

Relationship between Modified Audit Opinion, Earnings Management and Auditor Size: evidence from Brazil

Relação entre Relatórios de Auditoria Modificados, Gerenciamento de Resultados e Tamanho da Firma de Auditoria: evidências em empresas brasileiras abertas

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Abstract

*This paper examines the relation between earnings management (EM) and auditing main variables (the audit firm size and its report) in a balanced panel of Brazilian listed firms during the period 2012-2015. We estimate EM through both Kasznik (1999) and Kothari, Leone and Wasley (2005) models. As result, EM positive relationship with audit report qualifications means that higher level of discretionary accruals triggers the issuance of a modified audit opinion. The second finding of the proposed model, the negative relationship between audit qualifications and the presence of a Big4 auditor, is both explicated by its capacity to inhibit EM and by its clients' financial characteristics. **Keywords:** Earnings Management, Discretionary Accruals, Modified (or Qualified) Audit Opinion, Big4.*

Resumo

Este artigo examina a relação entre o gerenciamento de resultado (GR) e as principais variáveis de auditoria (o tamanho da empresa de auditoria e o seu relatório) em um painel balanceado de empresas brasileiras listadas durante o período 2012-2015. Nós estimamos

o GR através dos modelos de Kasznik (1999) e de Kothari, Leone e Wasley (2005). O resultado é que níveis maiores de provisões discricionárias aumentam as chances de receber um parecer de auditoria qualificado. A relação negativa entre as qualificações e a presença de um auditor do tipo Big4 é explicada pela capacidade deste de inibir práticas de GR e pelas características financeiras de seus clientes.

Palavras-chave: Gerenciamento de resultado, Provisões discricionárias, Opinião de Auditoria Modificada (ou qualificada), Big4..

1 Introduction

Excluded by the pioneer last century cross-country studies about earnings management for its hyperinflationary economy (Leuz; Nanda; Wysocki, 2003) and for the recent adoption of IFRS (fully applicable from accounts ending in 2011), Brazil has been seen as having relatively weak corporate governance. In a ranking of 49 countries based on 1997 corporate standards, Nenova (2003) placed Brazil 24th for investor rights, 43rd for enforcement of corporate law, and 40th for accounting standards. Moreover, Brazilian law allows for both voting and non-voting shares. This corporate governance variable is analyzed by Li and Zaiats (2017), confirming that dual class ownership structure weakens the mitigating impact of investor protection on earnings management. This recent international comparison among countries empirical study has illustrated that Brazil exhibits highest level of (real) earnings management.

Theoretically, external auditors play a key role in the corporate governance framework as a monitoring mechanism in assuring the integrity of accounting figures and in reducing the agency costs, resulting from managers' opportunistic incentives. Local recent financial scandals seem to not confirm this hypothesis. In 2013, PricewaterhouseCoopers (PwC) has been condemned by the São Paulo court to pay R\$ 25m to the former controlling shareholders of Banco Noroeste, for not having identified frauds made prior to its sale to Santander (happened in 1998). In January 2016, KPMG had current accounts blocked by the courts in a process that investigates whether the audit was properly conducted in checking BVA bank accounts, which went bankrupt 2014. In this case object of the charges is the unqualified opinion issued by KPMG. The last audit scandal is that of PwC, auditor of Petrobras, the largest Latin American company which is under investigation for a fraud scheme since 2012.

In this study, we aim to investigate the relationship between earnings management and auditor reporting for firms listed on the Brazilian Stock Exchange (Bovespa) for the post-IFRS period 2012-2015, trying to answer to the following questions: (i) Is a Modified Audit Opinion (MAO) triggered by Earnings Management (or EM) practices? (ii) Is it influenced by the presence of an audit market leader? (iii) or is "simply" driven by auditee financial characteristics?

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While research on earnings management is abundant, the role of auditors in potentially approving managers' opportunistic behavior needs to be further investigated and it is totally absent in local academic literature.

Part of the scholars believe that audits of high accrual firms pose more uncertainty than audits of low accrual firms because of potential estimation error and a greater chance that high accrual firms incorporate undetected asset realization and/or going concern problems. Accordingly, the way that auditors compensate for this risk exposure is to lower their threshold for issuing modified audit reports, an action that will increase modified reports and, therefore, lessen the likelihood of failing to issue a modified report when appropriate. This attitude is defined by Francis and Krishnan (1999) as "auditor reporting conservatism". On the other side, Butler, Leone and Willenborg (2004) find no evidence that firms receiving qualified audit opinions manage earnings more than those receiving unqualified opinions.

With the support of this literature framework, we examine the relation between earnings management (EM) and auditing main variables (the audit firm and its report). The interest of the paper is both theoretical and practical. From a theoretical viewpoint, it compensates for the lack of empirical knowledge about the structure of the Brazilian audit market, and specifically highlights the competition barriers between different categories of audit companies through the characteristics of their client portfolios. From a practical point of view, it predicts, based on the company's financials, the probability to receive a qualified audit opinion. Such a work may interest institutional bodies and market regulators, as well as large audit company in the definition of their global market strategy and to add new tools for EM detection.

We expect earnings management to be positively correlated with a modified audit report (this is to say earnings management trigger the issuance of a modified audit opinion) and negatively with auditor size (this is with Big4 auditor presence).

