

Corporate Governance and Earnings Management: A Meta-Analysis

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ABSTRACT

Manuscript Type: Review

Research Question/Issue: The goal of this paper is to meta-analyze the results of 35 studies that examine the effect on earnings management of firms' boards of directors and ownership structure. We examine whether differences in results are attributable to moderating effects related to the system of corporate governance, the measurement of the governance variable, or the particular specifications of discretionary accruals models.

Research Findings/Insights: The findings show that the variation in the results of previous studies on CEO duality and audit committee independence are caused by sampling error. In addition, the measurement of dependent variable, discretionary accruals, and the corporate governance system moderate the association between earnings management and some corporate governance variables.

Theoretical/Academic Implications: The measurement of variables, especially discretionary accruals, influences the findings found in previous studies. The findings emphasize the need to explicitly consider the legal and institutional setting when one analyzes the effect of mechanisms of corporate governance on discretionary accruals. Future research should include matrix correlations, and consider detailed measures of earnings management and more attributes of boards of directors in order to facilitate research using meta-analysis.

Practitioner/Policy Implications: The results suggest that board independence, board size, and audit committee independence can improve investor confidence by constraining earnings management. Additional empirical evidence regarding refined measures of ownership and board, specifically board independence, would be very useful in gaining greater understanding of how the different approaches to these constructs influence earnings management.

Keywords: Corporate Governance, Audit Committee, Board of Directors, Ownership Issues, Ownership Structure, Earnings Management, Agency Theory, Meta-Analysis

INTRODUCTION

The very nature of accounting accruals gives managers a great deal of discretion in determining the earnings a firm reports in any given period because of information asymmetry between managers and owners. Managers can manipulate earnings in order to maximize their own interests or to signal their private information, thus influencing the informativeness of earnings (Chung, Firth, & Kim, 2002; Gul, Chen, & Tsui, 2003; Healy, 1985; Holthausen, Larcker, & Sloan, 1995). Earnings management can be defined as the alteration of a firms' reported economic performance by insiders either to mislead some stakeholders or to influence

contractual outcomes (Healey & Wahlen, 1999; Leuz, Nanda, & Wysocki, 2003).

Accounting earnings are more reliable and more informative when managers' opportunistic behavior is controlled through a variety of monitoring systems (Dechow, Sloan, & Sweeney, 1996; Wild, 1996). After several recent financial scandals, such as Enron, Xerox, or Worldcom, there has been an international trend towards developing and implementing corporate governance mechanisms to fight against the opportunistic behaviors that have undermined investors' credibility in financial information. Corporate governance attributes help investors by aligning the interests of managers with the interests of shareholders and by enhancing the reliability of financial information and the integrity of the financial reporting process (Watts & Zimmerman, 1986).

Although prior work has provided some insight into the role of corporate governance, the results of similar studies are frequently contradictory and there are several features

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of research that make it difficult to draw substantive conclusions (Larcker, Richardson, & Tuna, 2007). To test the validity and generalizability of the substantial research undertaken in this field of research, it is necessary to review, synthesize, and assess relevant empirical research. Following Leonidou, Katsikeas, and Samiee (2002) such an undertaking is important at this stage for three reasons. First, most studies represent attempts aimed at investigating and testing only certain dimensions of corporate governance. Second, investigation efforts take place at different moments and in varying legal contexts, with a possible exogenous effect on the findings. Third, research designs, such as the measurement of some variables, may be diverse. The conflicting findings of previous research limit the theoretical and research development of this field.

Taking the above into account, we have identified 35 relevant empirical studies that examine the relation between earnings management and corporate governance. Our objective in this paper is to integrate these results, achieve a quantitative generalization, and find effects or relationships that are not obvious from other ways of summarizing research, such as narrative approaches. We will use the meta-analysis technique, which is a quantitative review methodology widely accepted in medical research and other disciplines besides management. Where there are a sufficient number of studies, most observers would be more comfortable with conclusions drawn from a meta-analytic review rather than narrative approaches, as meta-analysis can account for sampling error and other statistical artifacts in the data from the studies on which the analysis relies (Hunter & Schmidt, 1990).

The benefits of the meta-analysis, the recent interest in corporate governance, together with the social importance of the credibility in financial information lead us to meta-analyze the relation between corporate governance and earnings management.

Following Denis and McConnell (2003), we classify corporate governance mechanisms into two categories – boards of directors and ownership structure – and we analyze the effect on earnings management of several dimensions: (1) Boards of directors: Board independence, board size, CEO duality, and audit committee independence; and (2) Ownership structure: Insider ownership, concentration, and institutional ownership. Meta-analysis will allow us first to aggregate results across studies in order to obtain a robust estimate of the relationship between each corporate governance variable and earnings management. The selection of variables is based on the governance categories found in the empirical research. Some mechanisms of corporate governance (e.g., CEO remuneration, family ownership) are not analyzed because there are too few studies for meta-analysis to be applied.

In addition, we also analyze whether differences in studies are due to moderator effects such as the measurement of discretionary accruals (type and sign of the model); the approach used to define some corporate governance variables (ownership concentration and insider ownership); and the system of corporate governance (Anglo-American, communitarian, or emerging system).

Accordingly, this paper addresses several research questions. What is the overall effect of the different corporate

governance attributes on earnings management? Are independent audit committees or blockholders more effective in reducing earnings manipulation in Anglo-American countries in comparison to communitarian countries? Do the results depend on the measurement of discretionary accruals? Are the findings moderated by the measurement of the governance variables?

The findings show that in some mechanisms, such as CEO duality and audit committee independence, the variations in results found in previous studies are due to sampling error. The measurement of dependent variable, discretionary accruals, is also a factor that explains differences in previous findings. Specifically, our results show that board size and board independence only have a negative effect on earnings management with total accruals models. This may suggest that firms with larger and more independent boards usually have fewer discretionary accruals choices related to asset depreciation. This suggests that when different discretionary accruals models are used, results can change considerably, which confirms that the definition of variables matters, especially with constructs such as earnings management.

