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Does national corruption encourage earnings management? A comparison of countries on the European and American continents

A corrupção nacional incentiva o gerenciamento de resultados? Uma comparação de países do continente europeu e americano

¿La corrupción nacional fomenta la gestión de ganancias? Comparación de países del continente europeo y americano

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ABSTRACT
We analyzed the effect of national corruption perceived by the population on earnings management. Our sample consisted of 3,239 companies from 38 countries located in four geopolitical regions of the American and European continents between 2012-2019, analyzed using regression with panel data. We found that increasing levels of perceived corruption implies an increase in earnings management practices. Behavior that does not occur in the same way when considering the different geopolitical regions, because it occurs only in Latin American, North America and the Caribbean, but is non-existent in the other regions. We provide evidence that the perception of national corruption is a trigger for managers to change accounting choices.
Keywords: America; Europe; results management; perception of corruption; quality of accounting information.

RESUMO
O objetivo do estudo é analisar o efeito da corrupção nacional percebida pela população no gerenciamento de resultados. Analisou-se 3.239 empresas de 38 países situados em quatro regiões geopolíticas dos continentes americano e europeu, entre 2012-2019, por meio da regressão com dados em painel. Os resultados revelaram que o aumento nos níveis de percepção de corrupção implica no aumento de práticas de gerenciamento de resultados. Essa relação não ocorre da mesma forma ao considerar as diferentes regiões geopolíticas, porque ocorre apenas na América Latina, América do Norte e Caribe, mas é inexistente nas demais regiões. O estudo fornece novas evidências de que a percepção de corrupção nacional é um gatilho para que os gestores alterem as escolhas contábeis.
Palavras-chave: América; Europa; gerenciamento de resultados; percepção de corrupção; qualidade da informação contábil.

RESUMEN
Analizamos el efecto de la corrupción nacional percibida por la población sobre la gestión de ingresos. Nuestra muestra estuvo compuesta por 3.239 empresas de 38 países ubicadas en cuatro regiones geopolíticas de los continentes americano y europeo entre 2012-2019, analizadas mediante regresión con datos de panel. Descubrimos que el aumento de los niveles de corrupción percibida implica un aumento en las prácticas de gestión de ganancias. Comportamiento que no se da de la misma manera al considerar las distintas regiones geopolíticas, pues se da en Latinoamericana, América del Norte y el Caribe, pero es inexistente en las demás regiones. Brindamos evidencia de que la percepción de corrupción nacional es un desencadenante para que los gerentes cambien las opciones contables.
Palabras clave: América; Europa; gestión de resultados; percepción de corrupción; calidad de la información contable.

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1 INTRODUCTION

Results management takes place when managers make use of accounting practices aiming at changing period result (Healy & Wahlen, 1999; Scott, 2009). It harms external users of accounting information since it will be difficult for them to understand the actual economical-financial situation of the company, as far manipulated data do not reflect economic events on financial events in a suitable way (DeFranco, Kothari & Verdi, 2011; Sohn, 2016; Rodrigues, Melo & Paulo, 2019).

Although managers can deliberately distort information, handling accounting practices aiming at managing results does not take place at random but from a reason for achieving shameful aims. Among them contract incentives can be quoted, those related to variable pay contracts, and market incentives that regard to the manager reputation as to investors (Healy & Wahlen, 1999; Almadi & Lazic, 2016; Pourciau, 1993).

Corporate governance mechanisms such as board of directors, eternal audit, and institutional investors, when monitoring managers, might mitigate adopting opportunistic practices (Peasnell, Pope & Young, 2000; Hashim & Devi, 2008; Jalil & Rahman, 2010; Bell, Causholli & Knechel, 2015). However, the simple presence of such mechanisms is not sufficient to inhibit the practices of manipulating accounting information. This is because the external context of the company is composed by complimentary aspects to the mechanisms mentioned (Oz & Yelkenci, 2018; Lourenço, Rathke, Santana & Branco, 2018).

One of those aspects is a country's law system. The more conservative that system is, the most efficient in fighting the adoption of results manipulating practices (Oz & Yelkenci, 2018). In countries where rules are heavily applied, managers tend to adopt less results manipulating practices (Leuz, Nanda & Wysocki 2003; Oz & Yelkenci, 2018). In this sense, the most efficient law system, which are exogenous factors, tend to work as enforcement in slowing managers discretionary practices (Burgstahler, Hail & Leuz, 2006; Enomoto, Kimura & Yamaguchi, 2015). Less efficient law systems are also a trigger for practices linked to corruption (Polinsky & Shavell, 2001; Fisman & Miguel, 2007; Wing-Yat, 2013). It occurs because both public and private agents may use law system loopholes and the lack of rule application to supply their own private purposes (Fisman & Miguel, 2007).

Countries where a higher recurrence of corrupt practices are seen are, somehow, environments transmitting to population the idea that the practice of opportunistic, illicit acts can be advantageous because even with clear regulation there is a lower probability of being punished. At enterprise level, managers can get such new as an incentive to achieving unethical practices (Lourenço et al., 2018), because the country's law system and enforcement are inefficient in fighting corruption at public level, there is a lower chance for them to be caught in unethical acts (Martin, Campbell & Gomez-Mejia, 2016; Xu, Dao & Wu, 2019).

Beyond the commented aspects, manipulating results from accounting changes is taken as an unethical action by some researchers (Martin et al., 2016). With this, managers acting in countries presenting a higher corruption level feel more comfortable for distorting results (Anokhin & Schulze, 2009; Lourenço et al., 2018; Xu et al., 2019). Studies such as those from Riahi-Belkaoui (2004), Lewellyn e Bao (2017), Lourenço et al. (2018), Xu et al. (2019), and Ozili (2019) detected that the increase in the level of corruption perception in a country implies in increasing practices linked to managing results by means of discretionary accruals. So, as long as managers notice public corruption cases are ordinary fact in their countries, they feel more comfortable for adopting practices of results distortion in order to reach their personal goals. From that context, the aim of the present study is analyzing the effect of national corruption perceived by population in results management.

