zero, there are indications that these variables are not able to explain the variation of returns among firms over time:

$$R_{it} = \beta_0 + \beta_1 Price/Book_{it} + \beta_2 r_{i,t-1} + \beta_3 Accruals_{it} + \beta_4 Inv_{it} + \beta_5 Siz_{it} + \beta_6 GrossProf_{it}$$

$$+ \beta_7 SaleGrow_{i,t-1} + \beta_8 MarketRatio_{it} + \beta_9 IFRS_{it} + \beta_{10} EarnSmoot_{it}$$

$$+ \beta_{11} EarnAggress_{it} + \beta_{12} AvLosses_{it} + \sum_{13}^{J} MacroFactors + \varepsilon_{it} \qquad (1)$$

where R = Return, $Price\text{-}to\text{-}Book$ = relation between market value and book value, $Accruals$ = Adjustments resulting from competence regime, Inv = Capital investment, Siz = Size, $Gross\ Prof$ = Gross Profitability, $SaleGrow_{(t-1)}$ = Sales Growth (t−1), Market Ratio = Mean performance indicator of stock quotes traded in the countries' respective exchanges, $EarnSmoot$ = Earnings smoothing, $EarnAgress$ = Earnings

Name of the variable	Definition
Budget expenses	Non–repayable and non–repaying payments by governments, plus government acquisition of claims on others (loans and equities), fewer repayments of lending and sales of equities previously purchased
Budget revenues	Non–repayable and non–repaying government receipts, plus grants received from other governments (domestic or foreign) and international institutions
Capital investment	The annual value of gross fixed capital formation
Budget Balance as % of GDP	Central government budget balance for a given year expressed as a percentage of GDP
Exports	Year's value of merchandise exports, measured free–on–board (modality in which the exporter is responsible for freight and insurance costs only until the merchandise has been loaded onto the ship)
Foreign direct investment	One year's investment by foreign entities or citizens in domestic business
GDP (nominal)	The nominal value of the total final output of goods and services produced within a country's territorial jurisdiction, regardless of the foreign or domestic ownership of the source of the production
Imports	Year's value of merchandise exports, measured free–on–board (modality in which the exporter is responsible from the freight and insurance costs only until the merchandise has been loaded onto the ship)
Money supply (M1)	The year–end stock of money in the economy. Components of M1 include currency in circulation, commercial bank deposits, cash deposits, credit union share drafts, and nonbank traveler's checks
Real GDP growth (%)	Annual change in estimated GDP at constant prices
Inflation (%)	Annual average percentage changes in the consumer price index
Foreign debt as % of GDP	18–month risk variable that takes into account the country's borrowing practices need for borrowing, attitudes toward borrowing and the willingness of public and private international sources to provide funds
Exchange rate (local)	Average currency value in relation to the USD on the applicable date
Exchange rate stability	Annual percentage change in the exchange rate of the national currency against the USD
Interest rate	Annual nominal interest rate of government bonds in each sample country
Capital market size	A number of companies publicly traded in the stock market of the countries analysed

Table IV.
Macroeconomic variables

Source: Adapted from PRS Group – http://epub.prsgroup.com/list–of–all–variable–definitions

aggressiveness, $AvLosses$ = Aversion to losses and Factors 1 to 4 represent the extracted factors based on the principal component factor analysis.

4. Results

4.1 Factor analysis

A large number of variables, which were observed in the literature, are capable of controlling macroeconomic risks, besides being responsible for a very high correlation among the macroeconomic variables. In this sense, initially, the principal component factor analysis was executed, reducing the number of variables analysed and avoiding multicollinearity problems. KMO and Bartlett's sphericity test indicate the suitability of our data for structure reduction. With a KMO value of 0.8 and a Bartlett statistic of 0.0000, factor analysis was adequate for the analysed case.

Based on the principal components method, establishing the eigenvalue higher than 1 as a selection criterion, it can be observed that four principal components were obtained. Four

main factors were identified. Table V shows the correlation between variables and factors (commonalities).

