

THE ROLE OF INSTITUTIONAL SHAREHOLDERS IN THE RELATIONSHIP BETWEEN UNCONDITIONAL CONSERVATISM AND EARNINGS MANAGEMENT

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Abstract

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This study investigates whether and how institutional shareholders affect the relation between unconditional conservatism and earnings management. We analyze the relation between unconditional conservatism and accrual-based earnings management and the relation between unconditional conservatism and real earnings management, focusing on the role of the institutional shareholders variable in these two relations. First, we find evidence of positive (negative) relations between unconditional conservatism and accrual-based (real) earnings management. Second, we demonstrate that the presence of institutional shareholders has a mitigating (amplifying) impact on the relation between unconditional conservatism and accrual-based (real) earnings management. This study contributes to enrich the previous literature in two ways. First, it extends the strand of research on the relation between accounting conservatism and earnings management (García Lara, García Osma, & Penalva, 2020; Chen, Hemmer, & Zhang, 2007; Gao, 2013), focusing on unconditional conservatism since it is less prevalent than conditional conservatism in previous literature (Ruch & Taylor, 2015). Second, it extends the strand of research on the impact of institutional ownership on accounting practices (Farooq & El Jai, 2012; Sakaki, Jackson, & Jory, 2017), highlighting the role of the institutional shareholders in the relation between unconditional conservatism and earnings management.

Keywords: Institutional Shareholders, Unconditional Conservatism, Accrual-Based Earnings Management, Real Earnings Management

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1. INTRODUCTION

For decades, several studies investigated the intrinsic characteristics of the earnings management phenomenon, its potential causes, and consequences. In some cases, the results lead to unequivocal

conclusions, while in others, when conflicting, prompt new and pioneering reflections. Nevertheless, there is still a large research area on this topic and the results obtained so far are far from being exhaustive. The earnings management practices, largely considered as “the process of

taking deliberate steps within the constraints of generally accepted accounting principles to bring about a desired level of reported earnings” (Schipper, 1989, p. 92), whether accrual-based or real, occur when “managers use judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or influence contractual outcomes that depend on reported accounting numbers” (Healy & Wahlen, 1999, p. 368). Accrual-based earnings management is the manipulation of earnings through the loopholes in the accounting regulatory system and the clever manipulation of certain financial statements’ items, while real earnings management is mainly based on real business policies, such as the anticipation or postponement of sales or the decision to carry out transactions with related parties only for specific accounting purposes.

This study investigates whether and how unconditional conservatism influences accrual-based earnings management and real earnings management. Unconditional conservatism is an ex-ante, news-independent approach that leads to a persistent underestimation of net assets. Unconditional conservatism policies, therefore, represent choices made independently of the occurrence of certain events, whether favorable or unfavorable. Examples of unconditional conservatism include the missing capitalization of research and development (R&D) expenses, accelerated depreciation independently from the loss of capacity of a given fixed asset, and valuing inventory, under increasing price assumptions, using the last-in-first-out (LIFO) method (Penalva & Wagenhofer, 2019).

Previous literature focuses on the relation between conditional conservatism and earnings management (García Lara, García Osma, & Penalva, 2020), thus neglecting the potential impact of unconditional conservatism on accrual-based and real earnings management. With this study we fill this gap in the literature, thus enriching the landscape of researches on the effects of unconditional conservatism.

In addition, this paper investigates whether institutional ownership can impact the sign and intensity of the relations between unconditional conservatism and accrual-based and real earnings management. Although it is accepted in accounting and corporate governance literature that higher institutional shareholders have a strong impact on managerial behavior (Jensen & Meckling, 1976; Shleifer & Vishny, 1986) and that they act as a monitoring mechanism to control earnings management (Chung, Firth, & Kim, 2002; Mitra & Cready, 2005; Farooq & El Jai, 2012; Sakaki, Jackson, & Jory, 2017), it has not been demonstrated yet whether the relationship between unconditional conservatism and accrual-based and real earnings management can be influenced (i.e., mitigated/reinforced) by the presence of large institutional shareholdings. Hence, the main research question of this study is the following: *Can the institutional ownership impact the relationship between unconditional conservatism and accrual-based/real earnings management?*

We test the hypotheses by running two different models: the first one focuses on the relation between accrual-earnings management and unconditional conservatism, the second focuses on the relation between real earnings management and unconditional conservatism. We include the institutional ownership variable in both models in order to test its mitigating/amplifying effect on such relations. Our sample consists of non-financial North American companies listed on the New York Stock Exchange (NYSE) from 2010 to 2018.

We find evidence that unconditional conservatism leads to higher accrual-based earnings management and lower real earnings management and that institutional ownership mitigates the relation between unconditional conservatism and accrual-based earnings management, while it intensifies the relation between unconditional conservatism and real earnings management. These results are the first ones to demonstrate the existence of an effective and strong association between the practice of unconditional conservatism and earnings management strategies, both accrual-based and real. Understanding how unconditional conservatism impacts earnings management operations provides an interesting insight into the variables/phenomena that may act as an incentive or deterrent to the pursuit of accounting manipulation. Moreover, these results may suggest which types of accounting manipulations to investigate in the presence of unconditional conservative accounting, thus favoring a timelier identification of accounting manipulations.

In addition, these results contribute to clarify the accounting effects of the presence of institutional shareholders in the corporate ownership structure, which are partly unknown. The mitigating effect of institutional shareholders on the positive relationship between unconditional conservatism and accrual-based earnings management and the amplifying effect on the negative relationship between unconditional conservatism and real earnings management suggest that the presence of large institutional ownership improves the earnings quality and the reliability of the financial statements, which are extremely relevant when market participants make capital allocation choices.

The rest of this paper proceeds as follows. Section 2 reviews the literature and develops the hypotheses. Section 3 describes the research method. Section 4 presents the sample and reports the main empirical results. Section 5 exposes the discussion of results, while Section 6 presents the conclusion.

2. LITERATURE REVIEW

Currently, there is a large strand of accounting literature that seeks to investigate the nature and intensity of the associations between accounting conservatism and earnings management. The results of these investigations are varied and far from exhaustive. In fact, there is not yet a wide agreement on the characteristics of the relationship between accounting conservatism and earnings management. Some scholars argue that, since accounting conservatism is oriented towards decreasing

the economic results of the year, this limits the incentive to use earnings management policies (Watts, 2003; LaFond & Watts, 2008), which are mainly interested in increasing the economic results. In fact, since conservative accounting policies require management to be more rigorous in terms of verifiability of good news than bad news, the economic results tend to be affected by a greater allocation of costs, for example, forecasts of presumed future expenses, rather than expected future revenues. The presence of a natural bias existing between accounting conservatism and earnings management leads to an inevitable increase in the marginal cost of using upward manipulation of earnings (Chen et al., 2007)¹.