The results do not support most corporate practice recommendations that strongly suggest the positions of board chairman and CEO be held by different individuals. Yet we do see that abnormal accruals are less pronounced in firms with independent audit committees.

In addition, we find significant differences between corporate governance systems with regard to the role of independent directors, a mechanism that does not appear to be efficient in constraining earnings management practices in communitarian and emerging countries. The greater presence there of controlling shareholders and less of a board tradition of defence against managers would explain these results. Nevertheless, we are concerned about the measure of board independence, overall in communitarian studies, where there are many fears that board members are not independent of those who nominate them.

We attempt to shed additional light for regulators, such as the Organization for Economic and Corporate Development Council or the Commission of the European Communities, which are engaged in the formulation of guidelines for improved corporate governance. The results suggest that codes of good governance should explicitly consider the institutional framework of a country, because the implementation of some good practices from other countries without considering the origin of a country's legal institution could be ineffective. The findings also support regulators' attempts in communitarian and emerging countries to improve the independence of corporate boards.

The rest of the paper is as follows: in the second section, we discuss the literature about corporate governance and earnings management; then, we examine the possible moderators for the relationships analyzed. In the methodology section we present the meta-analytic technique used and the description of sample and variables. In the results section we show the results of the meta-analyses for each corporate governance variable, and we end with a discussion of results in a summary, discussion, and further research section.

CORPORATE GOVERNANCE AND EARNINGS MANAGEMENT

We discuss earnings management from two perspectives – boards of directors and ownership structure.

Boards of Directors and Earnings Management

Boards of directors can play a significant role in controlling agency problems. From an agency perspective, the ability of the board to act as an effective monitoring mechanism depends on its independence of management (Beasley, 1996; Dechow et al., 1996). According to Fama and Jensen (1983), independent directors on boards make boards more effective in monitoring managers and exercising control on behalf of shareholders. The Securities and Exchange Commission's Regulation 14A, Item 6b, sets the conditions under which director's affiliation with a firm must be disclosed in proxy materials. Directors with the following relationships must be identified: (1) employment by the corporation or an affiliate within the last five years; (2) any family relationship closer than second cousin; (3) affiliation in the last two years with a concern that has had a customer, supplier, banker, or creditor relationship with the corporation; (4) affiliation with an investment banker that has performed services for the company within two years or will do so within one year; (5) holding control of corporate stock; and (6) association with a law firm engaged by the corporation. Nevertheless, previous research that analyzes the effect of board independence on earnings management is not so specific in the description of board independence, which is usually referred to non-executive directors. This limits the analysis of board independence to the category of non-executive directors, and restricts the possibility of a deeper examination of how these different roles may constrain managerial discretionary behavior.

Results on the association between earnings management and board independence in previous literature are conflicting. While Davidson, Goodwin-Stewart, and Kent (2005) find empirical support for the effective role of independent directors in constraining earnings management in Australian firms, Bradbury, Mak, and Tan (2006) in Singapore fail to find any association between earnings management and board independence.

Another characteristic that is seen to influence a board's ability to monitor is board size. Boards can become less effective in controlling management as board size increases due to problems of coordination and communication (Jensen, 1993). Nevertheless, results regarding the effect of board size on earnings management are not so obvious. Some authors find a positive association between board size and earnings management (Chin, Firth, and Rui [2006] for 313 firms in Hong Kong), and others a negative relation (Xie, Wallace, and Dadalt [2003] for a sample of 110 US firms) or even no relation (Bradbury et al. [2006] for firms in Malaysia and Singapore).

Another important characteristic of boards is whether roles of the chairperson and the chief executive officer (CEO) are vested in different people. Corporate governance guidelines assume that a board is less able to perform a monitoring role when the CEO is also the chairperson of the board.

CEO duality indicates that less control is likely to be exercised over management's activities and behavior. Empirical evidence on the association between CEO duality and opportunistic managerial behavior, however, seems not to support this theory since most authors do not find any significant relation (Bugshan, 2005; Cornett, Marcus, Saunders, & Tehranian, 2006; Davidson et al., 2005).

In monitoring the financial discretion of management, it is the audit committee that is likely to provide shareholders with the most protection in maintaining the credibility of a firm's financial statements. Thus, independent audit committees can potentially improve the quality and credibility of financial reporting. The best practice standard establishes 100 per cent of independent directors, and although in most studies the percentage of independent directors is higher than 50 per cent, it does not reach 100 per cent. Whereas in the samples of Yang and Krishnan (2005) for US and Bugshan (2005) for Australia there are 82 per cent of independent directors in the audit committee, in García-Osma and Gill de Albornoz (2007) for Spain the mean is 56 per cent. Nevertheless, results in this area are also conflicting. While Klein (2002) reports a negative relation between earnings management and audit committee independence, other authors find no association between both variables (Yang and Krishnan [2005] in the USA, and García-Osma and Gill de Albornoz [2007] in Spain).

Ownership Structure and Earnings Management

Agency theory predicts that low levels of insider ownership imply a poor alignment of interests between management and shareholders (Jensen & Meckling, 1976); that is, managers with little ownership may have incentives to manage accounting numbers so as to increase earnings-based compensation, relax contractual constraints, or avoid debt covenants (Healy, 1985; Holthausen et al., 1995). Insider ownership can be seen as a way to constrain the opportunistic behavior of managers, so the level of discretionary accruals is predicted to be negatively associated with insider ownership (Warfield, Wild, & Wild, 1995). The entrenchment hypothesis states on the other hand that high levels of insider ownership may be ineffective in prompting insiders to make value-maximizing decisions, which may result in an increase in earnings management (Cornett, Marcus, & Tehranian, 2008). Other authors do not find any significant association between insider ownership and earnings management (Bowen, Rajgopal, & Venkatachalam, 2004; Koh, 2003).