The paper is organized as follows: in chapter 2 the literature review on the argument is offered; in chapter 3, methodology is explained in order to individuate the dependent, the independent and control variables together with the regression model and test applied in order to validate the hypothesis on the field. Finally, results and conclusions are presented, respectively, in chapter 4 and 5.

2 Literature review

Although there are several studies that examine audit opinions from different angles (e.g. auditor switching, audit-related litigation, financial distress etc.), few studies examine the likelihood of a company receiving a qualified audit report in association with the level of (abnormal) accruals and their findings are controversial.

Francis and Krishnan (1999) find that auditors of large sample of U.S. listed firms with high levels of accruals are more likely to issue qualified opinions, for asset realization uncertainties and going-concern issues, than auditors of firms with low absolute levels of accruals. According to the authors of this pioneer work on the subject, accounting accruals are managers' subjective estimates of future outcomes and cannot be objectively verified by auditors prior to occurrence. This causes audits of high accrual firms to pose more uncertainty than audits of low accrual firms because of potential estimation error and a greater chance that high accrual firms have undetected asset realization and/or going concern problems related to the high level of accruals. One way that auditors can compensate for this risk exposure is to lower their threshold for issuing modified audit reports, an action that will increase modified reports and, therefore, lessen the likelihood of failing to issue a modified report when appropriate (defined by the authors as "auditor reporting conservatism"). Consequently, empirical results for a large sample of U.S. publicly listed companies support the hypothesis that auditors are more conservative, that is, more likely to issue both types of modi-

fied audit reports for high accrual firms.

Bartov, Gul and Tsui (2001) build different univariate logistic regressions, demonstrating a significant relation between discretionary accruals and the likelihood of receiving qualified reports. They also tested that cross-section models work better than their time-series counterparts.

Chen, Lin and Zhou (2005), using data from the Chinese stock market, investigate the relationship between earnings management induced by profitability regulation and MAOs. Based on annual reports published by listed companies from 1995 to 1997, test results show a significant association between receiving MAOs and reporting profits marginally above the target levels specified in stock de-listing and rights offering regulations. It is important to note that specific market regulations in China require (d) that shares be suspended from trading for companies reporting losses for three consecutive years and that companies wishing to raise additional capital must maintain a minimum return on equity of 10 percent for three consecutive years. While these regulations expressly emphasize the need to maintain profitability targets, they are silent about the type of auditor's opinion. Consequently, authors' conclusion is that managers engage in significant earnings management in order to meet the regulatory target profitability level and subsequently their opportunistic accounting method choices are associated with an increased frequency to MAOs.

Johl, Jubb and Houghton (2007) examine the question in the Malaysian context. Based on the matched pair sample of companies listed on the KLSE, results provide support for the hypotheses that high EM proxied by absolute abnormal accruals is positively associated with qualification. In addition, as per earlier findings using Western data, Big5 auditors in Malaysia appear to qualify more frequently than their non-Big5 counterparts when high levels of abnormal accruals are present. However, according to the authors, the interaction between auditor industry specialization and abnormal accruals is not significant in predicting the incidence of qualification.

Sengupta and Shen (2007) re-examine this issue and indicate that the probability of receiving a going-concern audit opinion is higher when the quality of accruals for a firm is low.

Omid (2015) investigates the relationship between qualified audit opinions and earnings management for 2818 firm-years, listed on the Tehran Stock Exchange (TSE). The scholar finds that MAOs are positively related to discretionary accruals: the higher the level of discretionary accruals, the greater the probability of receiving a qualified opinion.

But not all studies lead to the same results. Bradshaw, Richardson and Sloan (2001) support that auditors are poor users of accruals information and they are not likely to issue qualification for high accrual clients.

Evidence in Nelson, Elliott and Tarpley (2002) suggests that auditors and management virtually always resolve earnings-management issues before opinions are issued. They conducted a survey of 253 audit partners and managers of a Big 5 firm, who described 515 specific incidences of potential earnings management detected during the course of their audits. In only seven cases (close to 1% of the total) did the putative earnings management attempt lead to an opinion modification. Moreover, these seven modifications could be due to disagreements, between management and the auditor, about the application of GAAP rather than earnings management. In any case, the other 99% of cases were resolved prior to the issuance of the financial statements and audit report.

Butler, Leone and Willenborg (2004) document that relation between modified opinions and abnormal accruals rests (just) with companies that have going-concern opinions. These firms have large negative accruals that are likely due to severe financial distress. Overall, authors find no evidence to support that firms receiving modified audit opinions manage earnings more than those receiving clean opinions.

Herbohn and Ragunathan (2008) investigate the relationship between abnormal accruals and the probability of receiving a qualified audit opinion in Australia, by using a sample of firms listed on the Australian Stock Exchange (ASX) over the period 1999-2003. Consistently with Butler, Leone and Willenborg (2004) research, they document a negative relation between accruals and audit opinion modifications that is attributable to going concern opinion firms, finding no evidence that managers exploit the inherent uncertainty regarding the realization of asset benefits or provisions for liabilities to manage results in order to meet short-term earnings benchmarks.

Ajona, Dallo and Alegria (2008) test the relationship between qualified opinion and earnings management in the Spanish context with a sample of private pre-bankrupt firms. Their work reveals a negative association, which stems from reports containing uncertainty about the likelihood of a firm continuing as a going-concern. However, when the reasons for the qualification are other than the going-concern, they found a positive relationship. They suggest that auditor reporting is a positive response to earnings management and that the negative relationship in going-concern cases is outcome of auditor conservatism rather than a result of the distressed status of the firm and its liquidity strategies for survival.