National corruption at public level brings social losses since it deteriorates the population's ethical behavior, besides providing scenarios of political instability that may risk democracy (Rock, 2009; Branco & Delgado, 2012; Goel & Ram, 2013). At economy level it causes taxation to increase, decreasing companies' wealth and the possibility of new foreign investment due to the higher risk perceived by investors and, thus, promotes a reduction on economic growth and development (Shleifer & Vishy 1993; Gyimah-Brempong, 2002; Blackburn & Forgues-Puccio, 2009; Brada, Drabek & Perez, 2012; Farooq, Shahbaz, Arouri & Teulon, 2013; Xu et al., 2019). It causes narrowing of earnings margins to the companies in that scenario (Xu et al., 2019) and lower efficiency to their controlling mechanisms (Judge, Douglas & Kutan, 2008; Rama, 2012), which can be seen as an incentive to managers to manipulate results (Lourenço et al., 2018).

Corrupted environments with a high perception of corruption by population are noxious to the quality of accounting information (Riahi-Belkaoui, 2004; Lewellyn & Bao, 2017; Lourenço et al., 2018; Xu et al., 2019; Ozili, 2019) and, in turn, to external users of accounting. Even because environments with a higher perception of corruption are linked to most spurious practices among public managers and, yet company members who aim at private gains due to lower enforcement levels. And, due to this, they can serve as incentive to managers to adopt or intensify actions linked to results manipulation. Besides that, there is little research bringing empirical evidence (Riahi-Belkaoui, 2004; Lewellyn & Bao, 2017; Xu et al., 2019; Lourenço et al, 2019; Ozili, 2019) about the issue. It is important since it brings a discussion on the impact of macro-economic aspects on accounting, bringing contribution to accounting area, since most papers are limited to macro-economic aspects only (Riahi-Belkaoui, 2004).

Besides that, even among papers enclosing the discussion of corruption implications on results management, there are some investigations restricted to analyzing similar capital markets, for example Xu et al. (2019) and Ozili (2019). Lourenço et al. (2019) study even investigated different areas with distinct institutional contexts, however they took only a few companies into account and, so, it was not possible to evidence a general perspective of capital market. With this, Riahi-Belkaoui (2004) and Lewellyn and Bao (2017) suggested the elaboration of studies on the matter in a broader way, in different countries, from distinct institutional features, aiming at deepening the discussion about the theme.

The sample was composed by companies negotiating shares in stock market from two continents (America and Europe) to achieve the goal of the present study. The preference was for selecting companies from four geopolitical regions (Latin America, North America, Western Europe, and Europe), due to historical-cultural, questions, law aspects, and economic development level. Such segmentation was performed because countries from the same geopolitical region have more comparable historical-cultural aspects and economic development level than those from different regions. It implies directly on the level of result management adopted by managers aiming at satisfying personal goals, since less developed countries command and control organs have lower enforcement skills and, in turn, investor protection (Modigliani & Perotti, 2000; Kouki, 2018).

Besides that, features related to the law system adopted by a country (common law, code law, and mixed) arise from historic-cultural aspects. Countries from both North and Latin America, with systems similar to their colonizer country ones, are an example of this. In this sense, it is important to highlight that empirical evidence indicate law system is a factor related to the discretionary level adopted by the manager in order to manipulate results (Lara, Osma & Mora, 2005; Oz & Yelkenci, 2018; Ferris & Liao, 2019). From such argument the final sample in the present study enclosed 3,239 companies from thirty-eight countries, totaling 21,977 notes when considering year periods from 2012 to 2019. The sample was analyzed in a blended way but also observing the four geopolitical regions by means of panel data regression.

Results indicated that, when all sample data are analyzed, there is an increase on the level of results management according to the intensification of the level of corruption perception. Such behavior does not take place in the same way depending on the geopolitical region. That is because findings suggest that such relation only occurs in Latin and North Americas, and Caribe regions, being inexistent in areas of the European continent. It shows that, depending on the geopolitical region, managers may be stimulated or not to manipulate results of a period due to the increased perception of corruption practices.

The present study offers some contribution. At academic level, since corruption perception is not a prerogative for managing results by means of discretionary accruals (except for American continent countries), results complement Lourenço et al. (2018), Belkaoui (2004), and Malagueño, Albrecht, Ainge and Stephens (2010) discussions. It is a valid contribution because corruption perceived by population not necessarily takes to an increase of results manipulation practices, as far as it depends on aspects of the regional environment the country is inserted in. In practical terms, the findings of this study contribute for investors decisions in a different way. In countries from Western and Eastern Europe the increase in corruption perceived by population is not a factor instigating managers to manipulate results which, in turn, does not either intensify the level of information asymmetry or harms decision process taken by investors at purchasing, selling, or keeping a share position.

On the other hand, investors from both Latin and North America must concern about the increase of corruption levels perceived in their countries because it is a trigger for managers to adopt or intensify practices that aim at manipulating results and reach shameful purposes. Such contribution is not limited to investors since creditors are also harmed in the presence of results managed by means of accounting choices. Besides that, it is important to highlight that such result can also help regulation organs playing in capital markets from American continent as far as they can create mechanisms that aim at mitigating practices related to manipulating results through turbulation times due to the increase on corruption perceived by population in these countries.

2 CONSTRUCTION OF HYPOTHESES

Corruption emerges when civil servants and/or politicians use their capability to take decisions at governmental organs to raise personal advantages (Blackburn, Bose & Haque, 2006; Mathur & Sigh, 2013). Such behavior causes the efficiency in applying public resources on service delivered to community to decrease (Friedman, Johnson, Kaufmann & Zoido-Lobaton, 2000; Dzhumashev, 2014; Rothstein, 2021). The improper advantage obtained by servants implies both in funds deviation and choosing suppliers and service deliverers disregarding either cost control criteria or the quality of the product or service delivered, raising private gain from using public power (Davoodi & Tanzi, 1997; Wickberg, 2021).

Population sees corrupted actions as an incentive to the practice of spurious acts since the probability of being punished is smaller (Lourenço et al., 2018). Among companies, Smith (2016) states it is an incentive for managers to appeal to frauds and, several times, to get closer to government representatives and incur bribery. Besides, they also stimulate unethical practices for reaching spurious goals, including the practices of results managing (Lourenço et al., 2018).

Usually, when a country's control mechanisms are weak and its law system do not favor the open publication

of information, corruption becomes more viable and generates consequences at both national and company level (Fisman & Miguel, 2007; Wing-Yat, 2013; Santos & Takamatsu, 2018). In this sense, Lourenço et al. (2018) point out that corruption at public environment stimulates the opportunistic behavior in company's managers. It takes place because managers perceive the inefficiency of anticorruption mechanisms and end up influenced by the social context they are inserted in.