The majority of empirical research on the effect of ownership concentration on earnings management asserts that monitoring by owners improves the quality of managerial decisions and thus increases firm value, because the presence of substantial blockholders leads to closer monitoring of management, implying less opportunity for accruals management or earnings manipulation. Yeo, Tan, Ho, and Chen (2002) examine the monitoring role played by external unrelated blockholders, which results in reducing the opportunity for earnings management, with a strong positive effect on earnings informativeness. Davidson et al. (2005) and Sánchez-Ballesta and García-Meca (2007b) do not find any significant relation.

More recently there has been more focus on the role of institutional investors in monitoring, disciplining, and influencing corporate managers. While Rajgopal, Venkatachalam, and Jambalvo, (2002) and Jiraporn and Gleason (2007) suggest institutional investors serve as monitors, mitigating earnings management behavior, others find no relation between institutional investors and earnings management (e.g. Siregar and Utama, 2008).

MODERATORS FOR THE META-ANALYSIS

There are striking differences across countries in corporate governance systems for a variety of reasons, including laws, capital market characteristics, culture, history, and industrial organization. These differences in the business and institutional environments of countries are noted in the law and finance approach (LaPorta, Lopez de Silanes, & Shleifer, 1999). Control mechanisms function differently, depending on the legal and institutional setting (López-de-Foronda, López-Iturriaga, & Santamaría-Mariscal, 2007). Leuz et al. (2003) note that earnings management is expected to decrease in investor protection countries because strong protection limits insiders' ability to acquire private control benefits, which reduces their incentives to mask firm performance. Thus, we will study whether corporate governance mechanisms actively monitor and take actions that reduce the incidence of earnings management when the incentives for manipulations differ with the context. Millar, Eldomiaty, Choi, and Hilton, (2005) classify corporate governance systems into the triad of the shareholder-interest driven Anglo-American business system, the stakeholder driven communitarian system and the emerging business system. This classification takes into account the reality of the context, non-economic forces that influence firm capabilities, and management discretionary behavior.

While the Anglo-American system is characterized by a widely dispersed ownership and the basic conflict of interest is between managers and shareholders, the governance system typical of the communitarian system is characterized by concentrated ownership and the basic conflict is between holding companies, banks, institutions and weak shareholders. In most emerging economies, their relationship-based institutions have led to a business system characterized by a concentration of ownership and control of corporations and banks by families, a lack of transparency, and weak investor protection. The differences between the three systems described by Millar et al. (2005), and determined by the legal systems and investor protection, are likely to influence the relationship between governance mechanisms and earnings management.

In our approach, we study whether differences in study results are attributable to moderating effects related to systems of corporate governance, distinguishing between Anglo-American, communitarian, and emerging systems, on the basis of Millar et al. (2005). Considering the corporate governance system as a moderating variable, we propose a first hypothesis:

H1: The corporate governance system moderates the relation between corporate governance variables and earnings management.

Another moderator variable for the relation between corporate governance and earnings management is the measurement of discretionary accruals. Authors have used different models to separate observed accruals into their non-discretionary and discretionary components. The most common are the Jones (1991) model and Jones modified model (Dechow, Sloan, & Sweeney, 1995). Each includes two versions of total accruals and working capital accruals (total accruals = working capital accruals - depreciation and amortization expenses for the period).

The main difference between versions is that total accruals models estimate non-discretionary accruals controlling for the component of long-term accruals, i.e., the level of gross property, plant, and equipment. Such a calculation is subject to considerable subjectivity in the estimates of useful life and residual value of fixed assets. The working capital model only focuses on short-term accruals, noting that depreciation offers limited potential as a tool for systematic earnings management, since changes in depreciation policy cannot be made very frequently without attracting adverse attention from the auditor or investors. Nevertheless, some studies use different models than Jones (1991) in order to calculate the abnormal component of accruals, e.g., the Healy (1985) and DeAngelo (1986) models. Meta-analysis will allow us to evaluate if the heterogeneity in this research field is based on estimates from these models and if corporate governance mechanisms are equally effective in constraining discretionary behavior with working capital accruals and long-term accruals. Hence, the second hypothesis is:

H2: The specific model of discretionary accruals (total accruals versus working capital accruals, and Jones versus other models) moderates the relation between corporate governance variables and earnings management.

Previous meta-analyses suggest that studies should be classified according to differences in the measurement of the dependent variable to reduce the level of variance in results (e.g. Dalton, Daily, Ellstrand, & Johnson, 1998). Apart from the model selected, another important difference in this variable in primary studies is related to its sign. Researchers have used either absolute values of abnormal accruals or signed accruals. According to Warfield et al. (1995), absolute abnormal accruals tend to measure the extent to which managers knowingly pursue certain techniques to adjust reported numbers. While this measures the size of the accruals, it loses information on the sign of the accruals. Therefore, some studies run separate regressions depending on whether the abnormal accruals are signed (e.g., Cornett et al., 2006; Piot & Janin, 2005) or unsigned. We test whether in spite of their being used as measures of the same concept in most of the primary studies the different signs in the models may be a moderator of its relation with earnings management. Accordingly, we examine whether differences in results are due to this specification of discretionary accruals models (signed versus unsigned/absolute value models). Therefore, we propose the hypothesis:

H3: The sign of the discretionary accruals model (absolute versus signed) moderates the relation between corporate governance variables and earnings management.