Other scholars, on the other hand, state the opposite. They claim that that accounting conservatism favors the use of earnings management policies. In fact, according to these studies, the use of policies to increase or create reserves, generally as a result of the underestimation of assets, provides managers with the opportunity and the accounting space to use those reserves to manipulate earnings (Jackson & Liu, 2010).

Similarly, the use of earning management policies to reduce profits, which characterize conservative accounting, can encourage managers to keep their remuneration high by linking it to the company performance with pay-for-performance contracts. Such contracts inevitably cause an increase in the marginal utility of earnings manipulation (Bertomeu, Darrough, & Xue, 2017). Therefore, from this perspective, accounting conservatism may facilitate the monitoring of activities performed by management and consequently the convenience of manipulating earnings to circumvent such oversight (Caskey & Laux, 2017).

The presence of contrasting opinions about the relationship between accounting conservatism and earnings management could be attributed to the lack of separation and therefore conceptual and methodological distinction between conditional and unconditional conservatism practices (Basu, 2005)². Conditional conservatism is an ex-post, news-dependent approach that refers to the asymmetric recognition of positive and negative economic news. Specifically, conditional conservatism occurs when negative economic news is recognized earlier than positive economic news (Basu, 1997). Goodwill impairment, impairment of tangible and intangible assets, and recognition of provisions for deemed losses are examples of conditional conservatism policies (Penalva & Wagenhofer, 2019).

Garcia Lara et al. (2020) separated the practices of conditional and unconditional conservatism by investigating the possible connections of the former with the policies of real earnings management and accrual-based earnings management. This relevant study showed that “the links between conditional conservatism and accrual earnings management are far from obvious or mechanical” (Garcia Lara et al., 2020). Moreover, the authors demonstrate that there is a positive relationship between conditional

conservatism and real earnings management and a negative relationship between conditional conservatism and accrual-based earnings management. Hence, according to this study, conditional conservatism hinders the use of accrual-based earnings management policies because this could limit the benefits of conditional conservatism. At the same time, in order to opportunistically achieve certain performance targets or circumvent control systems, the same firms that conduct conditional conservatism policies will be incentivized to implement real earnings management policies. Therefore, Garcia Lara et al. (2020) show that the benefits of implementing conditional conservatism policies outweigh the costs, thus suggesting that, at the aggregate level, conditional conservatism reduces earnings management. If recently, thanks to the study of Garcia Lara et al. (2020), empirical evidence supported the theory of an association between conditional conservatism and accrual-based earnings management, on the other hand, the existence of an association between unconditional conservatism and accrual-based and real earnings management has not been deeply investigated so far.

We theorize that in the context of non-financial North American companies listed on the NYSE there is a positive and statistically significant relationship between unconditional conservatism and accrual-based earnings management. We posit the positive association between unconditional conservatism and earnings management because we believe that firms that recur to a conservative accounting policy may compensate the higher costs of earlier recognition of bad news with accrual-based earnings management strategies. In fact, also Jackson and Liu (2010) found that firms use allowance for uncollectible accounts to create cookie jar reserves in order to pursue the earnings management policies, thus supporting our expectation of a positive association between unconditional conservatism and accrual-based earnings management.

H1a: Unconditional conservatism leads to higher accrual-based earnings management.

In addition, we posit that the presence of large institutional shareholdings generates an impact on the association between unconditional conservatism and accrual-based earnings management, mainly due to the increased control pressure exerted by institutional shareholders. The existing evidence in the literature indicates that higher institutional ownership serves as a monitoring mechanism to control earnings management (Chung et al., 2002; Mitra & Cready, 2005; Farooq & El Jai, 2012; Sakaki, Jackson, & Jory, 2017).

It is well-established in the literature that a large institutional shareholding has a strong impact on managerial behavior (Jensen & Meckling, 1976; Shleifer & Vishny, 1986). Institutions with large shareholdings are likely to control managers' decisions and their activities that may reduce the reliability of reported earnings which may negatively impact a firm's market value. Several empirical studies have provided evidence consistent with the active monitoring hypothesis (Chung et al., 2002; Mitra & Cready, 2005; Farooq & El Jai, 2012; Sakaki, Jackson, & Jory, 2017). In fact, there is wide agreement on the idea that the institutional owners have a higher capability compared to individual

¹ “The noise introduced by conservatism is more than offset by the reduction in the noise introduced by earnings management” (Chen et al., 2007, p. 560).

² “The key distinction between unconditional conservatism and conditional conservatism is that the former only utilizes information known at the inception of the asset's life; whereas conditional conservatism utilizes, and hence reveals, information when it is received in future periods” (Basu, 2005, p. 313).

investors to mitigate earnings management behavior compared to individual shareholders because of their large shareholdings (Jensen & Meckling, 1976; Shleifer & Vishny, 1986). Based on this evidence, we expect higher institutional ownership will also have a mitigating effect on managerial behavior to engage in earnings management even when the firms adopt policies of unconditional conservatism. Thus, higher institutional ownership serves as an effective control monitoring mechanism even when there is a strong motivation for managers to engage in earnings management during the fulfillment of unconditional conservatism strategies.

H1b: Large institutional shareholdings have a mitigating impact on the association between accrual-based earnings management and unconditional conservatism.

Currently, there is a literature gap about the net effect of the adoption of conservative accounting on real earnings management (García Lara et al., 2020). We posit that firms that recur to unconditional conservative accounting practices may have more constraints to adopting real earnings management strategies since there is less room for accounting manipulations. Our hypothesis is also based on the existence of a trade-off between real and accrual-based earnings management, according to which limitations on accrual-based manipulation possess as a side effect the incentive to use real earnings management policies (Cohen, Dey, & Lys, 2008; Zang, 2012; Ewert & Wagenhofer, 2005).

H2a: Unconditional conservatism leads to lower real earnings management.

Coherently with the previous argumentations, we believe that the higher the presence of institutional shareholding, the greater the control pressure on performance and accounting practices. Hence, if institutional shareholdings increase, the negative relation between unconditional conservatism and real earnings management becomes more negative.

H2b: Large institutional shareholdings have an amplifying effect on the association between real earnings management and unconditional conservatism.

3. RESEARCH METHODOLOGY

In this section, we first describe the sample composition and then explain the models implemented to test our hypothesis. We develop two different models: the first one focuses on the relation between accrual-earnings management and unconditional conservatism, the second one focuses on the relation between real earnings management and unconditional conservatism. We include the institutional ownership variable in both models in order to test its mitigating/amplifying effect.