Tsipouridou and Spathis (2014) examine the question for listed firms on the Athens Stock Exchange (ASE). Results provide evidence, differently from Butler, Leone and Willenborg (2004) and Herbohn and Ragunathan (2008), that the going-concern qualification decision is not related to the level of discretionary accruals, both in the full and in the distressed samples. The variability in the going-concern decision is better explained by financial characteristics. According to the authors, auditors do not incorporate information in accruals into their opinions. In addition, auditor's decision to issue qualified opinions for "other reasons" is explained by the type of audit opinion issued in the previous year.

Gajevszky (2014) conducts a study on the sample of 60 Romanian listed on the Bucharest Stock Exchange in 2012. The most significant findings of this research are that the probability to manage earnings to the decrease is related to the issuance of a qualified audit report and the presence of a Big4 auditor. Results of this study indicate that auditor size is negatively associated with EM as measured by discretionary accruals.

Regarding the association between a qualified opinion and the presence of an Audit Market Leader, there is no consensus in literature. Tsipouridou and Spathis (2014) conjecture is that, since audit quality is the same for Big4 and non-Big4 auditors regarding the constraint of clients' earnings management, there should also be no differentiation in the audit qualification. But their research finding is a negative and statistically significant relationship between Big 4 audit firms and the probability of receiving a qualified opinion, except for the years 2005 and 2009, supporting the argument that firms audited by Big 4 auditors are more likely to receive an unqualified opinion. This result is inconsistent with previous studies, which document that Big 4 audit firms are more likely to issue qualified opinions, compared with non-Big 4 firms (Gaeremynck; Van der Meulen; Willekens, 2008), or studies with insignificant relationship between the Big 4 and the audit qualification variable (Chan; Lin; Mo, 2006; Bartov; Gul; Tsui, 2000). Thus, the fact that Big 4 auditors have a greater propensity to issue unqualified reports could be attributed to client characteristics, and not to audit quality per se: Tsipouridou and Spathis (2014) find that clients of Big 4 are larger in size, with international orientation, and adjust more to corporate governance mechanisms and the implementation of IFRS. These factors indicate that they have a lower likelihood of receiving a qualified opinion. An additional explanation given by these authors is that the economic bonding between auditors and large clients is even stronger, encouraging auditors to act less conservatively, and report more favorably, in an effort to retain their influential clients. However, this condition

impairs the exercise of auditors' independent judgment.

Omid (2015) also demonstrated that client financial characteristics, such as profitability, size, type of audit opinion in previous year and prior year loss are also determinants of the qualified audit opinion decision.

In national literature there is little about the relationship between the EM and the main "product" of audit activity: the auditors' report. Ramos and Martinez (2006) implemented an empirical study about Brazilian listed firms in 2003 and 2004 aimed at investigating whether "good" corporate governance practices minimize (or not) earnings management. As a "by-product" of this research a non-parametric test was used to verify that in 2003 companies with qualified audit opinion showed average discretionary accruals higher than companies with unqualified audit opinion.

Given the contrasting results in international studies and the absence of a local literature on the subject, we decided to test the following hypotheses in the Brazilian environment:

H1: There is a positive relationship between the issuance of audit qualification and discretionary accruals;

H2: There is a negative relationship between the issuance of audit qualification and the presence of a Big4 auditor;

H3: If H2 is confirmed, there is a negative relationship between discretionary accruals and the presence of Big4 auditor.

3 Sample Selection and Research Methodology

Accounting, financial and corporate governance data are collected from the Comdinheiro database in 2016. Data population is composed by Brazilian listed firms observed during the period 2012-2015 (hereafter also "the period"). From initial data sample, we remove (i) financial institutions due to their peculiar accounting standards and regulatory status, consistently with previous studies, (ii) companies incorporated or listed after the 2011 or (iii) delisted due to mergers, acquisitions, or bankruptcy after 2011 and (iv) firms with missing data during the period, getting a final balanced panel of 283 listed companies for a total of 1,132 firm-year observations.

3.1 Regression model for H1 and H2

Common hypotheses pre-requisite is the calculation of the variable Earnings Management. Evidence from prior studies suggest discretionary (abnormal) accruals as generally accepted proxy for earnings management as per Becker et al. (1998), Healy and Wahlen (1999), Bartov, Gul and Tsui (2000), Chang (2001) and Chen and Huang (2001).

Based on Jones (1991), total accruals are calculated as the difference between earnings and cash flow from operation. There are many models that decompose total accruals into discretionary and non-discretionary.

The original Jones model mainly calculated the non-discretionary accruals as a function of the (change in) sales and fixed assets (property, plant and equipment). Dechow, Sloan and Sweeney (1995) modified the Jones formula netting the change in sales by the change in receivables. Kasznik (1999) added to the modified Jones model the impact of the variable (change in) cash flow from operations, while Kothari, Leone and Wasley (KLW, 2005) added the variable return on asset (this is, Result and, then, scaling by previous year Total Asset).