Another possible moderating variable in this field of research is the measurement of insider ownership, because empirical studies use different measures to test the effect of insider ownership on earnings management. Since previous meta-analyses suggest that the measurement of the explanatory variables may be a moderator effect (Dalton et al., 1998; Sánchez-Ballesta & García-Meca, 2007a), we test whether in spite of being used as measures of the same concept in most of the primary studies, the different operational definitions of insider ownership may be a moderator of the relation with earnings management. Although in their initial contribution Jensen and Meckling (1976) focused on managerial ownership as incentive to align the interests of managers and shareholders, this same argument of agency theory has been extended to board members. Boards of directors are, among other tasks, charged with monitoring and disciplining senior management. Thus, they are considered one of the most important factors influencing the integrity of the financial accounting process (Anderson, Mansi, & Reeb, 2003; Dalton, Daily, Trevis, & Roengpitya, 2003) identify different categories of insider ownership used in empirical research on profitability: CEO equity, managerial equity, officer and director equity, inside board equity, and outside board equity. Most of the papers on earnings management analyzed only distinguish between board ownership and management ownership. The first category includes ownership by members of the board of directors. The second refers to executive officer ownership. This separation will allow us to test whether there are differences in earnings management between board members and executive managers when they are owners of the company. On the other hand, some papers rely on "officers and directors" to capture insider equity ownership, without distinguishing between both groups (e.g., Gabrielsen, Gramlich, & Plenborg, 2002; Rajgopal et al., 2002). Thus, due to this limitation, and following Dalton et al. (2003) and Sánchez-Ballesta and García-Meca (2007a), we have also included this third category of insider ownership in the meta-analysis, so we distinguish between "managerial ownership," "board ownership," and "officer and director ownership."

H4: The measure of insider ownership (managerial versus board versus both officer and director ownership) moderates the relation between this variable and earnings management.

Finally, empirical studies use different measures to test the effect of ownership concentration on earnings management. Most authors use the largest shareholder as a proxy of ownership concentration (e.g., Davidson et al., 2005; Ding, Zhang, & Zhang, 2007). Others also consider the percentage of total shares held by the top 20 shareholders (Bugshan, 2005); the five largest shareholders (López Iturriaga & Saona Hoffman, 2005); or ownership from the second to the tenth shareholder (Liu & Lu, 2007). Since the results on the effect of ownership concentration on earnings management are heterogeneous, it is fruitful to test whether there are differential effects across different measures of ownership concentration. In other words, we test whether in spite of being used as measures of the same concept, the different operational definitions of ownership concentration may be a moderator of the relation between concentration and earnings management. Such an investigation would identify the

measure of ownership concentration for which more pronounced effects may be found. We distinguish between the largest shareholder and other blockholders, a category that includes those definitions that consider more than one shareholder.

H5: The measure of ownership concentration moderates the relation between this variable and earnings management.

METHODOLOGY

Meta-analysis is a technique that allows rigorous integration of the findings of previous studies on a particular topic in order to assess the overall effect of the studies. Literature reviews that are simply narrative can be misleading because different researchers may reach different conclusions about a set of individual studies due to variations in characteristics such as sample size, measurement of variables, and time period (Hunter & Schmidt, 1990). The meta-analysis technique, however, allows researchers to evaluate the effect of these different data characteristics (*moderators*) on the results (Hunter & Schmidt, 1990; Rosenthal, 1991; Wolf, 1986).

Meta-analyses in corporate governance have studied the effect of board composition and size on firm performance (Dalton et al., 1998; Dalton, Daily, Johnson, & Ellstrand, 1999; Rhoades, Rechner, & Sundaramurthy 2000), the relationship between board leadership structure and performance (Rhoades, Rechner, & Sundaramurthy, 2001) and the association between ownership structure and firm performance (Dalton et al., 2003; Sánchez-Ballesta & García-Meca, 2007a). One research topic of interest in recent years has been the effect of corporate governance mechanisms on earnings management.

For the objectives sought here we perform several independent meta-analyses. Each one examines the relationship between earnings management and one corporate governance variable.

Literature Search

We first used different combinations of keywords to search for articles that report findings on the relation between earnings management and boards of directors and ownership structure mechanisms of corporate governance. Keywords used included "earnings management," "discretionary accruals," "financial reporting quality," "corporate governance," "ownership structure," "board of directors," "CEO," "board independence," "insider ownership," "ownership concentration," "audit committee," "board size," and "institutional ownership" to search databases and editorial sources including the ISI web of Science, ScienceDirect, EJS Ebsco, Blackwell, Emerald, ABI Inform, and SSRN. We also consulted the major journals of accounting and finance that typically publish this kind of research (*The Accounting Review; Contemporary Accounting Research; Journal of Accounting and Economics; Corporate Governance: An International Review; Journal of Financial Economics; Journal of Business, Finance and Accounting.*). References in the most recent articles were also examined to identify other sources. These searches yielded a total of 66 published and unpublished

TABLE 1
Selection of Earnings Management Studies for Meta-Analysis

	Number of studies	Percentage
Initial sample	66	100%
Criteria leading to exclusion of studies		
– CG variables not included in our meta-analysis (CEO compensation, Audit quality and financial expertise, wedge between control and ownership)	(11)	16.67%
– Other attributes of earnings (total accruals, value relevance, timeliness, persistence)	(8)	12.12%
– Results non transformable into r	(5)	7.58%
– Composite measures of corporate governance variables or accruals	(3)	4.55%
– Non English	(2)	3.03%
– Studies on specific events and firms	(2)	3.03%
Final sample	35	53.03%

studies with quantitative data on corporate governance variables and discretionary accruals.