Corruption creates an unethical environment where people are induced to dishonest behavior and, even so, take them for acceptable (Riahi-Belkaoui, 2004). In countries where corruption is taken as an ordinary practice such behavior can naturally extend to company's managers and interfere with accounting quality (Riahi-Belkaoui, 2004; Santos & Takamatsu, 2018). Due to that, corruption is being studied as a factor affecting earnings opacity (Riahi-Belkaoui, 2004; Santos & Takamatsu, 2018), quality of accounting information (Malagueño et al., 2010), compulsory publication (Mazzi, Slack & Tsalavoutas, 2018), speed and extension of IFRs adoption (El-Helaly, Ntim & Al-Gazzar, 2020), and smoothing of results.

From the frame presented, corruption increase perceived by population works as a trigger for managers to distort results in a more deliberate way. It happens because besides inducing unethical behavior, (Riahi-Belkaoui, 2004), corrupted environments also show to have less efficient control mechanisms (Oz & Yelkenci, 2018) which are, many times, fundamental for fighting practices of results managing (García, Meca & Sánchez, Ballesta, 2009; González & García-Meca, 2014).

In this context, environments inciting the use of unethical actions in order to obtain personal benefit cause managers to manipulate information more intensely (Xu et al., 2019), a fact that rouse researches that aimed at a better understanding of such influence. Specially because the consequences of institutional and economic aspects at national level is yet poorly investigated, even in face of its importance, mainly to the advance of researches on accounting (Riahi-Belkaoui, 2004). Riahi-Belkaoui (2004) research found that the increase on corruption perception implies increasing results management. That is, in countries where corruption is more prominent there are more incentives for managers to let profit opaquer, making it more difficult to read the actual economic status of a company by the users of accounting information.

Other papers such as Lourenço et al., (2018), Xu et al. (2019) and Ozili (2019), also found similar evidence to Riahi-Belkaoui (2004). Results from Lourenço et al., (2018) study also suggests that the higher the level of corruption perception the more managers tend to manipulate results. Lourenço et al., (2018) finding meant an advance to the discussion presented by Riahi-Belkaoui (2004), because it showed corruption influences, positively and with more intensity, the adoption of results managing practices in countries adopting code law system. For countries adopting common law system the relation is shown to be less intense.

Xu et al. (2019) elucidated that the increase in perceiving cases of corruption by society, with the conviction of civil servants, incites unethical practices related to results management. With this, authors showed another perspective, that cases of local corruption also affect how managers change accounting choices for reaching private purposes. Ozili (2019), when studying bank institutions, also found that the perception of national corruption in public organizations incentives managers to distort a period results' even more. Such result provides contribution to literature since bank managers, a sector disregarded in other studies (Riahi-Belkaoui, 2004; Lourenço et al., 2018; Xu et al., 2019), also feel stimulated to increase the level of management as long as they notice the presence of public national corruption.

In this sense, the increased perception of corruption by civil servants and/or politicians by society reflects at company level when stimulating managers to distort results even more, such as found by Riahi-Belkaoui (2004), Lourenço et al., (2018), Xu et al. (2019), and Ozili (2019). Such relation may provoke negative impact, especially to users of accounting information, once they cannot see clearly how economic events were recognized in the generation of accounting demonstrations. With this the following study hypothesis is presented:

H1: There is a positive, significant relation between population's perception on national corruption and results management.

Although corruption level is a stimulating factor for managers to manipulate results in a more aggressive way (Riahi-Belkaoui, 2004; Xu et al., 2019), countries do not share similar levels of corruption (Gyimah-Brempong & Gyimah-Brempong, 2006). Law systems and enforcement levels are not equal among countries, causing some of them to show higher levels of corruption when compared to others (Holcombe & Boudreaux, 2015).

The difference as to rules effectiveness and application is one of the causes for companies from countries under code law system to manipulate results more intensely than companies from countries under common law system (Lourenço et al., 2018). Besides that, countries from the same area usually adopt the same law system and, thus, have similar restriction and enforcement levels *enforcement* (Treisman, 2000). That can be one of the reasons why, according to Treisman (2000), countries from the same area show similar corruption levels. This can be seen by means of the Corruption Perception Index, released once a year by International Transparency, an organ dedicated to following, measuring, and publishing corruption perceived by society since 1995.

By presenting similar corruption levels, countries from a same region present similar growth and economic development levels (Li, Xu & Zou, 2000; Podobnik, Shao, Njavro, Ivanov & Stanley, 2008). With this, corruption can also incentive unethical actions in society, at distinct

intensities, according to the regional location of the country. In this sense, it is understood that, depending on the geopolitical region, there are differences in the intensity of national corruption perception on the level of results manipulation. Therefore, in regions where corruption perception is sharper, with less rigid law systems and lower enforcement levels, managers see the increase on national corruption perception as an incentive to manage results in a more aggressive way than managers from regions where systems are more rigid and with more enforcement, besides lower levels of national corruption perception. In face of these discussions the following hypothesis was traced:

H2: According to the geopolitical region, there are distinct intensities in the positive, significant relation between population's perception about national corruption and the level of results management.

3 METHODOLOGY

3.1 Sample and procedure for data collect

Population in this study enclosed non-financial companies that negotiated shares in exchange from countries belonging to four different geopolitical regions in both American and European continents that published accounting information consolidated according to international rules of the *International Financial Reporting Standards* (IFRS). The time frame enclosed in the analysis covered annual periods from 2012 to 2019. So, population was composed by 4,137 companies from 47 countries, totaling 32,112 notes. For sample selection, companies presenting, at least, five notes with all information needed (dependent and independent variables) to achieve the aim of the present study from efficient estimations were considered.

In face of these restrictions, the initial sample had 25,419 notes referent 3,623 companies from 38 countries. Since the analysis chosen in this study bases on the average, outliers can distort results and their reading during it. Due to this all notes in the initial sample were submitted to Hadi multivariate test (1992), which identifies discrepant data. That test ranked 3,442 notes as outliers, which were excluded from the sample, so that the sample was reduced to 21,977 notes belonging to 3,239 companies from 38 countries. Information about sample composition is shown in Table 1.