According to these two approaches, total accruals can be expressed as in the following equations:

$$[1a] TA_{it} = \alpha_{it} (1/A_{t-1}) + \beta_{1t} (\Delta REV_{it} - \Delta REC_{it})/A_{t-1} + \beta_{2t} PPE_{it}/A_{t-1} + \beta_{3t} \Delta CFO_{it}/A_{t-1} + \varepsilon_{it}$$

$$[1b] TA_{it} = \alpha_{it} (1/A_{t-1}) + \beta_{1t} (\Delta REV_{it} - \Delta REC_{it})/A_{t-1} + \beta_{2t} PPE_{it}/A_{t-1} + \beta_{3t} RES_{it}/A_{t-1} + \varepsilon_{it}$$

where: TA_{it} = Total accruals for firm i in year t ; ΔREV_{it} = Revenues for year i in year t less revenues in year $t-1$; ΔREC_{it} = Receivables for firm i in year t less receivables in year $t-1$; PPE_{it} = Gross Property, plant and equipment for firm i in year t ; ΔCFO_{it} = Change in cash flow from operation for firm i in year t ; RES_{it} = net result for firm i in year t ; A_{it-1} = Total assets in year $t-1$; and ϵ_{it} = model error term.

In the above equation, nondiscretionary accruals are fitted values of model and discretionary accruals are determined as the residuals. All variables are scaled by total assets in year $t-1$, in order to mitigate heteroscedasticity issues, and that values of discretionary accruals are calculated in absolute terms since we are not interested in the sign of the term.

In order to answer the first research question, whether the audit opinion decision is related to earnings management, a logistic regression model in which the modified audit opinion (MAO) is the dependent dichotomous variable.

NBC-TA-700 deals with the Audit Opinion and Auditor's Report on Financial Statements; NBC-TA-705 with modifications to the Opinion and the NBC-TA-706 with the matter of emphasis and others matter paragraph in the auditor's report. Based on these references, the kinds of audit opinion in ascending order of "gravity" are (i) Clean or unqualified; (ii) With paragraph of emphasis: to be issued when the auditor becomes aware of facts that are not in disagreement with the accounting practices (and therefore are not exceptions) or limitation on the audit extent, but affect the analysis and interpretation of the financials; (iii) With exception: this is when the auditor finds some deviations that affect the statements but do not disqualify the whole; or limitation in the execution of the work; (iv) Adverse: in this case the disagreements found affect the whole of the financial statements that do not represent the financial situation of the company; (v) With disclaimer: it is when the auditor has not implemented all audit procedures to the extent he deemed necessary and therefore could not form an opinion on the statements as a whole and will not issue any opinion.

In 2014, IASB modified the IAS 27, (re)introducing the equity method in Separate Financial Statements, thus, eliminating the last difference between the IAS and local gap. Consequently from 2014, emphasis matter paragraph regarding this issue would not more be released. In order to guarantee consistency to our panel, audit opinions issued in 2012 and 2013 with a paragraph of emphasis regarding uniquely the equity method (equivalência patrimonial) have been considered clean or, in other words, as the cited IAS modification would have been issued a couple of year before.

Following the logistic regression model used:

$$[2] MAO_{1it} = \alpha_0 + \beta_1 ADA_{it} + \beta_2 Big4_{it} + \beta_3 MAO_{1it-1} \text{ (or } \beta_3 MAO_{2it-1}) + \beta_4 ROA_{it} + \beta_5 LEV_{it} + \beta_6 OWN_{it} + \beta_7 IR_{it} + \beta_8 LnTA_{it} + \epsilon_{it}$$

where: MAO_{1it} = Modified Audit Opinion for firm i in year t , taking the value 1 for qualified audit opinion (emphasis matter considered as qualification, we defined this approach as lato sensu scenario), 0 otherwise; MAO_{1it-1} = the year before audit opinion qualified equals to 1 (emphasis matter considered as qualification); MAO_{2it-1} = the year before audit opinion qualified (only exceptions, adverse and with disclaimer opinions are considered as qualification, we defined this approach as stricto sensu scenario); equals to 1; ADA_{it} = Absolute value of estimated Discretionary Accruals (dependent variable) for firm i in year t ; $Big4_{it}$ = Auditor size dummy variable, taking the value 1 if the auditor is a Big4. To date, worldwide (Brazil included) there are four largest international professional audit firms, which are commonly called the Big4, they are: KPMG, E&Y, Deloitte and PwC; ROA_{it} = Return on Asset, proxy of firm's profitability; LEV_{it} = financial leverage ratio (calculated as total liabilities scaled by total asset); OWN_{it} = Ownership concentration; IR_{it} = inventory and accounts receivables as proportion of total assets; $LnTA_{it}$ = Natural Logarithm of Total Asset and ϵ_{it} = model error term.

Absolute Discretionary Accruals is examined as the main factor to influence MAO because it is expected, in line with hypotheses H1, that higher level of absolute abnormal accruals is associated with an increased tendency for auditors to issue a qualified audit opinion. Thus, a positive relationship between ADA and MAO means the higher ADA is, the higher the possibility to trigger a qualified report.

Big4 variable is to understand if an audit market leader is more (positive) or less (negative sign) likely to issue a qualified opinion. The ability to detect and willingness to report material manipulation/misstatements giving rise to material uncertainties or/and going concern problems is dependent on auditor quality. Consistent with previous audit qualification studies (Monroe; Teh, 1993; Bradshaw; Richardson; Sloan, 2001), this variable is included in the model to proxy different levels of expertise and reputation. Given that Big4 (or industry specialist auditors) are seen as being higher quality, some authors expect these auditors to qualify more frequently than the non-industry specialist, *coeteris paribus*. For these reasons, a positive relationship between Big4 and MAO is expected (Johl; Jubb; Houghton, 2007). Other authors believe that the presence of a specialist auditor (this is Big4) forces management to resolve potential audit issues before opinions are released (Nelson; Elliott; Tarpley, 2002). Our expectation, under H2 hypotheses, is a negative relationship between the issuance of audit qualification and the presence of a Big4 auditor.