As detailed in Table 1, the difference between the number of studies and the number of usable samples is due to different reasons: corporate governance variables not included, such as CEO compensation (Balsam, 1998; Bergstresser & Philippon, 2006), composite measures of accruals or corporate governance variables (Dhaliwal, Naiker, & Navissi, 2006; Larcker et al., 2007; Leuz et al., 2003); results not transformable into r (Jaggi & Tsui, 2007; Peasnell, Pope & Young, 2000, 2005). This reduced the initial sample to 35 studies and 81 individual correlations from 1995 to 2008 that examine the effect of corporate governance mechanisms on discretionary accruals:

Variables Analyzed

Most of the articles we identified use discretionary accruals as a proxy for earnings management. Thus, we focus our research on this measurement, and exclude other attributes of earnings such as total accruals, the value relevance of earnings, earnings timeliness, or earnings persistence (e.g., Beekes, Pope, & Young, 2004; Oei, Ramsay, & Mather, 2008). Discretionary accruals, our focus of interest, are the abnormal component of accruals, i.e., the portion of accruals not explained by different factors such as (in the Jones [1991] original model) change in revenues, and the level of gross property, plant, and equipment (the last component is included only in total accruals models).

Two articles analyzing the effect of insider ownership on discretionary accruals use as estimates of discretionary accruals: (1) the difference between accruals and accruals expected based on the average of the previous four years (Gabrielsen et al., 2002); and (2) the Healy (1985) and DeAngelo (1986) models (Warfield et al., 1995). All the others calculate the abnormal component of accruals using the original version of the Jones (1991) model or its various modifications, such as that of Dechow et al. (1995) (see Table 2). On the other hand, some primary studies use models of total accruals, while others use working

capital accruals, and some measure discretionary accruals in absolute value while others use signed accruals.

We analyzed the moderator effect played by these different operational definitions of discretionary accruals. This moderator factor was only studied in those cases where there were sufficient studies.

For the independent variables in primary studies, we looked for board of directors and ownership mechanisms with enough previous research to be meta-analyzed. CEO remuneration and other mechanisms of corporate governance are not analyzed because there are too few studies to apply meta-analysis. This led us to focus on particular dimensions of boards and ownership – board independence, CEO duality, board size, and audit committee independence for board of directors; and insider ownership, ownership concentration, and institutional ownership for ownership structure.

We also found that some of these constructs have different operational definitions, as explained in the moderators section. Insider ownership can be measured in terms of officer and director ownership, board ownership, and management ownership. Ownership concentration in most articles is measured as the ownership held by the largest shareholder. Others measure ownership concentration as ownership held by the 20 top owners, the Herfindahl index from the second to the tenth largest shareholders, or ownership by other groups of shareholders. We focus on the moderator effect played by these different operational definitions of independent variables in their association with discretionary accruals, grouping the largest shareholder against definitions that include more shareholders. Finally, CEO duality in some studies is coded 1 if CEO = Chairman (non-independence between the two roles), and 0 otherwise, while in other studies it is coded 1 if the Chairman is not the CEO (independence of the two roles). To be consistent and to focus all studies on CEO duality, we change the signs of the associations in the cases that code 1 if the Chairman is not the CEO. In this way we meta-analyze the effect of CEO duality on discretionary accruals.

TABLE 2
Sample Studies

Study	Period	Model		Country and CG System	Internal CG Variables		Ownership structure
		Version	Term		Board		
Warfield et al. (1995)	1988–1990	Healy (1985), De Angelo (1986): accruals expected (accruals 5 prev. years)	TA	USA (A)		Insider	
Cheng and Reitenga (2001)	1987–1996	Jones Modified	TA	USA (A)		Institutional	
Chung et al. (2002)	1988–1996	Jones Modified	TA	USA (A)		Institutional	
Gabrielsen et al. (2002)	1991–1995	Accruals _t -Accruals _{t-1} (average prev. 4 years)	TA	Denmark (C)		Insider	
Klein (2002)	1992–1993	Jones	TA	USA (A)	Board_indep, AC_indep	Insider	
Rajgopal et al. (2002)	1989–1995	Jones Modified	TA	USA (A)		Insider, Institutional	
Yeo et al. (2002)	1990–1992	Jones Modified	TA	Singapore (A)		Concentration, Insider	
Gul et al. (2003)	1993	Jones Modified	TA	Australia (A)		Insider	
Koh (2003)	1993–1997	Jones	TA	Australia (A)		Insider, Institutional	
Xie et al. (2003)	1992, 1994, 1996	Jones Modified	WCA	USA (A)	Size, Board_indep, AC_indep	Concentration	
Bowen et al. (2004)	1993–1998	Jones Modified with CF	TA	USA (A)	CEO_dual	Insider	
Park and Shin (2004)	1991–1997	Jones Modified	WCA	Canada (A)	Board_indep	Concentration	
Bugshan (2005)	1997–2000	Jones Modified	TA	Australia (A)	Size, Board_indep	Concentration, Insider	
Cheng and Warfield (2005)	1993–2000	Jones	TA	USA (A)		Insider	
Davidson et al. (2005)	2000	Jones Modified	TA	Australia (A)	Board_indep, CEO_dual, AC_indep	Concentration	
Hsu and Koh (2005)	1993–1997	Jones Modified	TA	Australia (A)		Insider, Institutional	
López and Saona (2005)	1991–2001	Jones	TA	Chile (E)		Concentration	
Piot and Janin (2005)	1999–2001	Jones	TA	France (C)	Board_indep, AC_indep	Insider	

Ta: total accruals; wca: working capital accruals; AC_indep: audit committee independence; Size: board size; Board_indep: board independence; CEO_dual: CEO duality; Institutional: institutional ownership; Insider: insider ownership; concentration: ownership concentration; CF: cash flow; BM: book to market. A: Anglo-American; C: Communitarian; E: Emerging countries.