From Table V, it can be noted that the first factor is strongly related to the financial volume traded and the economic activity level, including nominal GDP, means of payment, investments, exports and imports. It is observed that an increase in the level of financial movement in the economy can generate an excess of available resources, which can interfere in the stock prices and returns.

The agglutination of the interest rate and the inflation rate is best understood by how they interfere in the valuation of assets. This is because the firm's value is related to two main factors: future cash flows; and the rate of return required to discount flows at their present value (Burger, 2012). Changes in inflation may alter stock returns through the discount rate. If cash flows do not adjust in the same direction, the increase in inflation will negatively affect the company value.

The third factor reflects real income growth, considering the percentage changes in the activity level of the economy and the current account of the balance of payments. It is also observed that the external debt, in percentage terms, despite having a strong influence on the formation of the third factor, also shows a strong connection with the fourth factor, related to the foreign exchange market. These variables may impact projected cash flows in the future. The fourth factor makes explicit the exchange market and its stability, interfering in the volume of exports and imports, in the capital flows of the companies and their cash flows.

4.2 Descriptive statistics and initial considerations

The general descriptive statistics of the sample are presented in Table VI. It is noteworthy that, even with the exclusion of the outliers, a minimum stock return value of -0.99 was obtained. This demonstrates a drop in the stock market value of almost every company of the sample.

It is observed that the price-to-book variable has a minimum value of 0, the behaviour based on the selection criterion of the sample, which excluded companies that had negative equity. It is also noted that, in general, as several companies present total assets (sales

Variable	Factor 1	Factor 2	Factor 3	Factor 4
Budget expenses	0.8984	0.2285	−0.2282	0.0118
Budget revenues	0.8868	0.2271	−0.22	0.0485
Capital investment	0.9745	0.0058	−0.1024	0.0212
Current account	0.7278	−0.3525	0.2277	0.2438
Exports	0.9791	−0.0999	−0.0521	0.052
Foreign direct investment	0.9736	0.0363	−0.0657	0.0335
GDP (nominal)	0.9829	0.0901	−0.1215	0.0067
Imports	0.973	−0.0464	−0.0755	−0.0361
Money supply (M1)	0.9555	−0.0945	−0.1	0.0264
Capital market size	0.6739	−0.0836	0.2988	−0.2575
Inflation (%)	0.0088	0.7832	0.2091	0.1748
Interest rate	0.1044	0.8113	0.0573	0.2285
Current account as % of GDP	0.2798	−0.5197	0.5091	0.2503
Real GDP growth (%)	0.3779	0.1639	0.6789	−0.2283
Foreign debt as % of GDP	−0.3349	−0.1118	−0.4668	0.4123
Exchange rate (local)	−0.076	0.2951	0.3633	0.5521
Exchange rate stability	0.0275	−0.4809	0.0277	0.4508

Table V.
Factors extracted in
factor analysis

Variable	Mean	SD	Minimum	Maximum	Variable	Mean	SD	Minimum	Maximum
Return	0.254	0.927	−0.999	11.426	Market ratio	0.067	0.386	−1.115	0.987
Price–to–book	2.061	2.626	0	33.58	*EarnSmoot*	0.007	0.026	−0.103	0.082
Accruals (t−1)	0.002	0.136	−1.575	1.6	*AvLosses*	0.572	0.208	−1	1
Capital investment	0.032	0.12	−0.831	1.549	*EarnAgress*	0.509	0.404	−0.942	1
Size	5.066	2.16	−5.98	14.955	Factor 1	1.024	1.879	−0.727	5.935
Gross prof	0.195	0.171	−1.032	2.203	Factor 2	−0.145	1.115	−2.177	2.84
Sales growth	0.189	0.549	−6.399	7.288	Factor 3	0.34	1.08	−3.146	2.355
Sales growth					Factor 4	−0.449	1.038	−2.467	3.277