Control variables expected as explicators of the dependent are: MAO_{1it-1} (or MAO_{2it-1}): prior year opinion is considered as predictor of current year opinion (Omid, 2015; Tspirouridou; Spathis, 2014). Thus, a positive relationship between this variable(s) and the dependent is expected; ROA: as indicators of a poor financial health/profitability. Prior studies (Monroe; Teh, 1993; Dopuch; Holthausen; Leftwich 1986) indicate there is a negative relationship between the dependent and this control variable; LEV: Total Liability on Total Asset is seen as indicator of the firm's financial health (Mutchler, 1985; Carcello; Hermanson; Huss, 2000). For this reason, higher levels of debt may increase the probability of falsified financial statements, resulting in the issue of a qualified opinion. Prior researches found this variable as significant in predicting audit qualification. Thus, a positive relationship between LEV and the dependent is expected; OWN: this is to explore the relationship between MAO and ownership structure. No consensus in literature on this matter; IR: to control for audit effort and risk. Bell and Tabor (1991), Dopuch, Holthausen and Leftwich (1987) and Monroe and Teh (1993) studied that receivables and inventory as a proportion of total assets act as control for audit issues and difficulty and, consequently, in accordance with previous studies (Chan; Lin; Mo, 2006; Johl; Jubb; Houghton, 2007), we expect this variable to be positively correlated with the issuance of a qualified opinion; $LnTA$: the natural logarithm of total asset is included to control the client size for the possibility of two conflicting reasons. Lys and Watts (1994) argue that larger firms are assumed to produce more information asymmetries, which provide management with greater discretion over decisions that are inadequately captured by the organization's controls. On the contrary, Monroe and Teh (1993) argues that size represents a firm's financial health and as such larger firms are generally seen to be healthy, making it more unlikely that a given uncertainty will be material. In the same direction, Carey and Simnett (2006) believe that large companies have greater negotiating power and are less likely to end up in bankruptcy and, thus, to receive a modified audit opinion (Ajona; Dallo; Alegria, 2008). Owing to the possible above ambiguous relationship between audit qualification and company size, the direction of the association is not predicted.

3.2 Regression model for H3

The H2 confirmation would lead authors to test the third research hypotheses, the (negative) relationship between discretionary accruals and auditor type, regressing a dummy variable indicating auditor size and several control variables against the absolute value of

the expected discretionary accruals (dependent variable). Following is the regression:

$$[3] ADA_{it} = \alpha_0 + \beta_1 Big4_{it} + \beta_2 ROA_{it} + \beta_3 LEV_{it} + \beta_4 OWN_{it} + \beta_5 IR_{it} + \varepsilon_{it}$$

where: ADA_{it} = Absolute value of estimated Discretionary Accruals (dependent variable) for firm *i* in year *t*; Big4_{it} = Auditor size dummy variable, taking the value 1 if the auditor is a Big4. To date, worldwide (Brazil included) there are four largest international professional audit firms, which are commonly called the Big4, they are: KPMG, E&Y, Deloitte and PwC; ROA_{it} = Return on Asset, proxy of firm's profitability; LEV_{it} = financial leverage ratio (calculated as total liabilities scaled by total asset); OWN_{it} = Ownership concentration; IR_{it} = inventory and accounts receivables as proportion of total assets. Note: we did not include the LnTA variable as control, since the dependent is already controlled by size.

Auditor Size (Big4) is the main research variable to understand if the presence of a Big4 inhibits a high level of earnings management. Control variables were chosen in accordance with literature mainstream on the subject: ROA: as indicators of a poor financial health/profitability. Prior studies (Monroe; Teh, 1993; Dopuch; Holthausen; Leftwich, 1986) indicate there is a negative relationship between the dependent and this control variable; LEV: Iudicibus, Martins, Gelbeck and Lopes (2004), among others, demonstrated that discretionary accruals and debt ratios move in the same directions. Highly leveraged firms may have greater incentives for earnings management, either income-increasing or income-decreasing (Becker et al. 1998; Butler; Leone; Willenborg, 2004; Carey; Simnett, 2006). Since in our model, discretionary accruals are in absolute terms, a positive correlation with the dependent is expected to be confirmed; OWN: this is to explore the relationship between EM and ownership structure. No consensus in literature on this matter. Consequently, the sign of this relationship should be tested; IR: to control for the efficiency of the client (Chan; Lin; Mo, 2006) as direct measure of financial health and then, in accordance with previous studies (Tsi-pouridou; Spathis, 2014), we expect this variable to be positively correlated with the dependent.

4 Empirical evidences

In the following tables are presented the descriptive statistics of all metric (Table 1) and binary variables (Table 1a) included in the present study.