3.1. Sample and data

Our sample consists of non-financial North American companies listed on the New York Stock Exchange (NYSE) from 2010 to 2018³. We obtain accounting data from Compustat North America and

governance data from Thomson Reuters databases⁴. The choice for the period 2010–2018 is given by the need to eliminate the distorting effects of the global financial crisis before 2010 and of COVID-19 pandemic on accounting behavior in North American companies, and select, at the same time, the widest possible investigation period for conducting the analyses. The initial sample consisted of 1,600 non-financial companies listed on NYSE. Companies (N = 273) with missing data were dropped from the initial sample. The final sample consists of 1,327 companies with a total of 11,942 firm-year observations. Table 1 provides a detailed description of the sample selection. All continuous variables are winsorized at the 1st and 99th percentiles, to mitigate the influence of outliers.

Table 1. Sample selection

Number of companies	Total observations (2010–2018)
<i>All North American listed non-financial companies</i>	
6,840	61,560
<i>All North American non-financial companies listed on the NYSE</i>	
1,600	14,400
<i>Missing financial data</i>	
273	2,457
<i>Final sample composition</i>	
1,327	11,942

Notes: Table 1 presents the sample selection process. Accounting data were extracted from Compustat North America and governance data from Thomson Reuters. The final sample consists of 1,327 non-financial companies listed on the NYSE, without missing data.

3.2. Accrual-earnings management and unconditional conservatism

Through the first model, we test whether higher unconditional conservatism is positively associated with accrual-earnings management. Specifically, we estimate the following model:

$$AEM_{i,t+1} = \alpha_t + \beta_1 UNCOND_{i,t} + \beta_2 INST_{i,t} + \beta_3 UNCOND_{i,t} * INST_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t+1} \quad (1)$$

where,

- $AEM_{i,t+1}$ represents a proxy for discretionary accruals based on the modified Jones Model (Dechow, Sloan, & Sweeney, 1995);

- $UNCOND_{i,t}$ represents a proxy for unconditional conservatism calculated as the firm-specific persistent bias component of the market-to-book (MTB) ratio, captured by the firm intercept when running the regression of the MTB ratios on current and lagged (up to 6 years) stock returns (Beaver & Ryan, 2000);

- $INST_{i,t}$ represents a measure of the proportion of firm shares held by institutional investors;

- $UNCOND_{i,t} * INST_{i,t}$ represents the interaction variable between unconditional conservatism and institutional ownership;

- $Controls_{i,t}$ is a set of control variables that affect earnings management and accounting conservatism.

Following previous literature (Beaver & Ryan, 2000; Qiang, 2007; Francis, Hasan, & Wu, 2013; Liu, 2019), our first measure of unconditional

³ Following García Lara, García Osma, and Penalva (2016), we excluded financial firms from our sample because their accounting policies differ from those of other companies.

⁴ The Compustat database, used for data extraction, includes U.S. and Canadian companies in the North American sample.

conservatism is the bias component of the MTB ratio, which was originally developed by Feltham and Ohlson (1996). When the market value is higher than the book value and the MTB ratio is consequently greater than 1, financial reporting is considered conservative. Beaver and Ryan (2000) split this ratio into two components: bias (captured by the firm intercept) and lag (captured by the return intercept). Bias indicates that the book value is persistently higher (lower) than the market value, while lag means that unexpected economic gains (losses) are recognized over time rather than immediately. This implies that only bias, which captures the consistent understanding of book value to market value, can be used to measure unconditional conservatism.

The dependent variable used to capture the accrual-earnings management extent is $AEM_{i,t+1}$ and it has been estimated according to the modified Jones Model. See Appendix A for further information about this proxy estimation.

We expect that the coefficient β_1 is significant and positive; this means that unconditional conservatism increases accrual-earnings management. At the same time, we predict that the coefficient β_3 is significant and positive, but also lower than β_1 ; this means that institutional ownership mitigates the positive relation between unconditional conservatism and accrual-earnings management.

Regarding the control variables ($Controls_{i,t}$), we follow previous research and identify variables that affect conservatism (García Lara et al., 2009, 2016). Specifically, we control for size, market-to-book ratio (MTB), return on assets (ROA), Leverage, the proportion of tangible assets (Tangibility), financial slack (Slack), frequency of losses (Loss), cash flow ratio (Cash ratio) and Sales growth. Table 2 provides a detailed description of all control variables.

Table 2. Control variables

Variables	Definition
Size	The log of the market value of equity
MTB	The ratio of the market value of total assets to the book value of total assets
ROA	The ratio of pretax income divided by total asset
Leverage	A measure of solvency calculated as short-term plus long-term debt scaled by the market value of equity
Tangibility	The ratio of property, plant, and equipment to total assets
Slack	The ratio of cash to net property, plant, and equipment
Loss	A dummy variable that takes the value of 1 if net income before extraordinary items is negative and 0 otherwise
Cash ratio	The ratio of cash to total assets
Sales growth	The growth rate in sales

3.3. Real-earnings management and unconditional conservatism

Through the second model, we test whether higher unconditional conservatism is negatively associated with real earnings management. Specifically, we estimate the following model:

$$REM_{i,t+1} = \alpha_t + \beta_1 UNCOND_{i,t} + \beta_2 INST_{i,t} + \beta_3 UNCOND_{i,t} * INST_{i,t} + \gamma Controls_{i,t} + \varepsilon_{i,t+1} \quad (2)$$

where, $REM_{i,t+1}$ represents a real earnings management proxy obtained as the addition of $APROD$ and $-I * AEXP$, which are Roychowdhury's (2006) abnormal production costs and abnormal discretionary expenses, respectively. In this model the set of control variables ($Controls_{i,t}$) is equal to that of the first model (Table 2).

We expect that the coefficient β_1 to be significant and negative; this means that unconditional conservatism decreases real earnings management. At the same time, we predict that the coefficient β_3 is significant and negative, with an absolute value higher than the one of β_1 ; this means that institutional ownership intensifies the negative relation between unconditional conservatism and real earnings management.

4. RESEARCH RESULTS

4.1. Results for accrual-based earnings management and unconditional conservatism

We ran a fixed-effect regression to analyze the relation between accrual-based earnings management and unconditional conservatism⁵.

Table 3 presents the results of estimating equation (1). Consistently with our expectations, we found that accrual earnings management is positively associated with unconditional conservatism. In particular, the coefficient β_1 (5.02, t-stat = 1.98) is positive and significant at conventional levels, confirming that more unconditionally conservative firms do more accrual-based earnings management practices. The coefficient β_3 (0.14, t-stat = 2.00) is also positive and significant at conventional levels; in addition, it is lower than β_1 . This confirms our prediction about the mitigation effect of the institutional ownership variable over the positive relation between accrual-based earnings management and unconditional conservatism.

These results validated our hypotheses $H1a$ and $H1b$.