Table 1
Countries participating in the sample

Latin America			**North America and the Caribbean**		
Country	Companies	Obs.	Country	Companies	Obs.
Argentina	32	57	Canada	311	2,056
Brazil	179	1,239	USA	34	221
Colombia	7	39	Jamaica	8	38
Mexico	84	608			
Peru	14	101			
Total	316	2,044	Total	353	2,315
Western Europe			**Eastern Europe**		
Country	Companies	Obs.	Country	Companies	Obs.
Germany	295	2,108	Croatia	48	338
Austria	34	262	Slovakia	2	16
Belgium	67	470	Slovenia	10	75
Cyprus	29	217	Estonia	10	68
Denmark	53	357	Hungary	15	102
Spain	85	561	Latvia	6	46
Finland	63	452	Lithuania	16	110
France	325	2,295	Poland	236	1,662
Greece	121	828	Czech republic	7	44
Netherlands	58	409	Romania	25	169
Ireland	12	72	Russia	94	558
Iceland	12	84			
Italy	156	1,082			
Luxembourg	6	36			
Malta	8	43			
Norway	84	534			
UK	468	3,145			
Sweden	157	989			
Switzerland	68	486			
Total	2,101	14,430	Total	469	3,188

Source: Elaborated by the authors.
Note: Obs. = Observations.

All economical-financial information of the companies were collected by means of Refinitiv Eikon®. The *Corruption Perceptions Index (CPI)*, calculated and annually published by the *Transparency International,* was adopted as proxy for measuring corruption perception. Macro-economic variables were obtained by means of the World Data Bank

Base. It is highlighted that across the time interval of this study the methodology for calculating corruption perception was the same. Consistency in calculating that measurement was important for eliminating any bias on results.

3.2 Measurement of results management

Dependent variable consists in discretionary *accruals* (AD), which values were measured by means of the Kothari, Leone and Wasley (2005) model and a modification of the measurement that was adapted by Dechow et al. (1995) from the model developed by Jones (1991). Information proposed by the Kothari et al. (1995) model was collected based on consolidated financial statements. But, before that, it is necessary to calculate total accruals. Due to that the balance technique was used, as presents Equation 1.

$$TA_{it} = (\Delta CA_{it} - \Delta Cash_{it}) - (\Delta CL_{it} - \Delta Fin_{it}) - Dep_{it}/A_{it-1} \quad (1)$$

Where: TA_{it} = total company's accruals *i* over time *t*; ΔCA_{it} = variation of current assets of company *i* in the end of time *t* related to time *t-1*; $\Delta Cash_{it}$ = cash variation of company *i* in the end of time *t* related to time *t-1*; ΔCL_{it} = variation of current liability of company *i* in the end of time *t* related to time *t-1*; ΔFin_{it} = variation of loans and financing of company *i* in the end of time *t* related to time *t-1*; Dep_{it} = depreciation of company *i* over time *t*, and; A_{it-1} = total assets of company *i* over time *t-1*.

With total accruals calculated, the next procedure consisted in separating discretionary accruals from non-discretionary ones, types of accruals the compose total accruals. Distinguishing those two types of accruals is crucial since discretionary accruals can be used by managers for changing net result over time from different motivations. Discretionary accruals were calculated from the metric present in Kothari et al. (2005) study, presented in Equation 2, considering regression by means of the *Ordinary Least Squares* (OLS) method, the same way other studies approaching the matter did, such as Lourenço et al. (2018).

$$\frac{TA_{it}}{A_{it-1}} = +\beta_0 + \beta_1\left(\frac{1}{A_{it-1}}\right) + \beta_2\left(\frac{\Delta R_{it} - \Delta AR_{it}}{A_{it-1}}\right) + \beta_3\left(\frac{PPE_{it}}{A_{it-1}}\right) + \beta_4\, ROA_{it} + \varepsilon_{it} \quad (2)$$

Where: TA_{it} = total company's accruals *i* over time *t*; A_{it-1} = total assets of company *i* over time *t-1* ΔR_{it} = variation of net revenue of company *i* over time *t*; ΔAR_{it} = variation of accounts receivable of company *i* over time *t*; PPE_{it} = fixed assets property, plant, and equipment of company *i* over time *t;* ROA_{it} = return on assets of company *i* over time *t*, and; ε_{it} = term of errors (residues) of regressions of company *i* over time *t*.

Residues from the respective multivariate model were estimated from the estimation of the regression above. Such residues enclose discretionary accruals (Kothari et al., 2005; Dechow et al., 1995). They may be either negative or positive, but the logic of Kothari et al. (2005) model is that the more distant the term of error of the regression, the higher the level of results manipulation by the manager. Since the aim of the present study is grounded in the intensity of results manipulation, the terms of regression errors obtained by means of Kothari et al. (2005) model were turned into a module. It was necessary so that the values of the variable would reflect the logic of Dechow et al. (1995) model that the more distant the term of error as to the regression line, the heavier the result management practiced by managers by means of discretionary accruals. Those transformed residues gave origin to the variable discretionary accruals (AD), used as a proxy for results management.

3.3 Measurement of corruption perception

Corruption measurement used in this study is calculated by International Transparency, so called corruption perception. In several countries it is annually calculated and presented by that organ from an index from 0 to 100, where the higher the value of the country index the lesser is the corruption perceived by society. Due to this, for the goal of the present study, the variable corruption perception was multiplied by -1. Such transformation causes it to be more intuitive in analysis and reading of results, since it reflects the increase on the index of corruption perceived by society.