Notes: Where: R = Return, *Price–to–Book* = relation between market value and book value, *Accruals* = Adjustments resulting from competence regime, *Inv* = Capital investment, *Siz* = Size, *Gross Prof* = Gross Profitability, *SaleGrow$_{(t−1)}$* = Sales Growth (t−1), Market Ratio = Mean performance indicator of stock quotes traded in the countries' respective exchanges, *EarnSmoot* = Earnings smoothing, *EarnAgress* = Earnings aggressiveness, *AvLosses* = Aversion to losses and Factors 1 to 4 represent the extracted factors based on the principal component factor analysis

Table VI.
General descriptive statistics of the sample

growth, accruals, investments and gross profit) as a common quotient, the variables presented an average inferior to 1. This standardisation was aimed at improving the comparison of the elements in the sample, despite considering the absence of uniformity in relation to the size of the companies analysed.

The earnings opacity measures and the return of the market index did not present very evident behaviour regarding the variability. It should be mentioned that the measures of earnings smoothing, aversion to losses and earnings aggressiveness were calculated by country and by year.

The measure of loss aversion showed a positive value. This trait indicates that companies tend to report smaller profits more often than they would with small losses. It is observed that the means and standard deviations of the variable earnings aggressiveness reached considerably lower levels, mainly because of the division of total accruals by total assets, permitting a comparison among countries.

4.3 Inferential analysis and estimated regressions

The Chow test was used to evaluate the adequacy of the use of panel data models in relation to the model with stacked data. The rejection of the null hypothesis indicates that the fixed effects model would be the most appropriate one. Intuitively, one could expect that the random effects model would not be the most appropriate, given the inherent characteristics of the data, in a sample in which a series of explanatory variables was constant for the companies included in the same period (year) and in the same country as the data analysis. The Hausman test confirmed this intuitive appeal. The regression results are presented in Table VII.

The estimated results showed that the size of the company, in which the logarithm of the total assets was used as a proxy, was inversely related to the return, while the price-to-book indicator was positively related. According to the literature, specifically the model of Fama and French (2016), it could be expected that smaller companies with low price-to-book indicators would exhibit returns that are systematically higher than that of large firms with a high price-to-book ratio. This phenomenon is in line with authors such as Girard and Omran (2007), Lyn and Zychowicz (2004) and Ramcharran (2004), who indicate that regulations and tax regimes create an environment in which investors can behave differently in emerging markets.

Variable	Full model	Stepwise model
Price–to–book	0.100***	0.100***
	0.001	0.001
Return (t − 1)	−0.116***	−0.116***
	0.003	0.003
Accruals (t − 1)	0.018	
	0.016	
Inv	−0.092***	−0.095***
	0.019	0.019
Siz	−0.02***	−0.018***
	0.006	0.006
Gross Prof	0.349***	0.353***
	0.028	0.028
SaleGrow (t − 1)	−0.025***	−0.026***
	0.004	0.004
Market ratio	0.784***	0.782***
	0.007	0.006
EarnSmoot	0.011	0
	0.007	0
EarnAgress	−0.983	−0.944***
	0.107	0.105
EarnAgress	0.138	0.141***
	0.017	0.017
IFRS	0.019**	0.02***
	0.009	0.009
Factor 1	−0.065***	−0.066**
	0.007	0.007
Factor 2	−0.138***	−0.137***
	0.006	0.006
Factor 3	0.015***	0.015***
	0.004	0.004
Factor 4	0.037***	0.038***
	0.005	0.005
Intercept	−0.072**	−0.078**
	0.033	0.033
Observations	59890	59890
r2_w	0.556	0.556
r2_b	0.066	0.066
r2_o	0.411	0.41
F	3832.16***	4379.16***
Companies' number	10994	10994