⁵ Following Onali, Ginesti, and Vasilakis (2017), we conducted the Hausman test (Hausman & Wise, 1979) in order to select the best model between fixed effect or random effect.

Table 3. Accrual-based earnings management and unconditional conservatism

Dependent variable: AEM	Coeff.	Rob. Std. Err.	t	P > t
UNCOND	5.02	2.53	1.98	0.047**
INST	107.26	42.31	2.53	0.011**
UNCOND * INST	0.14	0.07	2.00	0.045**
Size	42.39	13.95	3.04	0.002***
MTB	13.31	8.95	1.49	0.137
ROA	-966.04	184.29	-5.24	0.000***
Leverage	181.25	87.13	2.08	0.038**
Tangibility	62.06	58.06	1.07	0.285
Slack	335.06	62.99	5.32	0.000***
Loss	353.74	37.11	9.53	0.000***
Cash ratio	-32.13	116.83	-0.28	0.783
Sales growth	-0.00	0.00	-0.91	0.361
R ²	0.022			
Prob > F	0.000			
Number of obs.	11,515			

Notes: Table 3 reports the results of the fixed-effect panel regression (eq. (1)). The symbols ***, **, and * denote two-sided significance at the 1%, 5%, and 10% levels, respectively.

4.2. Results for real earnings management and unconditional conservatism

To test our next two hypotheses, we ran a second fixed-effect regression. Table 4 presents the results of estimating equation (2). Consistently with our expectations, we found that real earnings management is negatively associated with unconditional conservatism. In particular, the coefficient β_1 (-7.05, t-stat = -1.98) is negative and significant at conventional levels, confirming that more unconditionally conservative firms do less real earnings management practices. The coefficient β_3 (-30.97, t-stat = -3.73) is also negative and significant at conventional levels; in addition the absolute value of β_3 is higher than the one of β_1 , as expected. This confirms our prediction about the intensifying effect of the institutional ownership variable over the negative relation between real earnings management and unconditional conservatism.

These results validated our hypotheses H2a and H2b.

Table 4. Real earnings management and unconditional conservatism

Dependent variable: REM	Coeff.	Rob. Std. Err.	t	P > t
UNCOND	-7.05	3.55	-1.98	0.047**
INST	-0.02	0.01	-2.25	0.025**
UNCOND*INST	-30.97	8.29	-3.73	0.000***
Size	-10.38	2.51	-4.14	0.000***
MTB	0.03	0.76	0.05	0.963
ROA	142.30	32.29	4.41	0.000***
Leverage	-3.83	15.60	-0.25	0.806
Tangibility	-51.69	12.02	-4.30	0.000***
Slack	-49.36	13.41	-3.68	0.000***
Loss	4.65	6.86	0.68	0.498
Cash ratio	46.50	9.49	4.90	0.000***
Sales growth	-0.00	0.00	0.95	0.342
R ²	0.032			
Prob > F	0.000			
Number of obs.	11,515			

Notes: Table 4 reports the results of the fixed-effect panel regression (eq. (2)). The symbols ***, **, and * denote two-sided significance at the 1%, 5%, and 10% levels, respectively.

4.3. Robustness tests

To assess the robustness of our main inferences, we perform additional analyses by using alternative measures of both accrual-based earnings management and unconditional conservatism.

First, in equation (1) we adopt the discretionary working capital as an alternative measure for accrual-based earnings management, on the basis of the modified Jones Model (Dechow et al., 1995), still leaving the previous measure of unconditional conservatism adopted in the paper. According to this new estimation model, the total accruals are calculated through the sum of the change in receivables, change in inventory, change in accounts payables, change in tax payables, and change in other assets and liabilities, obtained from the statement of cash flows, as indicated by Hribar and Collins (2002).

The results of equation (1) estimation, shown in Table 5, confirm that accrual earnings management is positively associated with unconditional conservatism, since the coefficient β_1 (5.03, t-stat = 1.97), positive and significant at conventional levels, confirms that more unconditionally conservative firms do more accrual-based earnings management practices. The coefficient β_3 (0.14, t-stat = 2.00), also positive and significant at conventional levels and lower than β_1 , confirms the mitigation effect of the institutional ownership variable over the positive relation between accrual-based earnings management and unconditional conservatism.

Table 5. Robustness test 1: Alternative measure of accrual-based earnings management

Dependent variable: AEM ₂	Coeff.	Rob. Std. Err.	t	P > t
UNCOND	5.03	2.55	1.97	0.049**
INST	107.35	42.34	2.53	0.011**
UNCOND*INST	0.14	0.07	1.99	0.046**
Size	42.71	13.51	3.16	0.002***
MTB	13.42	8.91	1.51	0.132
ROA	-956.91	181.70	-5.27	0.000***
Leverage	186.88	86.40	2.16	0.031**
Tangibility	73.21	57.72	1.27	0.205
Slack	340.12	62.00	5.49	0.000***
Loss	348.30	36.94	9.43	0.000***
Cash ratio	-31.00	116.65	-0.27	0.790
Sales growth	-0.00	0.00	-0.89	0.372
R ²	0.023			
Prob > F	0.000			
Number of obs.	11,515			

Notes: The symbols ***, **, and * denote two-sided significance at the 1%, 5%, and 10% levels, respectively.

Second, in equation (1) we adopt the measure developed by Penman and Zhang (2002) as an alternative proxy for unconditional conservatism, according to previous literature suggestions (Liu, 2019; Hui, Matsunaga, & Morse, 2009; Mensah, Song, & Ho, 2004; Biddle, Ma, & Song, 2020), still leaving the previous measure for accrual-based earnings management. The assumption underlying the choice of such an alternative proxy is that unconditional conservatism results in the accumulation of hidden reserves not recorded on the balance sheet. Therefore, we consider three reserves created by accounting choices: inventory,

advertising, and R&D (Penman & Zhang, 2002). Hence, our alternative measure of unconditional conservatism is calculated as the sum of the abovementioned estimated reserves deflated by the total operating assets.

The results of equation (1) estimation, shown in Table 6, confirm that accrual-based earnings management is positively associated with unconditional conservatism since the coefficient β_1 (17.73, t-stat = 2.01), positive and significant at conventional levels, demonstrates that more unconditionally conservative firms do more accrual-based earnings management practices. The coefficient β_3 (7.86, t-stat = 1.70) positive and significant at conventional levels and lower than β_1 confirms the mitigation effect of the institutional ownership variable over the positive relation between accrual-based earnings management and unconditional conservatism.