3.4 Variables, econometrical model, and data analysis

The dependent variable of the study encloses discretionary accruals (AD) which reflect the level of results management practiced by managers. The variable corruption perception (PCORR) is the independent variable of interest of the study. Besides, variables of control were used that, according to the literature, relate to discretionary accruals. The specifications of all those variables, as well as variables of control, including theoretical support, are presented in Table 2:

Aiming at checking the influence of national corruption perception on results management, both at general and individual context of each geographic region, the following model was developed:

$$AD_{it} = \beta_0 + \beta_1 PCORRU_{it} + \beta_2 SMALL_{it} + \beta_3 LOSS_{it} + \beta_4 IND_{it} + \beta_5 OCF_{it} + \beta_6 MB_{it} + \beta_7 Size_{it} + \beta_8 INF_{it} + \beta_9 GDP_{it} + \varepsilon_{it} \quad (3)$$

Where, AD_{it} = discretionary accruals of company *i* over time *t*; $PCORRU_{it}$ = perception of national corruption in country *i* over time *t;* $SMALL_{it}$ = small earnings of company *i* over time *t*; $LOSS_{it}$ = loss of company *i* over time *t*; IND_{it} = indebtedness of company *i* over time *t*; OCF_{it} = operational cash flow of company *i* over time *t*; MB_{it} = *market to book of* company *i* over time *t*; $SIZE_{it}$ = size of company *i* over time *t*; INF_{it} = inflation referent annual period of country *i* over time *t*; GDP_{it} = variation of the Gross Domestic Product of country *i* over time *t*, e ε_{it} = term of errors of company *i* over time *t*.

The model was used when testing both hypotheses of the study, thus resulting in five multivariate models. The first model was designed for H1 tests as the other four ones were used for H2 tests. Analyzes were performed by means

of the statistic technique of panel data. Because of that, at first, the target was identifying which data panel estimation would suit better each of the five multivariate models. Among the estimation types are pooled, fixed, and random effects (Fávero & Belfiore, 2017). For identification purposes the notes referent each model were submitted to Chow, L.M. Breusch-Pagan and Hausman testing.

Table 2
Variables of research

Dependent variable				
Variable	**Description**	**Operationalization**		**Theoretical support**
Accruals discricionários (AD)	*Accruals* that can be used by managers to change accounting choices for nefarious purposes	$TA_{it}/A_{it-1} = \alpha_{it}\ [1/A_{it-1}] + \beta_{1i}[(\Delta R - \Delta AR_{it})/A_{it-1}] + \beta_{2i}[PPE/A_{it-1}] + \beta_{3i}ROA_{it} + \varepsilon_{it}$		Kothari et al. (2005)
Independent variables				
Interest variable				
Variable	**Description**	**Operationalization**	**Expected relation**	**Theoretical support**
Perception of National Corruption (PCORRU)	Level of perception of corruption by professionals in the management of private companies and by specialists in levels of corruption in the public sector	*Corruption Perception Index* Values. The index scale ranges from 0 to 100 multiplied by -1.	+	Lourenço et al. (2018)
Control variables				
Variable	**Description**	**Operationalization**	**Expected relation**	**Theoretical support**
Small Earnings (SMALL)	Indicates whether the ratio resulting from net income $_{it}$ /total assets $_{it}$ is between 0.00 and 0.01, which characterizes small earnings	Dichotomous variable that represents: (0) the net result is not classified as small profits and, (1) the net result for the period was classified as small profits.	+	Barth, Landsman & Lang (2008)
Loss (LOSS)	Identifies the companies that presented losses in the period	Dichotomous variable that represents: (0) the net income for the period was positive and, (1) the net income for the period was below zero/negative	+	Lourenço et al. (2018); Xu et al. (2019); Ali & Zhang (2015)
Indebtedness (IND)	Measure that represents the total debt level of the company	(Short-term debt $_{it}$ + Long-term debt$_{it}$)/Total Assets $_{it}$ *100	+	Lourenço et al. (2018); Xu et al. (2019); Almadi & Lazic (2016)
Operating Cash Flow (OCF)	Calculates the ratio of operating cash flow to total assets for the period	(Operating cash flow $_{it}$ /Total assets$_{it}$)*100	-	Ali & Zhang (2015)
Market to Book (MB)	Captures the business growth expectation for the market	Market value $_{it}$ / Equity $_{it}$	+	Xu et al. (2019); Martin et al. (2016); Ali & Zhang (2015)
Size (SIZE)	Total assets of each company transformed to logarithmic basis	Natural logarithm of Asset Total $_{it}$	-	Lourenço et al. (2018); Xu et al. (2019); Almadi & Lazic (2016)
Inflation (INF)	Inflation rate of the country when considering the registered during the annual period	Inflation rate in percentage	-	Okyere e Sarpong-Kumankoma (2021)
Growth of Gross Domestic Product (GDP)	National GDP growth rate in the annual period	Percentage variation in GDP	-	Dimitras, Kyriakou & Iatridis (2015); Filip & Raffournier (2014); Cimini (2015)

Source: Elaborated by the authors.

Next, a verification on the assumptions of the multivariate regression analysis was performed to state models were free from bias. Aspects referent multivariate normality, residues heteroscedasticity, serial autocorrelation, and multicollinearity were checked. The first assumption was checked by means of the Doornik-Hansen testing. Residues heteroscedasticity and serial autocorrelation were tested using Breusch-Pagan and Wooldridge testing, respectively. For diagnosing multicollinearity problems data were tested by using *Variance Inflation Factors* (VIFs).

4 PRESENTATION AND DISCUSSION OF RESULTS

Table 3 presents the descriptive statistics of variables composing the study.

Table 3
Descriptive statistics of variables

Panel A: descriptive statistics of all observations

Variables	Mean	Standard Deviation			Minimum	Maximum	Obs.
		O	B	W			
AD	0.1118	0.1278	0.0672	0.1106	0.0001	0.8874	21,977
PCORRU	-67.6716	17.4359	17.6269	2.1509	-92.0000	-27.0000	21,977
IND	25.3095	19.2306	14.9605	12.6866	0.0001	99.5626	21,977
OCF	6.8247	7.6190	6.2435	4.8391	-34.2712	48.0545	21,977
MB	1.8481	1.6713	1.5240	0.8182	0.0026	12.2189	21,977
Size	20.2089	2.1291	2.1147	0.2295	14.1685	27.0279	21,977
INF	1.6743	1.7983	1.7031	0.9962	-2.0969	10.9000	21,977
GDP	1.7566	1.7060	1.1271	1.3364	-7.0867	11.0791	21,977

Variables	*n with small earnings/loss*	*f* %	*n that do not represent small earnings/loss*	*f* %	Obs.
SMALL	1,485	6.76%	20,492	93.24%	21,977
LOSS	4,768	21.70%	17,209	78.30%	21,977