Notes: Where: *$p < 0.10$, **$p < 0.05$ and ***$p < 0.01$; R = Return, *Price–to–Book* = *relation between market value and book value*, *Accruals* = Adjustments resulting from competence regime, *Inv* = Capital investment, *Siz* = Size, *Gross Prof* = Gross Profitability, SaleGrow$_{(t–1)}$= Sales Growth (t − 1), Market Ratio = Mean performance indicator of stock quotes traded in the countries' respective exchanges, *EarnSmoot* = Earnings smoothing, *EarnAgress* = Earnings aggressiveness, *EarnAgress* = Aversion to losses, IFRS = international accounting standards adoption and Factors 1 to 4 represent the extracted factors based on the principal component factor analysis

The level of investment and the level of accruals was inversely related to the return of the companies analysed, but not significant. Regarding the sales growth, the result was compatible with the literature, which argues that a higher level of investment would reduce the intrinsic risk of the firm, with a significant coefficient in the complete model. It was also

observed that the higher the profitability, the greater the stock return of the analysed companies.

About macroeconomic factors, the first factor is related to the financial volume traded and the level of activities, showing the number of resources available in the economy, which may interfere in prices and stock returns. A closer look at the factor shows, however, that it is constituted primarily of macroeconomic variables at their nominal values. Thus, it can be assumed that the variable is capturing the effect of the size of the economy and the larger and more solid the economy of a country, the smaller the risk attributed to its capital market (and the lower, consequently, the required return).

The relationship between the second factor and stock returns is in line with the expectations. This is so because the interest rate and inflation rate interfere with the discount rate of the projected cash flows of the sample firms (Chang, 2008). If the cash flows do not adjust in the same direction as the discount rate, the increase in inflation will negatively affect the company value, generating negative returns.

The third factor is also consistent with the literature. Some percentage growth in the activity level of the economy should result in an increase in the capital market resources, generating positive abnormal returns (Muradoglu, Taskin & Bigan, 2000), and this direction is confirmed by the regression results. Finally, the fourth factor is explicitly related to the exchange market and its stability, which interferes in the volume of exports and imports, in the capital flows of the companies and their cash flows. In other words, it is positively related to the returns (Gay, 2008).

The variables related to the aggressiveness of profits, smoothing of profits and aversion to losses were inserted into the model specifically to understand how the level of opacity of profits in the country interferes in the ability to explain returns through indicators that were based on the use of numbers for their calculation. Given this scenario, it was evaluated how the inherent properties of the accounting numbers among countries and periods interfere in their informational capacity about the companies in the sample countries.

Concerning the profit opacity measures, at first, a negative and statistically significant coefficient was obtained for the variable earnings aggressiveness. This result means that this negatively affects the ability of accounting indicators to explain the variations in the returns of emerging market equities. Thus, the estimated model partially supported the hypothesis that the level of earnings opacity negatively affects the capacity of the accounting indicators to explain the variations in stock market returns in emerging markets.

The variable aversion to losses showed an opposite signal in comparison to what was expected. Rescuing the concept of loss aversion, the indicator is calculated to capture the country's pattern of having a high number of firms with small positive profits, but not with small losses. The motivations towards earnings management, however, according to DeGeorge, Patel, and Zeckhauser (1999), go beyond avoiding negative profits, reporting an increase in quarterly profits or dimming analysts' forecasts of profits. Therefore, it can be interpreted that this variable does not capture these other types of behaviour, causing the proxy not to behave as desired.

Regarding the absence of statistical significance of the "Earnings smoothing" coefficient, Ronen and Yaari (2008) argument that Income Smoothing can be used to "filter" the noises and fluctuations of profits in the short-term, providing firm's long-term trend of profits, in the long run, supports. As a metric of results regarding opacity, it was expected a negative relationship between the estimated coefficient and the dependent variable of return. However, we did not observe the relationship initially delineated, which highlights the adequacy of the alternative argument that, in fact, this type of practice does not necessarily reduce the transparency of the accounting numbers reported.

The adoption of international accounting standards was expected to positively affect the ability of accounting indicators to explain the variations in stock returns in emerging markets. This impression is supported by the expectation that the adoption of these standards is closely related to greater standardisation and comparability between information and information quality. Thus, it was expected that the adoption of international standards would enhance the quality of accounting information, acting as a moderating factor in the ability of accounting indicators to explain variations in stock returns (Barth, Landsman, & Lang, 2008).