TABLE 2
Sample Studies (Continued)

Study	Period	Model		Country	Internal CG Variables		Ownership structure
		Version	Term		Board	Board	
Yang and Krishnan (2005)	1996–2000	Jones	TA	USA (A)	AC_indep		Institutional
Ahmed et al. (2006)	2000–2001/ 2002–2004	Jones modified with CF and BM	TA	USA (A)			
Bradbury et al. (2006)	1993–1998	Jones Modified with CF	TA	Singapore and Malaysia (E)	CEO_dual, Size, Board_indep, AC_indep		Insider, Concentration Institutional
Chin et al. (2006)	1993–1998	Jones Modified	WCA	Hong Kong (A)	Size, Board_indep		Concentration
Cornett et al. (2006)	1993–2000	Jones Modified	TA	USA (A)	Size, Board_indep, CEO_dual		Insider, Institutional
Chen et al. (2007)	2000–2003	Jones Modified controlling performance	TA	Taiwan (E)	Board_indep		Insider
Ding et al. (2007)	2002	Jones	TA	China (E)			Concentration
Jaggi and Leung (2007)	1999–2000	Jones Modified	TA	Hong Kong (A)	Size, Board_indep		Insider
Koh (2007)	1995–1998	Jones Modified	TA	Australia (A)			Institutional
Liu and Lu (2007)	1999–2005	Jones Modified	TA	China (E)	CEO_dual, Board_indep		Insider, Concentration
Sánchez-Ballesta and García-Meca (2007b)	1999–2002	Jones Modified	TA	Spain (C)			Concentration, Insider
García-Osma and Gill de Albornoz (2007)	1999–2001	Jones/Jones CF/Marginal	WCA/TA	Spain (C)	Board_indep, AC_indep		
Jiraporn et al. (2007)	1996–1999	Jones Modified	WCA	USA (A)			Institutional
Cornett et al. (2008)	1994–2003	Jones Modified	TA	USA (A)	CEO_dual, Size, Board_indep, CEO_dual		Insider, Institutional
Setia-Atmaja et al. (2008)	2000–2004	Jones Modified	TA/WCA	Australia (A)	Size, Board_indep, CEO_dual		
Siregar and Utama (2008)	1995–1996/ 2000–2002	Jones Modified with CF	TA	Indonesia (E)	Board_indep		Institutional
Teshima and Shuto (2008)	1991–1999	Jones Modified	TA	Japan (C)			Insider

TA: total accruals; WCA: working capital accruals; AC_indep: audit committee independence; Size: board size; Board_indep: board independence; CEO_dual: CEO duality; Institutional: institutional ownership; Insider: insider ownership; concentration: ownership concentration; CF: cash flow; BM: book to market. A: Anglo-American; C: Communitarian; E: Emerging countries.

Effect Size and Study Selection

In meta-analysis the index used to represent and standardize the findings of primary studies is called effect size (Lipsey and Wilson, 2001:34). We use the Pearson correlation coefficient (r) between corporate governance measures and discretionary accruals as effect size to integrate the results of different studies. We need sample articles report the correlation coefficient between discretionary accruals and one of the corporate governance variables analyzed. When r statistics were not reported, but other statistics transformable into r statistics were, we used formulas given by Wolf (1986), Rosenthal (1991), and Lipsey and Wilson (2001) to transform the statistic into an r statistic. We obtained 39 correlations for board of directors, of which 16 refer to board independence, eight to board size, seven to CEO duality, and eight to audit committee independence. For ownership we obtained 38 correlations overall, of which 19 correspond to insider ownership, nine to ownership concentration, and 10 to institutional ownership. The basic characteristics of the studies included in our analysis are detailed in Table 2.

Meta-Analytic Technique

We use the meta-analytic technique developed by Hunter and Schmidt (Hunter & Schmidt, 1990; Hunter, Schmidt, & Jackson, 1982), which is commonly used in economics and in other studies on corporate governance (Dalton et al., 1998, 1999, 2003; Rhoades et al., 2000, 2001). Thus, for each association between corporate governance variable and discretionary accruals we calculate the weighted mean correlation coefficient as an estimate of the population mean correlation (ρ), the total observed variance, the sampling error variance and the population variance estimate.

When a study offered various correlations between discretionary accruals and one corporate governance variable (correlations, for example, due to various measures of discretionary accruals: total accruals against working capital accruals, or signed accruals against absolute accruals), we first used one correlation coefficient per study (the mean correlation coefficient) in the overall meta-analysis in order to maintain independence between observations (Hunter and Schmidt, 1990). Then, in the subgroup moderator analyses of the measurement of variables, we use the original correlation coefficients, maintaining one correlation per study.¹

Second, to evaluate whether the empirical correlations are homogeneous, we use two tests: (1) The observed variance explained by sampling errors, according to which if between 50 and 75 per cent of the observed variance across studies (which are corrected only for sampling error) can be explained by sampling error, we can conclude that there is no true variance in the studies and thus the association is unmoderated and homogeneous; and (2) the Q statistic of homogeneity which follows a chi-square distribution whose significance would indicate rejection of the null hypothesis of homogeneity.

The hypothesis of homogeneity will be rejected in many cases, so in order to limit Type I error rates we use a random effects model (Hunter & Schmidt, 2000; Overton, 1998; Shadish & Haddock, 1994), a more conservative approach

than the fixed effects one, and one which provides wider confidence intervals around the mean correlation.

In our first analysis we do not correct for statistical artifacts that are different from the sampling error, such as range restriction and measurement unreliability, because this information was not provided in primary studies. Brerley (1999), Tosi, Werner, Katz, and Gómez-Mejía (2000), and Rhoades *et al.* (2001), among others, do not carry out this correction either, since accounting data are supposed to suffer less from reliability issues than psychological constructs. Nevertheless, as argued by Sundaramurthy, Rhoades, and Rechner (2005), since most governance research is conducted on large firms, it is likely that some range restriction exists. Therefore, in a second analysis, following Dalton *et al.* (1998, 1999, 2003), and Sundaramurthy *et al.* (2005), we explore this issue by repeating the analysis at different levels of reliability (.8 and .9), and do not find major changes in the results.