Panel B: Descriptive Statistics of Latin American Companies

Variables	Mean	Standard Deviation			Minimum	Maximum	Obs.
		O	B	W			
AD	0.1295	0.1462	0.0727	0.1299	0.0004	0.8515	2,044
PCORRU	-36.5323	4.6055	3.7285	2.7206	-43.0000	-28.0000	2,044
IND	28.8922	19.5744	15.5580	13.1634	0.0062	98.6767	2,044
OCF	6.9576	7.6868	6.3320	4.7782	-23.7805	42.2379	2,044
MB	1.7524	1.5541	1.3277	0.8582	0.0245	10.2158	2,044
Size	21.0144	1.5969	1.6416	0.2189	16.1712	26.5125	2,044
INF	5.2958	2.1907	1.9902	1.6975	1.5091	10.9000	2,044
GDP	1.1204	2.2140	1.1372	1.9169	-3.5458	6.1397	2,044

Variables	*n with small earnings/loss*	*f* %	*n that do not represent small earnings/loss*	*f* %	Obs.
SMALL	128	6.26%	1,916	93.74%	2,044
LOSS	418	20.45%	1,626	79.55%	2,044

Panel C: Descriptive Statistics for North American and Caribbean Companies

Variables	Mean	Standard Deviation			Minimum	Maximum	Obs.
		O	B	W			
AD	0.1321	0.1471	0.0746	0.1273	0.0001	0.8511	2,315
PCORRU	-79.9253	5.7820	6.2430	1.8969	-84.0000	-39.0000	2,315
IND	25.6685	19.5380	15.1478	12.7119	0.0038	98.6647	2,315
OCF	7.3031	7.8235	6.0680	5.3556	-27.5667	43.9201	2,315
MB	1.6713	1.4475	1.3034	0.7984	0.0033	11.7089	2,315
Size	20.1477	2.1310	2.1651	0.2610	14.3895	25.0672	2,315
INF	1.6415	0.5239	0.3138	0.4494	0.3680	4.3784	2,315
GDP	2.0240	0.8174	0.1955	0.8016	0.6592	3.0398	2,315

Variables	*n with small earnings/loss*	*f* %	*n that do not represent small earnings/loss*	*f* %	Obs.
SMALL	140	6.05%	2,175	93.95%	2,315
LOSS	747	32.27%	1,568	32.27%	2,315

Panel D: Descriptive Statistics of Western European Companies

Variables	Mean	Standard Deviation			Minimum	Maximum	Obs.
		O	B	W			
AD	0.1059	0.1227	0.0645	0.1065	0.0001	0.8874	14,430
PCORRU	-73.5369	13.1220	13.0360	2.1832	-92.0000	-36.0000	14,430
IND	25.1283	19.1652	14.9021	12.5819	0.0001	99.5626	14,430
OCF	6.5791	7.4138	6.2417	4.5190	-33.0084	48.0545	14,430
MB	2.0330	1.7734	1.6259	0.8556	0.0026	12.2189	14,430
Size	20.3049	2.1623	2.1439	0.2258	14.5584	27.0279	14,430
INF	1.1081	0.9486	0.5924	0.7505	-2.0969	5.1859	14,430
GDP	1.5181	1.5697	1.0364	1.2669	-7.0868	11.0791	14,430

Variables	*n with small earnings/loss*	*f* %	*n that do not represent small earnings/loss*	*f* %	Obs.
SMALL	915	6.34%	13,515	93.66%	14,430
LOSS	3,024	20.96%	11,406	79.04%	14,430

Panel E: Descriptive statistics on Eastern European companies

Variables	Mean	Standard Deviation			Minimum	Maximum	Obs.
		O	B	W			
AD	0.1121	0.1201	0.0648	0.1029	0.0001	0.8860	3,188
PCORRU	-52.1901	12.3447	12.7394	1.7219	-74.0000	-27.0000	3,188
IND	23.5723	18.7843	14.4068	12.8336	0.0002	99.3558	3,188
OCF	7.5042	8.2585	6.2460	5.7858	-34.2712	43.1221	3,188
MB	1.2006	1.1621	1.0663	0.6054	0.0371	10.5603	3,188
Size	19.3024	1.9689	1.9852	0.2282	14.1685	26.7358	3,188
INF	1.9387	2.2396	1.7524	1.5166	-1.5448	7.8234	3,188
GDP	3.0498	1.7446	0.9474	1.4919	-2.6394	7.3194	3,188

Variables	*n with small earnings/loss*	*f* %	*n that do not represent small earnings/loss*	*f* %	Obs.
SMALL	302	9.47%	2,886	90.53%	3,188
LOSS	579	18.16%	2,609	81.84%	3,188

Source: Elaborated by the authors.
Note: O = Overall; B = Between; W = Within; Obs. = Observations; *n* = number of notes, and; *f* % = relative frequency.

The variable discretionary accruals, when taking all companies of the sample into account, presented an average 0.112 with standard deviation ± 0.128. when considering specific results of companies per geopolitical region, at first sight, it is understood that results do not significantly vary when taking the level of results management into account. The average discretionary accruals from Latin America companies are 0.129 (± 0,146), North America and Caribe 0.132 (± 0,147), Western Europe is 0.106 (± 0,123), and Eastern Europe is 0.112 (±0,120). However, when submitting data to Kruskal-Wallis test, results indicate that (X^2 = 100.370 and p-value < 0.0001) and there is a significant difference at 1% level regarding discretionary accruals among companies negotiating shares in different geopolitical regions. Such difference occurs due to higher levels of discretionary accruals in Latin America and North America and Caribe companies.

With regards to the variable corruption perception, the average of all countries in the analysis is -67.67 (± 17.44). Nevertheless, countries from different regions behave distinctly as to corruption perception. The region which countries, in average, have higher levels of perceived corruption is Latin America, with an average -36.53 (±4.60), followed by countries from Western Europe with average index -52.19 (±12.34). Regions which countries have lower indexes of corruption perception are North America, with average -79.92 (± 5.78), and Eastern Europe, with average -73.53 (± 13.20). Kruskal-Wallis test evidenced that (X^2 = 9.690 and p-value < 0.0001) there is significant difference, at 1% level, in the indexes of corruption perception in countries from the four regions analyzed.

After descriptive statistics, data were submitted to tests aiming at checking whether all assumptions needed for performing multivariate estimations are in conformity. Spearman correlation test indicated that any correlation from independent variables presented a correlation coefficient over 0.70. Similarly, VIF test suggests that any variable, from any model, presented a value above 5. Such results point to the absence of multicollinearity in all multivariate models, as suggested by Fávero and Belfiore (2017).