Table 6. Robustness test 2: Alternative measure of unconditional conservatism

Dependent variable: AEM_2	Coeff.	Rob. Std. Err.	t	P > t
UNCOND ₂	17.73	8.54	2.01	0.038**
INST	73.24	43.30	1.69	0.091*
UNCOND ₂ * INST	7.86	4.63	1.70	0.090*
Size	43.18	15.38	2.81	0.005***
MTB	12.83	9.09	1.41	0.158
ROA	-969.51	190.08	-5.10	0.000***
Leverage	177.94	89.47	1.99	0.047**
Tangibility	68.75	59.93	1.15	0.252
Slack	332.97	63.37	5.25	0.000***
Loss	366.67	38.28	9.58	0.000***
Cash ratio	-9.05	118.76	-0.08	0.939
Sales growth	-0.00	0.00	-1.10	0.272
R ²	0.061			
Prob > F	0.000			
Number of obs.	11,515			

Notes: The symbols ***, **, and * denote two-sided significance at the 1%, 5%, and 10% levels, respectively.

In order to control for the distortive effects of the year over the association between unconditional conservatism and accrual-based earnings management, we ran an additional robustness test with year fixed effect. The results, shown in Table 7, are robust and confirm the main inferences.

Table 7. Robustness test 3: Year fixed effect

Dependent variable: AEM	Coeff.	Rob. Std. Err.	t	P > t
UNCOND	8.02	4.00	2.00	0.045**
INST	76.95	44.25	1.74	0.082*
UNCOND * INST	0.14	0.07	2.06	0.038**
Size	42.46	14.27	2.97	0.003***
MTB	12.34	9.11	1.35	0.176
ROA	-872.59	180.05	-4.85	0.000***
Leverage	153.00	87.24	1.75	0.080*
Tangibility	49.74	57.08	0.87	0.384
Slack	283.47	61.75	4.59	0.000***
Loss	354.46	37.08	9.56	0.000***
Cash ratio	-12.53	115.87	-0.11	0.914
Sales growth	-0.00	0.00	-1.10	0.270
R ²	0.027			
Prob > F	0.000			
Number of obs.	11,515			

Notes: The symbols ***, **, and * denote two-sided significance at the 1%, 5%, and 10% levels, respectively.

Likewise, to assess the robustness of our main inferences, we perform additional analyses by using alternative measures of both real earnings management and unconditional conservatism.

First, in equation (2) we adopt the "abnormal" CFO-based proxy as an alternative measure for real earnings management, according to Roychowdhury (2006), still leaving the previous measure of unconditional conservatism adopted in the paper.

The results of equation (2) estimation, shown in Table 8, confirm that real earnings management is negatively associated with unconditional conservatism. The coefficient β_1 (-3.01, t-stat = -2.29), negative and significant at conventional levels, demonstrates that more unconditionally conservative firms do less real earnings management practices. In addition, the coefficient β_3 (-22.12, t-stat = -2.00), also negative and significant at conventional levels and whose absolute value is higher than β_1 , confirms the amplifying effect of the institutional ownership variable over the negative relation between real earnings management and unconditional conservatism.

Table 8. Robustness test 1: Alternative measure of real earnings management

Dependent variable: REM_2	Coeff.	Rob. Std. Err.	t	P > t
UNCOND	-3.01	1.31	-2.29	0.022**
INST	-0.05	0.01	-2.65	0.008***
UNCOND * INST	-22.12	11.03	-2.00	0.045**
Size	-0.00	0.02	-0.03	0.972
MTB	-0.00	0.01	-0.41	0.678
ROA	0.28	0.15	1.86	0.063*
Leverage	0.11	0.09	1.16	0.246
Tangibility	0.07	0.10	0.74	0.460
Slack	0.00	0.00	0.85	0.398
Loss	-0.03	0.03	-1.03	0.304
Cash ratio	-0.09	0.09	-0.93	0.354
Sales growth	0.00	0.00	1.54	0.124
R ²	0.011			
Prob > F	0.000			
Number of obs.	11,515			

Notes: The symbols ***, **, and * denote two-sided significance at the 1%, 5%, and 10% levels, respectively.

Second, in equation (2) we adopt the measure developed by Penman and Zhang (2002) as an alternative proxy for unconditional conservatism (Liu, 2019; Hui et al., 2009; Mensah et al., 2004; Biddle et al., 2020), thus leaving the previous measure for real based earnings management.

The results of equation (2) estimation, shown in Table 9, confirm that real earnings management is negatively associated with unconditional conservatism. The coefficient β_1 (-7.08, t-stat = -1.99), negative and significant at conventional levels, demonstrates that more unconditionally conservative firms do less real earnings management practices. In addition, the coefficient β_3 (-31.52, t-stat = -3.71), also negative and significant at conventional levels and higher than β_1 , confirms the intensifying effect of the institutional ownership variable over the negative relation between real earnings management and unconditional conservatism.

Table 9. Robustness test 2: Alternative measure of unconditional conservatism

Dependent variable: REM	Coeff.	Rob. Std. Err.	t	P > t
UNCOND ₂	-7.08	3.55	-1.99	0.046**
INST	-0.29	0.13	-2.21	0.027**
UNCOND ₂ * INST	-31.52	8.50	-3.71	0.000***
Size	-13.51	2.92	-4.62	0.000***
MTB	-0.39	0.77	-0.50	0.616
ROA	145.75	33.29	4.38	0.000***
Leverage	-3.22	16.30	-0.20	0.843
Tangibility	-47.92	12.42	-3.86	0.000***
Slack	-45.76	13.83	-3.31	0.001***
Loss	4.70	7.08	0.66	0.507
Cash ratio	46.28	9.77	4.74	0.000***
Sales growth	0.00	0.00	1.06	0.288
R ²	0.033			
Prob > F	0.000			
Number of obs.	11,515			

Notes: The symbols ***, **, and * denote two-sided significance at the 1%, 5%, and 10% levels, respectively.

In order to control for the distortive effects of the year over the association between unconditional conservatism and real earnings management, we ran an additional robustness test with year fixed effect. The results, shown in Table 10, are robust and confirm the main inferences.

Table 10. Robustness test 3: Year fixed effect

Dependent variable: REM	Coeff.	Rob. Std. Err.	t	P > t
UNCOND	-5.14	2.60	-1.90	0.048**
INST	-0.02	0.01	-2.23	0.026**
UNCOND * INST	-20.72	7.45	-2.78	0.005***
Size	-17.88	2.37	-7.55	0.000***
MTB	-2.82	0.72	-3.89	0.000***
ROA	49.85	27.41	1.82	0.069*
Leverage	-8.64	13.43	-0.07	0.520
Tangibility	-21.54	10.53	-2.04	0.041**
Slack	-8.57	12.01	-0.71	0.476
Loss	-7.29	5.72	-1.28	0.202
Cash ratio	7.01	8.58	0.83	0.408
Sales growth	0.00	0.00	0.07	0.948
R ²	0.33			
Prob > F	0.000			
Number of obs.	11,515			

Notes: The symbols ***, **, and * denote two-sided significance at the 1%, 5%, and 10% levels, respectively.