Table 1. Metric variables' descriptive statistics

Variables	Min	Max	Avg	Std dev
ADA _{kz}	0,00	1,26	0,07	0,10
ADA _{klw}	0,00	1,02	0,07	0,09
ROA	(152,00)	80,34	0,59	15,04
LEV	0,01	5,27	0,67	0,40
OWN	0,00	100,00	60,08	24,81
IR	0,00	0,94	0,23	0,20
LnTA	14,95	27,53	21,60	1,74

Table 1a. Binary variables

Variables	-	1,00
Big4	0,24	0,76
MAO1	0,61	0,39
MAO1 _{t-1}	0,62	0,38
MAO2	0,94	0,06
MAO2 _{t-1}	0,95	0,05

The purpose of this statistics is to have an overall idea of the data set we are analyzing. Main findings are: (i) Big4 audit companies account for 76% of the total sample; (ii) MAOs, under the lato sensu scenario (this is with matter of emphasis considered as qualification), account for 39% if referred to the year (or 38% to the year before) while if we consider the matter of emphasis as an unqualified opinion, MAOs frequency falls to 6.4% of the observations (4.9% if referred to the year before); (iii) Ownership of the company is quite concentrated (61% of the shares are concentrated in the main shareholder); (iv) Absolute values of discretionary accruals are very similar if calculated with Kasznik model (ADA_{kz}) or with KLV (ADA_{klw}).

The above descriptive statistics explain the reason, coherently with other studies on the subject (Johl; Jubbs; Houghton, 2007; Herbohn; Ragunathan, 2008; Tsi-pouridou; Spathis, 2014), why we use the Modified Audit Opinion considering the matter of emphasis as a qualification as dependent in Equation 2. The very limited number of stricto sensu modified reports (this is MAO2 scenario where just exceptions, adverse and with disclaimer opinions are audit qualifications) would turn the logistic model unfeasible due to the unbalanced underlying class distribution. There are various ways to solve this problem, creating a balanced sample ("under-sampling" the Class-0, "over-sampling" the Class-1, weighting the results, and some others) but we leave this interesting issue to future works on this subject. In any case we tested the MAO2_{t-1} as independent to test the model robustness.

As far as the correlation analysis between the models' metric variables, both Pearson and Spearman correlations, as per the following Table 2, show that (a) ADAs calculated as per Kasznik (ADA_{kz}) formula have a high level of correlation with those calculated per KLV (ADA_{klw}), which indicates the consistency of the results of these two methods in calculating discretionary accruals, indirectly confirming the robustness of the EM models used (b) ADA shows an higher correlations with others variables when calculated with Kasznik formula (ADA_{kz}) and, for this reason, we will follow this approach in calculating the (main) independent of Equation 2 and the dependent variable in the Equation 3:

Table 2. Correlation (Pearson: values above the diagonal; Spearman: below)

Variables	ADA _{kz}	ADA _{klw}	ROA	LEV	OWN	IR	LnTA
ADA _{kz}		0,865**	(0,517)**	0,412**	0,013	0,081	(0,241)**
ADA _{klw}	0,738**		(0,421)**	0,328**	(0,005)	0,059*	(0,237)**
ROA	(0,212)**	(0,158)**		(0,540)**	0,028	(0,004)	0,110**
LEV	0,145**	0,146**	(0,403)**		0,058	0,009	(0,167)**
OWN	(0,014)	(0,035)	0,089**	0,089**		(0,137)**	(0,054)
IR	0,072*	0,056	(0,008)	0,003	(0,154)		(0,233)**
LnTA	(0,238)**	(0,227)**	0,073*	(0,014)	(0,004)	(0,236)**	

** = significant at 1% (two tiles); * = at 5%

Tests are also needed to determine which kind of panel method is more adequate to our dataset. The Chow (p-value: 0,46) and the Breusch-Pagan (p-value: 0,97) test both showed p-values higher than 0,05 which lead us to accept the null hypothesis that the OLS Pooled method is to be preferred to, respectively, the Fixed (FE) and the Aleatory Effect (AE) ones.

4.1 H1 and H2 results

We run a logistic binary regression model to test the proposed Equation 2 model in the balanced panel of the 283 firms (along the period) in order to verify the significance and the strength of the relationships.

By combining the -2 Log Likelihood value of and the Chi-square value, the significance p-value is 0.000, the model is then said to be a valid and reliable to predict the probability of issuance of audit

qualification. The Hosmer-Lemeshow (HL) test's p-values higher than 0,05 implies that there is no evidence to reject the null hypothesis, which is that the fitted model is correct. Following are the results:

Table 3. Significancy of the model

Test	Chi ²	df	Sig.
Omnibus	382,957	8	0,000
H-L	13,237	8	0,104
Fit	-2 LL	C&S R ²	N's R ²
Summary	1.128,847	0,287	0,389

Table 3a. Classification table

Observed	Expected		Correct
	0	1	
0	572	121	82,54%
1	129	310	70,62%

From Table 3, it can be deduced that Nagelkerke R Square (N's R²) values is 0.389, and, consequently, the independent variables can explain close to 39% of the change in the log of chance of the independent variable. Table 3a shows that, out of the total 1,132 observations, 693 pooled sample observations do not receive a qualified opinion (under the *lato sensu* scenario), of which 572 are well predicted by the model (82.5%). On the other hand, among 439 pooled sample observations that receive audit qualifications, 310 are correctly predicted by the model (70.6%). The overall model accuracy of 77.9% indicates an above initial model accuracy (Block 0 = 61.2%) in discriminating between of qualified and non-qualified opinion.

Multicollinearity diagnostics test did not detect FIV values above 10 (critical value for this kind of test) for any of the variables in the model and for this reason we can state that there are no collinearity issues between the independent regressors.