On the other hand, it could also be argued that high quality accounting standards would make pricing more informative only in countries with strong legal environments. Thus, it can be assumed that the predictive capacity of the indicators would be more related to the legal environment than to the adoption of a higher quality standard, in line with Daske et al. (2013), for whom the legal environment of the country dominates the corporate governance mechanisms at the country level.

In the sample, we have the participation of countries like China and India, which have not yet fully adopted the international accounting standards. Their accounting standards have already substantially converged into IFRS or permit their use. Situations like this cause the IFRS proxy to exhibit some limitations. Nevertheless, the IFRS variable presented a signal that was consistent with the expectations.

5. Final considerations and recommendations
The aim of this study was to evaluate the effect of institutional and country factors on the interaction between financial variables and stock returns of companies located in emerging countries. The basis for this concern emerged from the analysis of the level of opacity of the country's reported earnings, which are measures based on the study developed by Bhattacharya et al. (2003), and of the use of international accounting standards.

The estimated results showed that the size of the company, calculated by the logarithm of the company's total assets, was inversely related to the return, while the price-to-book indicator was positively related to it. It was expected that smaller firms with low price-to-book indicators would exhibit systematically larger returns than large firms with high price-to-book indicators (Fama & French, 2016). In addition, this result is in accordance with authors who have identified that regulations and tax regimes create an environment in which investors can behave differently in emerging markets (Girard & Omran, 2007; Lyn & Zychowicz, 2004; Ramcharran, 2004).

It was also observed that the higher the profitability, the greater the stock return of the companies analysed. In turn, the higher the sales growth, the lower the intrinsic risk attributed to the firm, which is compatible with the literature in the field.

When institutional moderators were included, it was observed that the adoption of the IFRS standards positively affected the relationship, which is more relevant when the accounting figures were under its aegis. Recently, countless nations' transition to international accounting standards has been justified by the need to use high-quality reporting standards. The research sought to contribute to strengthening this dimension, presenting evidence that the dummy variable included capturing the adoption of international standards had a positive effect on the relationship.

Concerning the opacity measures, at first, a negative and statistically significant coefficient was obtained for the variable earnings aggressiveness. This result means that this negatively affects the ability of the accounting indicators to explain the variations in the stock returns of emerging markets. Nevertheless, the variables earnings smoothing and aversion to losses showed, respectively, signs that were not significant and opposite to the

expectation. One possible justification for this result is that the motivations for managing the outcome go beyond the concern with avoiding negative earnings, but also with reporting increased earnings or reaching analysts' forecasted earnings. Because the proxy was not able to capture these limitations, it may have performed differently than expected. Therefore, only one measure of earnings opacity was statistically significant and showed an expected signal. Therefore, the limitations of this study include the possibility of measuring errors in the proxies used, which may affect the analysis.

As another limitation in this study, it is emphasised that the grouping of the risk classification agency Standard and Poor's (2013) was used as a criterion to select countries. A heterogeneous group of countries, geographically dispersed and with different levels of development (such as Chile, China, Poland and Taiwan), were considered "emerging", in any case. Finally, when using the panel data approach, instead of the construction of portfolios, this paper focussed on the ability to explain the accounting variables, without an analysis of the possibility to obtain abnormal returns based on this information.

The results obtained suggest that the risk related to the informational environment is associated with the returns the firms displayed. The possibilities for expanding the research include the insertion of variables that capture the companies' level of disclosure in the countries, in addition to the opacity measures of the accounting information. Also, the influence of the legal origin, governance structure and the number of auditors on the relationship between accounting indicators and company returns are highlighted. In addition, the use of different analysis methods is suggested, such as the application of hierarchical linear models to assess the characteristics of countries that do not vary over time, such as the legal origin.

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Associate Editor: Wilson Toshiro Nakamura