RESULTS

We summarize the results for each corporate governance variable separately in Tables 3 to 9. In each table we offer first the results of the overall meta-analysis, and then, if the homogeneity tests are rejected and indicate the presence of heterogeneity, we search for moderators, splitting the sample according to the measures and models of discretionary accruals, the measures of independent variables and the corporate governance system. The individual meta-analyses of specific subgroups in each corporate governance variable allow us to test the hypotheses we have posed.

Board Mechanisms

Table 3 shows the results of the meta-analysis of the effect of board independence on discretionary accruals. An overall meta-analysis is conducted for the 16 studies that examine the association between board independence and discretionary accruals. The results show a weak negative association ($z = 1.80$, $p < .10$) between both variables, which suggests that greater board independence may constrain earnings management.

Since the homogeneity tests are rejected, we deepen our analysis in the search for moderators. First, we examine whether heterogeneity in independence is due to the measure of accruals. The results (working capital against total accruals and signed accruals against absolute accruals) show a weak negative association when discretionary accruals are measured using the total accruals models ($z = 1.79$, $p < .10$), which would weakly support H2, and non-significant associations for the rest of the measures of discretionary accruals, although there is still heterogeneity in the correlations.

Second, we study the moderator effect played by the corporate governance system, and find that in Anglo-American countries independent directors are effective in constraining earnings management ($z = 3.06$, $p < .01$). In communitarian and emerging countries, however, we do not find a significant association with earnings management, although the number of correlations in communitarians is small. These

TABLE 3
Meta-Analysis of the Impact of Board Independence on Earnings Management

Variable	Sample	Number of correlations	Mean correlation (r)	% S ² e/S ² r	Confidence interval (95%)		χ^2_{k-1}
					Min	Max	
BOARD INDEPENDENCE							
	(1)	(2)	(3)	(4)	(5)		(6)
Board independence overall	15,155	16	-.031†	21.635	-.066	.003	73.955***
Subgroups of Independence by measurement of accruals							
- Working capital accruals	2,210	6	.004	26.550	-.077	.085	22.599***
- Total accruals	13,550	12	-.034†	20.473	-.071	.003	58.613***
- Signed Accruals	12,263	10	-.019	24.834	-.054	.017	40.267***
- Absolute Accruals	6,130	9	-.030	15.462	-.094	.034	58.208***
Subgroups of Board independence by countries							
- Anglo-American	4,671	8	-.081**	30.077	-.133	-.029	26.598***
- Comunitarian	410	2	.029	29.622	-.149	.207	6.752**
- Emerging	10,074	6	-.011	25.584	-.049	.028	23.452***

†p < .10; *p < .05; **p < .01; ***p < .001.

TABLE 4
Meta-Analysis of the Impact of CEO Duality on Earnings Management

Variable	Sample	Number of correlations	Mean correlation (r)	% S ² e/S ² r	Confidence interval (95%)		χ^2_{k-1}
					Min	Max	
CEO DUALITY							
	(1)	(2)	(3)	(4)	(5)		(6)
CEO DUALITY overall	12,364	7	-.001	83.762	-.019	.020	8.357

† p < .10; *p < .05; **p < .01; ***p < .001.

different results by type of country would support H1 for this variable. The findings in Anglo-American countries could be due to the higher tradition of a market of independent directors and the superior investor protection of these countries. The findings are in line with Kim, Kitsabunnarat-Chatjuthamard, and Nofsinge (2007) results, which show that shareholder protection rights and firms' board independence are positively related. When a country's minority shareholder rights are strong, then minority shareholders should have the legal power to affect board composition.

In Table 4 we display the results of the overall meta-analysis of the seven studies that examine the association between CEO duality and earnings management. We do not find evidence of a true non-zero correlation. Thus, we cannot support the hypothesis that firms with CEO duality roles are involved in more earnings management than firms whose CEO is independent of the chairman. As the variance explained by sampling error is 84 per cent, and the

homogeneity test is not rejected, we do not search for moderators, since the size of any moderator analysis would be too small.

In Table 5 we show the results of the meta-analysis of the association between board size and earnings management. The results of the overall meta-analysis (eight studies) show a negative and significant effect ($z = 2.81$, $p < .01$) of board size on discretionary accruals. When we divide the sample according to the measures of accruals in order to search for moderators, we find this negative effect ($z = 2.90$, $p < .01$) in total accruals models, but not in working capital models, which supports H2 for this variable. Both absolute and signed accruals maintain this negative association, but the association for signed accruals is weak ($z = 1.67$, $p < .10$). The system of corporate governance also influences the association between board size and discretionary accruals (H1), since the negative association ($z = 2.62$, $p < .01$) is maintained in Anglo-American. but not in emerging. countries.

TABLE 5
Meta-Analysis of the Impact of Board Size on Earnings Management

Variable	Sample	Number of correlations	Mean correlation (r)	% S ² e/S ² r	Confidence interval (95%)		χ^2_{k-1}
					Min	Max	
BOARD SIZE							
	(1)	(2)	(3)	(4)	(5)		(6)
Board size overall	4,313	8	-.054**	62.358	-.092	-.016	12.829†
Subgroups of Board size by measurement of accruals							
- Working Capital Accruals	1,516	4	-.051	64.368	-.113	.012	6.214
- Total Accruals	3,247	5	-.077**	42.913	-.129	-.025	11.651*
- Signed Accruals	2,136	5	-.049†	53.135	-.108	.009	9.410†
- Absolute Accruals	3,049	5	-.052**	93.518	-.088	-.015	5.347
Subgroups of Board size by countries							
- Anglo-American	3,006	5	-.060**	64.253	-.104	-.015	7.782†
- Emerging	1,307	3	-.042	63.168	-.110	.027	4.749†

†p < .10; *p < .05; **p < .01; ***p < .001.