As far as the significance of each regressor, Table 4 can be taken into consideration. On the left side of the table, the previous year qualified opinion regressor is calculated in the *lato sensu* scenario while on the right side in the *stricto sensu*:

Table 4. H2 Logistic model. Binary dependent variable: MAOI

w/MAOI _{t-1}	B	Exp(B)	Sig.		w/MAOI _{2t-1}	Sig.
ADA	1,750	5,755	0,068	*	ADA	*
Big4 = 1	(0,393)	0,675	0,039	**	Big4 = 1	***
MAOI _{t-1} = 1	2,158	8,650	0,000	***	MAOI _{2t-1} = 1	***
ROA	(0,017)	0,983	0,030	**	ROA	**
LEV	1,387	4,003	0,000	***	LEV	***
OWN	0,001	1,001	0,795		OWN	
IR	0,305	1,357	0,360		IR	**
LnTA	0,067	1,069	0,192		LnTA	**

The first 5 variables are significant: ADA, Big4, MAOI_{t-1}, ROA and LEV. Signs are all confirmed.

ADA shows a positive sign which means that higher is the level of discretionary accruals, higher is the probability (log of chance) of MAOI assuming the value 1 (qualified).

Big4 shows a negative sign, inducing to assume that Big4 audit firm would have the strength to impose audit adjustment to their client before the financials be approved, reducing the number of qualified reports or, at the least, to inhibit EM practices. Regarding the association between a qualified opinion and the presence of an Audit Market Leader, Tsipouridou and Spathis (2014), differently

from previous studies (Bartov; Gul; Tsui 2000; Chan; Lin; Mo, 2006; Gaeremynck; Van der Meulen; Willekens, 2008) also find a negative and statistically significant relationship between Big 4 audit firms and the probability of receiving a qualified opinion, except for the years 2005 and 2009, supporting the argument that firms audited by Big 4 auditors are more likely to receive an unqualified opinion. Thus, the fact that Big 4 auditors have a greater propensity to issue unqualified reports could be attributed to client characteristics, and not to audit quality per se. This hypothesis will be tested under Hypothesis 3.

MAOI_{t-1} shows a positive sign which means that if the company received a qualified opinion in the previous year, higher is the probability (log of chance) of this event to occur in the current year as well. This result, consistent with previous literature on the matter (Tsipouridou; Spathis, 2014; Omid, 2015), would probably be explained by the auditor's attitude to provide the auditor report reader with a follow up on the audit issues up to their resolution/change in status (from emphasis to exception or vice-versa).

ROA and LEV shows, respectively, a negative and a positive significance (at 0.01 level) relationship with the binary dependent, confirming that companies with a poor financial performance and indebtedness ratio are more likely to receive an audit qualification.

We also run the model with MAOI_{2t-1} as independent variable (*stricto sensu* scenario), uniquely to test the robustness of the model with MAOI as dependent. The results are very similar to what commented above, this is to say: (i) The model has a whole is significant both as per Chi-square Omnibus test (p-value: 0,000) and as per HL test (p-value: 0,596); (ii) The Nagelkerke R Square is around 10.5%; (iii) The overall percentage of prediction accuracy is around 69%, but it should be taken into the limited number of MAOI cases (around 5%). We stick with the evidence that this second version of the model, even with this distribution-among-classes issue, mainly confirms the results of the first; (iv) All the significant predictors confirm their significance and signs and, in addition, IR and LnTA turned significant. Natural logarithm of total asset positive sign with the dependent could be supported by the fact that the threat of litigation cost in failures of large clients may condition auditors to be conservative in their opinions and qualify (Frost, 1994) while Lys and Watts (1994) argues that larger firms mean more audit complexity. As far as IR, different authors (Bell; Tabor, 1991; Dopuch; Holthausen; Leftwich, 1987; Monroe; The, 1993) consider this variable as control for audit difficulty and, thus, Rusmanto, Djamil and Salim (2014) expect a positive relationship with audit qualification.

4.3 H3 results

Since the result of the H2 is that the expected negative relationship between MAOI and Audit Market Leader presence is confirmed, it is needed to better understand if this finding is due to the capability of a Big4 audit firm to inhibit EM practices or "simply" to its clients' financial characteristics. For this reason, Equation 3 is run.

Preliminarily, univariate correlations as per Table 2 shows consistent results with what expected: the significant independent variables, out of the 6 metrics in the model under Equation 3, at 0.01 level, are ROA and LEV and their correlation sign (to ADA) is consistent with what expected: companies with lower return on asset and higher level of debt are more inclined to indulge in EM.

Then, we run normality and heteroscedasticity tests: the result of these two tests is that the distribution of this variables is both not normal (p-value equals to 0) and not homo (p-value of the Wald test is 0). For the normality issue, the Central Limit Theorem enables us to state that, since the sample is big enough (>30 observations), the normality of the residuals can be assumed (BROOKS, 2008). As far as the heteroscedasticity issue, we should run the regression model with robust errors.

Multicollinearity diagnostics test did not detect FIV value above 10 (critical value for this kind of test) for any of the variables in the

model. Consequently, we can assume no collinearity issues between the independent regressors.