Breusch-Pagan test indicated that there is residue heteroscedasticity present in all multivariate models. Serial autocorrelation test indicated all models have a first-order serial autocorrelation. Aiming at softening problems raised by heteroscedasticity and serial autocorrelation, models were estimated from the clustering in individuals. Results from multivariate models are presented in Table 4.

Table 4
Multivariate models

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
	Total	Latin America	North America and the Caribbean	Western Europe	Eastern Europe
	Coef. (Stat. T)	Coef. (Stat. T)	Coef. (Stat. T)	Coef. (Stat. T)	Coef. (Stat. T)
PCORRU	0.0009 (2.13**)	0.0018 (2.60***)	0.0046 (3.09***)	0.0004 (0.89)	0.0011 (0.95)
LOSS	-0.0009 (-0.27)	-0.0062 (-0.69)	-0.0048 (-0.52)	-0.0004 (-0.12)	0.0011 (0.17)
SMALL	0.0062 (1.48)	0.0051 (0.34)	-0.0251 (-1.48)	0.0108 (2.13**)	0.0030 (0.39)
IND	0.0011 (10.38***)	0.0017 (7.38***)	0.0009 (2.71***)	0.0011 (8.11***)	0.0009 (3.58***)
OCF	-0.0006 (-3.75***)	-0.0005 (-1.31)	-0.0001 (-0.34)	-0.0008 (-3.65***)	-0.0002 (-0.73)
MB	0.0034 (3.20***)	0.0038 (1.53)	0.0050 (1.42)	0.0028 (2.42**)	0.0048 (1.35)
Size	-0.0178 (-3.35***)	-0.0019 (-0.84)	-0.0378 (-2.65***)	-0.0207 (-3.00***)	-0.0152 (-1.04)
INF	0.0017 (1.90*)	0.0001 (0.03)	-0.0200 (-2.74***)	0.0054 (3.94***)	0.0007 (0.45)
GDP	0.0001 (-0.13)	0.0013 (0.68)	0.0109 (3.05***)	-0.0008 (-1.07)	-0.0005 (-0.32)
Constant	0.5002 (4.36***)	0.1856 (3.37***)	1.2498 (3.82***)	0.5267 (3.55***)	0.4374 (1.40)
R^2 (Within)	0.0255	0.0294	0.0311	0.0286	0.0224
R2 (Between)	0.0730	0.1518	0.0116	0.0688	0.1378
R2 (Overall)	0.0299	0.0588	0.0070	0.0283	0.0487
Obs.	21,977	2,044	2,315	14,430	3,188
F Test	28.96***	66.37***	4.83***	21.42***	3.85***
Chow	1.63***	1.35***	1.56***	1.63***	1.59***
Hausman	94.97***	7.34	30.29***	49.83***	38.65***
L.M. Breusch-Pagan	386.73***	20.92***	38.86***	228.41***	43.00***
VIF (smaller)	1.04	1.05	1.05	1.04	1.06
VIF (larger)	1.29	2.35	1.63	1.38	2.39
Breusch-Pagan	3.647.21***	420.71***	429.22***	2.352.17***	473.43***
Wooldridge	105.43***	13.22***	10.57***	83.37***	4.30**

Source: Elaborated by the authors.
Note**:** Coef. = coefficients; Estat T = statistic value T; Obs. = notes, and; *significance at level 10%, **significance at level 5% and *** significance at level 1%.

Evidence from Model 1 indicate that corruption perception relates in a positive and significant way (Coef. = 0.0009; p-Value<0.033) to discretionary accruals. It shows populations' perception stimulates managers to adopt or intensify practices of result management. Other regression multivariate models indicate that companies from Latin America countries (Coef. = 0.0018; p-Value < 0.009) and North America and Caribe ones (Coef. = 0,0046; valor-p < 0,002) there is a positive, significant relation between corruption perception and discretionary accruals. Results from other models (both Western and Eastern Europe) suggest there is no statistically significant relation between corruption perception and discretionary accruals.

5 DISCUSSION OF RESULTS

Descriptive results pointed that the average of discretionary accruals was 0.11, similar to Lewelly and Bao (2017) study in which the average of discretionary accruals was 0.11. However, it differs from Lourenço et al. (2018) study, who found an average 0.039. One of the reasons that might justify such difference is the fact that the present study, as Lewelly and Bao (2017), did not restrict the sample when considering a company's specific features, such as companies issuing ADRs analyzed by Lourenço et al. (2018). Companies issuing ADRs are taken as stable because they tend to offer more incentive to transparency, better quality financial reports (Lourenço et al., 2018) and, in turn, lower levels of results management.

With regards to the findings from multivariate models, when considering the whole sample, results indicated that the increase on corruption perception levels implies in increasing practices of results management. Such finding caused the acceptance of the first research hypothesis (H1). That result agrees with that found by Riahi-Belkaoui (2004), Lourenço et al. (2018), Xu et al. (2019), and Ozili (2019) studies. So, there is a contribution, especially to Lourenço (2018) study, that perception of national corruption is not an incentive to practices of manipulating financial statements only for those issuing ADRs but also to larger size companies. That is because companies issuing that type of receipt tend to be larger in size in the share market of their origin country.

From that result there is a contribution to Riahi-Belkaoui (2004) study since the increase on the perception of corrupted actions involving civil servants and even companies with a low probability of punishment induces managers to take unethical practices aiming at private gains. It happens because, such as public managers, many times colluded to companies who are not punished, companies' managers detect that the enforcement tools may not be so effective as expected, what is a stimulation for manipulating results, even harming other agents, in order to reach their private goals. That contribution is not restricted to the discussions presented by Riahi-Belkaoui (2004) since it also brings contribution to Santos and Takamatsu (2018) study. It is because, differently from the indicated by authors, the increase on the perception of corrupted practices is a stimulating factor for managers to adopt or even intensify the practices of results management.

Besides that, the positive relation between corruption perception and results management may differ as to the geopolitical region of the origin country of a company. Even because there are different corruption and enforcement levels depending on the geopolitical region (Treisman, 2000). Results suggest there is a positive, significant relation between corruption perception and results management in companies from Latin America, North America, and Caribe countries. Companies from other regions did not present a relation between corruption perception and results management. These results collide against the second hypothesis (H2) that says according to geopolitical region there are different intensities in the positive relation between population's perception on national corruption and the level of results management.