5. DISCUSSION OF THE RESULTS

Previous empirical investigations demonstrated that conditional conservatism limits the use of accrual-based earnings management operations (Garcia Lara et al., 2020). Our results complement such investigations about conditional conservatism by offering empirical evidence that unconditional conservatism exerts a positive influence on the use of accrual-based earnings management policies. Therefore, according to these inferences, the relationship that links conditional conservatism and unconditional conservatism to accrual-based earnings management is the opposite.

Our results are coherent with the previous theorizations about the existence of a trade-off between conditional and unconditional conservatism (Qiang, 2007; Penalva & Wagenhofer, 2019). In fact, prior studies demonstrated that as unconditional conservatism increases, conditional conservatism decreases, suggesting, consequently, a limitation on the use of accrual-based earnings management policies.

Although Garcia Lara et al. (2020) showed that conditional conservatism increases the use of real earnings management policies, it is still unclear whether the same effect can be generated by unconditional conservatism. The results of our analysis, instead, demonstrate that unconditional conservatism limits the use of real earnings management. Again, the negative relationship between unconditional conservatism and conditional conservatism suggests a potential opposite impact of the two types of conservatism on real earnings management. In fact, according to this perspective, as unconditional conservatism increases, conditional conservatism decreases and, consequently, the use of earnings management policies increases.

Understanding how unconditional conservatism impacts earnings management operations, whether accrual-based or real, can provide an interesting insight into the variables/phenomena that may act as an incentive or deterrent to the pursuit of accounting manipulation. Moreover, these results may suggest which types of accounting manipulations to investigate in the presence of unconditional conservative accounting, favoring a timelier identification of accounting manipulations. Unconditional conservatism policies, such as the choice of valuation of inventories or capitalization of deferred charges, are mostly easy to detect, unlike earnings management policies which tend to be hidden. Therefore, knowing the nature of the relationship under investigation may be useful to identify the level of unconditional conservatism adopted by a given company as a guideline to intercept earnings management transactions.

Furthermore, understanding how institutional ownership can impact the relationship between unconditional conservatism and accrual-based earnings management, as well as real earnings management, may suggest intervening in the relationships in order to limit (amplify) its damaging (beneficial) effects on accounting quality.

6. CONCLUSION

The aim of this study is to investigate whether and how unconditional conservatism influences accrual-based earnings management and real earnings management. In addition, the purpose of this study is to analyze whether and how institutional ownership impacts the sign and intensity of the abovementioned relations.

We find evidence that unconditional conservatism leads to higher accrual-based earnings management and lower real earnings management. Hence, the adoption of an ex-ante, news independent approach that leads to a persistent underestimation of net assets in North-American companies may be associated from a side with the reduction of earnings quality, because of the higher recourse to accrual-based earnings manipulation, and, from the other side with the increase of earnings quality because of the decreasing of real earnings manipulation practices. Depending on the particular type of accounting manipulation that companies are expected to engage in, the presence of unconditional conservatism can be expected to be associated with an improvement/worsening of earnings quality and the reliability of financial statements.

In addition, we find evidence that the large institutional ownership mitigates the positive relationship between unconditional conservatism and accrual-based earnings management while it intensifies the negative relation between unconditional conservatism and real earnings management. These results suggest that the presence of large institutional ownership improves the earnings quality and the reliability of the financial statements, which are extremely relevant when market participants make capital allocation choices since it hinders both accrual-based and real earnings manipulations.

The main limitation of this study is that it does not investigate whether the negative relation

between unconditional and conditional conservatism affects the impact of unconditional conservatism on earnings management (Basu, 2001; Beaver & Ryan, 2005; Giner & Rees, 2001; Pae, Thornton, & Welker, 2005). In fact, an increase in unconditional conservatism leads to a decrease in conditional conservatism, and, knowing that conditional conservatism decreases (increases) accrual-based (real) earnings management, this may affect the total relation between unconditional conservatism and earnings management. We believe that future research should investigate this indirect effect in order to reach a deeper understanding of the relation between unconditional conservatism and earnings management.