At this point, we are ready to run the OLS regression model of the balanced panel of the 283 firms (along the four years' period) in order to verify the multivariate significance, sign and strength of the relationships between the model variables. Following are the results:

Table 5. Pooled OLS (1,132 observations)^a

Variables	Coef.	report t	Sig.
Big4	(0,110)	(1,743)	0,082 *
ROA	(0,003)	(5,062)	0,000 ***
LEV	0,042	2,271	0,024 **
OWN	0,000	0,849	0,397
IR	0,036	2,207	0,028 **
R square	0,301	F(5, 282)	11,151
Adj R ²	0,298	P-value	0,000

^aDependent variable: ADA. Robust errors

Table 5 show that the model is, as a whole, significant (at 0.01 level) with a R square of about 30%. The F-test of overall significance determines whether this relationship is statistically significant, as in our case where the p-value is lower than 0.01.

Analyzing the variables of the model, Big4 shows a (negative) sign in line with the hypothesis that auditor market leader inhibits EM. This result aims to contribute to the national literature which attempted inference between audit and earning management in terms of impact on EM of the audit firm independence, measured by the auditor size (Silva et al., 2016).

ROA e LEV variables confirm their significance (at 0.01 level), inducing to assume that company with a lower profitability are associated with a lower earnings quality and that financial constrains are an important incentive for EM practices (Martinez; De Paula Faria, 2007) while IR shows, in line with previous studies (Tspouridou; Spathis, 2014), a positive multivariate correlation with the dependent as to demonstrate that inventory and receivables are balance sheet lines associated with higher level of discretionary accruals. In literature, this variable controls for the efficiency of the client (Chan; Lin; Mo, 2006).

5 Conclusions

Present study tries to answer to the following questions: (i) Is a Modified Audit Opinion (MAO) triggered by Earnings Management (or EM) practices? (ii) Is it influenced by the presence of an audit market leader? (iii) or is "simply" driven by auditee financial characteristics?

As answer to the first question, the model shows that the qualification, under the lato sensu scenario (this is considering matter of emphasis as qualification), is positively related with absolute discretionary accruals. These results are in line with the theory that audits of high accrual firms pose more uncertainty than audits of low accrual firms because of potential estimation error and a greater chance that high accrual firms incorporate undetected asset realization and/or going concern problems. Accordingly, the way that auditors compensate for this risk exposure is to lower their threshold for issuing modified audit reports, an action that will increase modified reports and, therefore, lessen the likelihood of failing to issue a modified report when appropriate. This attitude is defined by Francis and Krishnan (1999) as "auditor reporting conservatism".

Audit qualification is also strongly and positively related with previous year audit opinion qualification and, negatively, with the

presence of a Big4 auditor. Above results are confirmed even in the case the emphasis matter is not considered as qualification (stricto sensu scenario) as independent variable.

As far as concerns previous year audit opinion qualification, findings are consistent with previous literature on the matter (Tspouridou; Spathis, 2014; Omid, 2015) and they are probably due to the auditor's attitude to provide the auditor report reader with a follow up on the audit issues up to their resolution/change in status (from emphasis to exception or vice-versa).

Regarding auditor size and its (negative) relationship with the dependent, Nelson, Elliott and Tarpley (2002) demonstrated that the presence of a specialist auditor (this is Big4) forces management to resolve potential audit issues before opinions are issued, thus, decreasing the number of MAOs released by Big4.

We further investigated if this finding is due to the capability of a Big4 audit firm to inhibit EM practices or "simply" to its clients' financial characteristics.

The model under Equation 3 confirmed both explications, demonstrating a negative relationship between EM and the presence of Big4 and, at the same time, that ROA and LEV are, respectively, negatively and positively related to the dependent. This means that, in accordance with previous local studies on the matter which used different EM models (SILVA et al., 2016), companies audited by the Big4 show a lower level of discretionary accruals than companies audited by other auditing firms, suggesting the capacity of an Audit Market Leader to mitigate earnings management.

But, as demonstrated by Tspouridou and Spathis (2014) and Omid (2015), also financial characteristics have a significant impact on EM: companies with lower return (on asset) and/or with a higher level of leverage (on asset) show higher propensity to indulge into EM practices.

Results confirm that companies with higher profitability don't "need" to engage themselves into EM practice while as far as the leverage, the findings are in line with previous researches outcomes on the matter: discretionary accruals and debt ratios move in the same directions (Iudicibus; Martins; Glebcke; Lopes, 2004). This is probably due to the need to achieve contractual covenants, since this propensity seems to be confirmed in company issuing debentures (Martinez; De Paula Faria, 2007). Sincerre et al. (2016) highlighted higher level of EM, right in the period before debenture issuing, demonstrating the use of discretionary accrual in order to positively influence investors and market.

IR shows, in line with Tspouridou and Spathis (2014), a positive multivariate correlation with the dependent as to demonstrate that inventory and receivables, as control variables for client efficiency, are balance sheet lines (positively) associated with the level of discretionary accruals.

Finally, the combined findings of the two hypotheses of the present study lead us to state that firms receiving qualified reports indulge more in EM practices, are significantly less profitable, more leveraged and with a negative audit track records than their counterparts.

The limitations of our study are twofold. First, EM regressions are run per year but not per industry, since the limited number of observation per industry sector. Second, we consider the matter of emphasis as a qualification in determining the dependent variable due to the limited number of "except for", "adverse" and "with disclaimer" opinions in our sample to draw any statistical inferences if treated alternatively. An interesting hint for future researches on the matter could be to solve the unbalanced underlying class distribution issue in order to use the MAO2 as dependent variable in the logistic model and, thus, predict stricto sensu qualifications. For the purpose of the present study, we tested the variable incorporating the stricto sensu qualifications as independent to test the model robustness, providing consistent results.

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