Second research hypothesis is rejected because a positive relation was expected among corruption perception of all geopolitical regions analyzed. Since it did not occur, H2 was rejected. Although that hypothesis was rejected, there are contributions to literature. This is because results indicated that there are differences in the way corruption practices are perceived by managers, as incentive to intensify practices for results manipulation. In North America and Caribe that stimulation takes place in an even more intense way than when analyzing all companies from different geopolitical regions as a single sample.

Results on geopolitical regions have a direct contribution to Gyimah-Brempong and Gyimah-Brempong (2006) studies because when different geopolitical regions are compared it is noticed that managers from Latin America, North America, and Caribe disagree with companies from other regions. But that contribution does not match all authors line of reasoning since not always the increase on the perception of corrupted practices takes to an increase of results management. This is why it is essential to analyze each region features and, even, each countries peculiarity.

The non-relation of corruption perception and results management in countries from Latin America, Eastern, and Western Europe may be justified from the logic that managers are stimulated to manage results from aspects directly linked to the company, such as contracts and market perception on the company (Healy & Wahlen, 1999; Shuto, 2007; Suffian et al., 2015), which are not directly influenced by corruption perception. Besides, evidence referring those regions may be taken as beneficial to some external users such as creditors and investors, since they will understand that managers will not increase practices linked to results manipulation when there is an addition of corruption perception.

Such effect can be considered as a positive one mainly by transnational banks who grant loans to different companies in different countries from European continent. Once, even in regions which countries have a sharp level of corruption perception, perception on the increase of illicit

acts is not seen as an incentive for managers to worsen the quality of their financial statements. Investors who have a diverse portfolio in different countries can also get benefit since they can put attention to aspects that directly impact on the company, such as uncertainty environment, and quality of the corporative governance mechanisms, demonstrably considered as triggers for managers to manipulate results in order to attend contracts or cheat on market, such as discussed by Xie, Davidson III and DaDalt (2003), and Yung e Root (2019) studies.

However, such benefit is not valid for financial institutions and investors who lend or apply financial resources on North America companies. Even because, since managers acting on companies from these countries are responsive to the increase on society perception of corruption acts, creditors and investors must pay attention to the accounting choices used by companies during times when corruption perceived is increased so they do not take wrong decisions based on results.

6 CONCLUSIONS

Results indicate that, when analyzing the set of companies from American and European continents, it is concluded that the increase on corruption perception by society is a factor stimulating managers to adopt or intensify the manipulation of results in order to reach private goals. Such finding updates the statements from Riahi-Belkaoui (2004), Malagueño et al. (2010), Lourenço et al. (2018) and Ozili (2019) studies, which identified a relation between corruption and results management.

Those authors analyzed the matter without differentiating countries according to geopolitical regions. Since countries from the same region share law, economic, and corruption perception similar context, it was needed to make an individual analysis of each region. Segmented data analysis revealed that such relation occurs depending on the region the company negotiates shares at, since it is sustained by companies from Latin America, North America, and Caribe countries. On the other hand, corruption perceived by society is not a factor stimulating managers to manipulate results in companies from both Eastern and Western Europe.

6.1 Implications and suggestion for future research

Such results offer some contributions in both theoretical field and accounting practice. At theoretical field, when considering all companies in capital market generating financial statements from the IFRS standard scope, as for most European and Latin American countries, it is understood that when there is variability on the corruption level perceived by society, managers do not change their behavior as to the changes on accounting practices in companies negotiating shares in European countries. It is an interesting statement since, although it provides a higher discretionary level when compared to local standards (Van Tendeloo & Vanstraelen, 2005), managers do not make use of perceptions on unethical prerogative of government parties to think of the environment and feed private spurious purposes by means of manipulating the results over a period.

Thus, researches working on the same issue can be complemented, but at a more restrict environment or over periods during which the international standard was being built/under adoption process, such as Lourenço et al. (2018) study, for it approached only ADRs companies, and Riahi-Belkaoui (2004) and Malagueño et al. (2010) studies because they analyzed companies over a period in which international standard was being discussed or under adoption process in several countries.

In practical terms results contribute to investors decisions in different ways. With regards to European companies, they can understand that variation on corruption perception is not a factor resulting in changes on managers accounting choices. Thus, the investor can understand that perception on corruption is not itself an incentive for promoting accounting information that do not report economic reflexes properly, jeopardizing a more assertive decision taking with regards to choosing for investments. But, when it comes to Latin America companies and North America and Caribe ones, that logic is reversed.

There is a contribution, as well, to creditors analyzes in several ways. For companies creditors negotiating in capital markets from European countries, mainly those operating in Eastern Europe (region concentrating more countries with higher indexes of corruption perceived in Europe). This is because when they effect company monitoring, they will access information that are not so susceptible to changes due to changes on corruption levels perceived by population. On the other hand, that benefit is not valid for creditors from American continent companies, since in these countries managers adopt or intensify practices of management when the perception of national corruption increases. Companies must worry about this factor and thus make use of mechanisms to soften information asymmetry caused by the use of accounting choices for manipulating results.

Consequently, investors and creditors can both include corruption perception, depending on the geopolitical region where the company operates at, to a list of other internal and external factors to the company that bring direct impact on operational activities and, in turn, companies net result over the period. Those points regard with political uncertainty, economic cycles, and law systems. In internal field, they consist in the quality of internal control mechanisms, especially those linked to corporative governance, which can fight opportunistic actions from managers in face of different private purposes, such as increasing wealthy and CEO status, or changing the perception of both market and creditors about the financial-economic company health status.

In terms of limitations, perception of national corruption by population does not capture all corruption acts practiced by civil servants and politicians, since corruption

mechanisms may not be detected by controlling organs and, thus, remain unnoticed by population. So, room is created for future researches to work specifically with companies involved in corruption gates with politicians/civil servants, because in the presence of corrupted management and controlling mechanisms, managers can be more aggressive in changing accounting information. Another suggestion is focusing on aspects associated to corruption, such as uncertainty and economic freedom, which directly interfere with the company's operational context and, thus, can stimulate managers to distort accounting information.

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