REFERENCES

1. Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics*, 24(1), 3-37. [https://doi.org/10.1016/S0165-4101\(97\)00014-1](https://doi.org/10.1016/S0165-4101(97)00014-1)
2. Basu, S. (2001). Discussion of the asymmetric recognition of good and bad news in France, Germany and the United Kingdom. *Journal of Business Finance and Accounting*, 28(9-10), 1333-1349. <https://doi.org/10.1111/1468-5957.00417>
3. Basu, S. (2005). Discussion of "Conditional and unconditional conservatism: Concepts and modeling". *Review of Accounting Studies*, 10(2-3), 311-321. <https://doi.org/10.1007/s11142-005-1533-5>
4. Beaver, W. H., & Ryan, S. G. (2000). Biases and lags in book value and their effects on the ability of the book-to-market ratio to predict book return on equity. *Journal of Accounting Research*, 38(1), 127-148. <https://doi.org/10.2307/2672925>
5. Beaver, W. H., & Ryan, S. G. (2005). Conditional and unconditional conservatism: Concepts and modeling. *Review of Accounting Studies*, 10(2-3), 269-309. <https://doi.org/10.1007/s11142-005-1532-6>
6. Bertomeu, J., Darrrough, M., & Xue, W. (2017). Optimal conservatism with earnings manipulation. *Contemporary Accounting Research*, 34(1), 252-284. <https://doi.org/10.1111/1911-3846.12247>
7. Biddle, G. C., Ma, M. L., & Song, F. M. (2020). Accounting conservatism and bankruptcy risk. *Journal of Accounting, Auditing & Finance*. Advance online publication. <https://doi.org/10.1177/0148558X20934244>
8. Caskey, J., & Laux, V. (2017). Corporate governance, accounting conservatism, and manipulation. *Management Science*, 63(2), 424-437. <https://doi.org/10.1287/mnsc.2015.2341>
9. Chen, Q., Hemmer, T., & Zhang, Y. (2007). On the relation between conservatism in accounting standards and incentives for earnings management. *Journal of Accounting Research*, 45(3), 541-565. <https://doi.org/10.1111/j.1475-679X.2007.00243.x>
10. Chung, R., Firth, M., & Kim, J.-B. (2002). Institutional monitoring and opportunistic earnings management. *Journal of Corporate Finance*, 8(1), 29-48. [https://doi.org/10.1016/S0929-1199\(01\)00039-6](https://doi.org/10.1016/S0929-1199(01)00039-6)
11. Cohen, D. A., Dey, A., & Lys, T. Z. (2008). Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *The Accounting Review*, 83(3), 757-787. <https://doi.org/10.2308/accr.2008.83.3.757>
12. Collins, D. W., Pungaliya, R. S., & Vijn, A. M. (2017). The effects of firm growth and model specification choices on tests of earnings management in quarterly settings. *The Accounting Review*, 92(2), 69-100. <https://doi.org/10.2308/accr-51551>
13. Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193-225. Retrieved from <https://www.jstor.org/stable/248303>
14. Ewert, R., & Wagenhofer, A. (2005). Economic effects of tightening accounting standards to restrict earnings management. *The Accounting Review*, 80(4), 1101-1124. <https://doi.org/10.2308/accr.2005.80.4.1101>
15. Farooq, O., & El Jai, H. (2012). Ownership structure and earnings management: Evidence from the Casablanca stock exchange. *International Research Journal of Finance and Economics*, 84(1), 95-105. Retrieved from https://www.researchgate.net/publication/287708586_Ownership_Structure_and_Earnings_Management_Evidence_from_the_Casablanca_Stock_Exchange
16. Feltham, G. A., & Ohlson, J. A. (1996). Uncertainty resolution and the theory of depreciation measurement. *Journal of Accounting Research*, 34(2), 209-234. <https://doi.org/10.2307/2491500>
17. Francis, B., Hasan, I., & Wu, Q. (2013). The benefits of conservative accounting to shareholders: Evidence from the financial crisis. *Accounting Horizons*, 27(2), 319-346. <https://doi.org/10.2308/acch-50431>
18. Gao, P. (2013). A measurement approach to conservatism and earnings management. *Journal of Accounting and Economics*, 55(2-3), 251-268. <https://doi.org/10.1016/j.jacceco.2012.10.001>
19. García Lara, J. M., García Osma, B., & Penalva, F. (2009). The economic determinants of conditional conservatism. *Journal of Business Finance & Accounting*, 36(3-4), 336-372. <https://doi.org/10.1111/j.1468-5957.2008.02122.x>
20. García Lara, J. M., García Osma, B., & Penalva, F. (2016). Accounting conservatism and firm investment efficiency. *Journal of Accounting and Economics*, 61(1), 221-238. <https://doi.org/10.1016/j.jacceco.2015.07.003>
21. García Lara, J. M., García Osma, B. G., & Penalva, F. (2020). Conditional conservatism and the limits to earnings management. *Journal of Accounting and Public Policy*, 39(4), 106738. <https://doi.org/10.1016/j.jaccpubpol.2020.106738>
22. Giner, B., & Rees, W. (2001). On the asymmetric recognition of good and bad news in France, Germany and the United Kingdom. *Journal of Business Finance & Accounting*, 28(9-10), 1285-1331. <https://doi.org/10.1111/1468-5957.00416>
23. Hausman, J. A., & Wise, D. A. (1979). Attrition bias in experimental and panel data: The Gary income maintenance experiment. *Econometrica*, 47(2), 455-473. <https://doi.org/10.2307/1914193>

24. Healy, P. M., & Wahlen, J. M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), 365-383. <https://doi.org/10.2308/acch.1999.13.4.365>
25. Hribar, P., & Collins, D. W. (2002). Errors in estimating accruals: Implications for empirical research. *Journal of Accounting Research*, 40, 105-134. <https://doi.org/10.1111/1475-679X.00041>
26. Hui, K. W., Matsunaga, S., & Morse, D. (2009). The impact of conservatism on management earnings forecasts. *Journal of Accounting and Economics*, 47(3), 192-207. <https://doi.org/10.1016/j.jacceco.2009.01.001>
27. Jackson, S. B., & Liu, X. (2010). The allowance for uncollectible accounts, conservatism, and earnings management. *Journal of Accounting Research*, 48(3), 565-601. <https://doi.org/10.1111/j.1475-679X.2009.00364.x>
28. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
29. Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accruals measures. *Journal of Accounting and Economics*, 39(1), 163-197. <https://doi.org/10.1016/j.jacceco.2004.11.002>
30. LaFond, R., & Watts, R. L. (2008). The information role of conservatism. *The Accounting Review*, 83(2), 447-478. <https://doi.org/10.2308/accr.2008.83.2.447>
31. Liu, S. (2019). The impact of ownership structure on conditional and unconditional conservatism in China: Some new evidence. *Journal of International Accounting, Auditing and Taxation*, 34, 49-68. <https://doi.org/10.1016/j.intaccudtax.2019.02.003>
32. Mensah, Y. M., Song, X., & Ho, S. S. M. (2004). The effect of conservatism on analysts' annual earnings forecast accuracy and dispersion. *Journal of Accounting, Auditing & Finance*, 19(2), 159-183.
33. Mitra, S., & Cready, W. M. (2005). Institutional stock ownership, accrual management, and information environment. *Journal of Accounting, Auditing & Finance*, 20(3), 257-286. <https://doi.org/10.1177/0148558X0502000304>
34. Onali, E., Ginesti, G., & Vasilakis, C. (2017). How should we estimate value-relevance models? Insights from European data. *The British Accounting Review*, 49(5), 460-473. <https://doi.org/10.1016/j.bar.2017.05.006>
35. Pae, J., Thornton, D. B., & Welker, M. (2005). The link between earnings conservatism and the price-to-book ratio. *Contemporary Accounting Research*, 22(3), 693-717. <https://doi.org/10.1506/9FDN-N6ED-LJE9-A1HL>
36. Penalva, F., & Wagenhofer, A. (2019). Conservatism in debt contracting: Theory and empirical evidence. *Accounting and Business Research*, 49(6), 619-647. <https://doi.org/10.1080/00014788.2019.1609899>
37. Penman, S. H., & Zhang, X.-J. (2002). Accounting conservatism, the quality of earnings, and stock returns. *The Accounting Review*, 77(2), 237-264. <https://doi.org/10.2308/accr.2002.77.2.237>
38. Qiang, X. (2007). The effects of contracting, litigation, regulation, and tax costs on conditional and unconditional conservatism: Cross-sectional evidence at the firm level. *The Accounting Review*, 82(3), 759-796. <https://doi.org/10.2308/accr.2007.82.3.759>
39. Roychowdhury, S. (2006). Earnings management through real activities manipulation. *Journal of Accounting and Economics*, 42(3), 335-370. <https://doi.org/10.1016/j.jacceco.2006.01.002>
40. Ruch, G. W., & Taylor, G. (2015). Accounting conservatism: A review of the literature. *Journal of Accounting Literature*, 34, 17-38. <https://doi.org/10.1016/j.acclit.2015.02.001>
41. Sakaki, H., Jackson, D., & Jory, S. (2017). Institutional ownership stability and real earnings management. *Review of Quantitative Finance and Accounting*, 49(1), 227-244. <https://doi.org/10.1007/s11156-016-0588-7>
42. Schipper, K. (1989). Earnings management. *Accounting Horizons*, 3(4), 91-102. Retrieved from <https://www.proquest.com/openview/177246e104b43553542ab048997f1a4e/1?pq-origsite=gscholar&cbl=3330>
43. Shleifer, A., & Vishny, R. W. (1986). Large shareholders and corporate control. *Journal of Political Economy*, 94(3), 461-488. <https://doi.org/10.1086/261385>
44. Watts, R. L. (2003). Conservatism in accounting part I: Explanations and implications. *Accounting Horizons*, 17(3), 207-221. <https://doi.org/10.2308/acch.2003.17.3.207>
45. Zang, A. Y. (2012). Evidence on the trade-off between real activities manipulation and accrual-based earnings management. *The Accounting Review*, 87(2), 675-703. <https://doi.org/10.2308/accr-10196>

APPENDIX A

Variables	Definition
UNCOND	<p>An unconditional conservatism proxy calculated as the firm-specific persistent bias component of the MTB ratio, captured by the firm intercept when running the regression of the MTB ratios on current and lagged (up to 6 years) stock returns (Beaver & Ryan, 2000). This proxy was obtained using the following equation:</p> $\frac{M}{B_{i,t}} = \alpha_i + \alpha_t + \sum_{j=0}^6 \beta_j R_{t-j,i} + \varepsilon_{i,t}$ <p>where, R is the annual stock return for firm i from 9 months before the end of fiscal year t to 3 months after the end of fiscal year t. The equation is estimated annually to obtain α_i, which represents the unconditional conservatism measure (UNCOND).</p>
UNCOND ₂	<p>An unconditional conservatism proxy developed by Penman and Zhang (2002). It is calculated as the sum of the advertising, R&D, and LIFO reserves deflated by the total operating assets, as follow:</p> $UNCOND_{i,t} = \frac{ER_{i,t}}{NOA_{i,t}} = \frac{INV_{i,t}^{res} + RD_{i,t}^{res} + ADV_{i,t}^{res}}{NOA_{i,t}}$ <p>To estimate advertising reserves, we capitalize advertising expenses and then amortize them using a sum-of-the-year-digit method over 2 years. To estimate R&D reserves, we capitalize the R&D expenditures and further amortize them using the sum-of-the-years-digit method over 5 years. The LIFO reserve is calculated as the difference between LIFO and FIFO carrying values.</p>
AEM	<p>A discretionary accrual-based earnings management proxy calculated based on the modified Jones Model (Dechow et al., 1995) as follows:</p> $\frac{TAccr_{i,t}}{Assets_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{Assets_{i,t-1}} + \beta_2 (CHSALE_{i,t} - CHREC_{i,t}) / Assets_{i,t-1} + \beta_3 \frac{PPE_{i,t}}{Assets_{i,t-1}} + \beta_4 ROA_{i,t-1} + \beta_5 SG_{i,t} + \varepsilon_{i,t}$ <p>where, $TAccr$ is the total accruals calculated as the difference between earnings before extraordinary items and cash flows from operations reported in the statement of cash flows; $Assets$ is the amount of total assets at the beginning of the year; $CHSALE$ is the change in sales; $CHREC$ is the change in accounts receivables; PPE is gross property, plant, and equipment; ROA is the return on asset ratio and SG is the current growth in sales. We added to the modified Jones Model these last two measures in order to control for the distortive effects of firm performance and growth on accruals estimation, coherently with Kothari, Leone, and Wasley (2005) and Collins, Pungaliya, and Vijn (2017).</p>
AEM ₂	<p>A discretionary working capital accrual-based earnings management proxy obtained from the modified Jones Model (Dechow et al., 1995):</p> $\frac{WCAccr_{i,t}}{Assets_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{Assets_{i,t-1}} + \beta_2 (CHSALE_{i,t} - CHREC_{i,t}) / Assets_{i,t-1} + \beta_3 \frac{PPE_{i,t}}{Assets_{i,t-1}} + \beta_4 ROA_{i,t-1} + \beta_5 SG_{i,t} + \varepsilon_{i,t}$ <p>where, $WCAccr$ is the working capital accruals calculated through the sum of the change in receivables, change in inventory, change in accounts payables, change in tax payables, and change in other assets and liabilities, obtained from the statement of cash flows ($RECCH + INVCH + APALCH + TXACH + AOLOCH$) (Hribar & Collins, 2002).</p>
REM	<p>A real earnings management proxy obtained as the addition of $APROD$ and -1^*AEXP, which are Roychowdhury's (2006) abnormal production costs and abnormal discretionary expenses, respectively. The abnormal production costs are the residuals estimated from the following model:</p> $\frac{PROD_{i,t}}{Assets_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{Assets_{i,t-1}} + \beta_2 SALES_{i,t} / Assets_{i,t-1} + \beta_3 \frac{CHSALES_{i,t}}{Assets_{i,t-1}} + \beta_4 \frac{CHSALES_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{i,t}$ <p>where, $PROD$ is the sum of costs of goods sold and the change in inventory during the year t. More positive values of $APROD$ correspond to more income-increasing real earnings management policies. The abnormal discretionary expenses are the residuals estimated from the following model:</p> $\frac{PROD_{i,t}}{Assets_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{Assets_{i,t-1}} + \beta_2 SALES_{i,t-1} / Assets_{i,t-1} + \varepsilon_{i,t}$ <p>where, discretionary expenses ($DEXP$) are defined as the sum of SG&A, R&D, and advertising expenses. More negative values of $AEXP$ correspond to more income-increasing real earnings management policies.</p>
REM ₂	<p>A real earnings management proxy estimated through the following cross-sectional regression, according to Roychowdhury (2006):</p> $\frac{CFO_{i,t}}{Assets_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{Assets_{i,t-1}} + \beta_2 (SALES_{i,t} / Assets_{i,t-1}) + \beta_3 \frac{CHSALES_{i,t}}{Assets_{i,t-1}} + \varepsilon_{i,t}$ <p>where, CFO is the "normal" cash flow from operations. The abnormal cash flow from operations is the actual CFO minus the "normal" CFO calculated using the estimated coefficients from the abovementioned model.</p>
INST	The proportion of firm shares held by institutional investors.
Size	The log of the market value of equity.
MTB	The ratio of the market value of the total assets to the book value of the total assets.
ROA	The ratio of pretax income divided by the total assets.
Leverage	The measure of solvency calculated as short-term plus long-term debt scaled by the market value of equity.
Tangibility	The ratio of property, plant, and equipment to the total assets.
Slack	The ratio of cash to net property, plant, and equipment.
Loss	A dummy variable that takes the value of 1 if net income before extraordinary items is negative and 0 otherwise.
Cash ratio	The ratio of cash to total assets.
Sales growth	The growth rate in sales.