TABLE 6
Meta-Analysis of the Impact of Audit committee on Earnings Management

Variable	Sample	Number of correlations	Mean correlation (r)	% S ² e/S ² r	Confidence interval (95%)		χ^2_{k-1}
					Min	Max	
AUDIT COMMITTEE INDEPENDENCE							
	(1)	(2)	(3)	(4)	(5)		(6)
Audit committee independence	3,662	8	-.058***	100.000	-.087	-.029	6.391

† p < .10; *p < .05; **p < .01; ***p < .001.

Table 6 displays the results of the association between audit committee independence and discretionary accruals. The findings of the overall meta-analysis of eight studies are strongly significant ($z = 3.92$, $p < .001$), which shows that independent audit committees are effective mechanisms in limiting earnings management. Moreover, since the variance explained by sampling error is 100 per cent and the chi-square test is non-significant, we do not search for moderators.

Ownership Structure

Table 7 provides the results of the meta-analysis of the association between insider ownership and discretionary accruals. The overall meta-analysis of 19 studies does not show a significant association between the variables. In order to reduce heterogeneity, we first search for moderators according to the operational definition of insider ownership, officer and director ownership, board ownership, and management

ownership. Only in board ownership do we find a significant and negative effect on discretionary accruals ($z = 2.93$, $p < .01$). The other two categories show non-significant associations with discretionary accruals. This suggests that directors' ownership is more effective than managers' ownership in limiting earnings management, and confirms *H4*. Moreover, the homogeneity test is not rejected in this category.

Second, we strengthen our analysis of the categories where homogeneity tests are rejected – officer and director ownership and management ownership. For officer and director ownership, since there are two estimation models other than the Jones models, we looked to see if these introduced any bias in the results. Neither this subgroup nor the Jones group show significant associations with discretionary accruals, as in the overall meta-analysis of officers and directors, and the same non-significant findings are obtained when subgroups of signed and absolute accruals are considered. For management ownership, we could divide the sample into signed accruals, which show a positive associa-

TABLE 7
Meta-Analysis of the Impact of Insider Ownership on Earnings Management

Variable	Sample	Number of correlations	Mean correlation (r)	% S ² e/S ² r	Confidence interval (95%)		χ^2_{k-1}
					Min	Max	
INSIDER OWNERSHIP							
	(1)	(2)	(3)	(4)	(5)		(6)
Insider ownership overall	53,339	19	.001	31.149	-.015	.016	60.997***
Subgroups of insider ownership							
– Officer and director ownership	14,327	6	.011	46.871	-.013	.035	12.801*
– Board ownership	19,587	6	-.025**	70.690	-.042	-.008	8.488
– Management ownership	19,425	7	.018	36.442	-.005	.042	19.209**
Subgroups of officers and directors by Accruals models							
– Jones models	10,779	4	.020	53.363	-.006	.046	7.496†
– Others models	3,548	2	-.015	94.727	-.049	.019	2.111
Subgroups of officers and directors by measurement of accruals							
– Signed Accruals	4,134	2	-.0126	27.343	-.071	.046	7.314**
– Absolute Accruals	14,327	6	.014	57.844	-.007	.036	10.373†
Subgroups of management ownership by measurement of accruals							
– Signed Accruals	15,548	5	.018*	98.099	.002	.033	5.097
– Absolute Accruals	6,369	4	.022	27.091	-.025	.069	14.765**
Subgroups of management ownership by countries							
– Anglo-American	10,956	4	.030†	27.951	-.005	.066	14.311**
– Emerging	8,214	2	.002	100.000	-.014	.019	1.143

†p < .10; *p < .05; **p < .01; ***p < .001.

tion ($z = 2.18$, $p < .05$), and absolute accruals, which is not significant. This would confirm *H3* for insider ownership. The study of the association between management ownership and discretionary accruals shows a weak positive association ($z = 1.69$, $p < .10$) in Anglo-American countries (*H1*).

Results of the meta-analysis for ownership concentration are shown in Table 8. The overall meta-analysis of nine studies shows a non-significant association, but heterogeneity in correlations. We first search for moderators according to the operational definition of ownership concentration (the largest shareholder against other blockholders), and the results maintained the non-significant association. Second, we analyze differences in the definitions of accruals. Signed and absolute accruals were also non-significantly associated with ownership concentration. While total accruals models are non-significant, working capital models show a positive effect on ownership concentration ($z = 8.71$, $p < .001$), although the research evidence is skimpy. Third, we divide the sample according to the system of corporate governance. In Anglo-American and emerging countries the association between ownership concentration and discretionary accruals is not significant.

In Table 9, we analyze the association between discretionary accruals and institutional ownership. The results of the overall meta-analysis of ten studies are non-significant. We divide the sample according to the sign of accruals (signed and absolute). The association of signed accruals with insti-

tutional ownership is weakly positive ($z = 1.88$, $p < .1$), but the effect of the absolute value of accruals is negative ($z = 4.56$, $p < .001$), confirming *H3* for institutional ownership.

SUMMARY, DISCUSSION, AND FURTHER RESEARCH

Codes of best practices around the world seek to move towards a greater presence of independent directors on their boards. Our results show that independent boards are more effective in preventing managerial discretionary behavior, although the effects of compliance with best practices affect earnings management in some but not all countries. The results show independent directors appear to be less effective in carrying out this theoretical role of constraining earnings management in communitarian and emerging economies. The monitoring role of independent directors suggested by agency theory does not take place in those corporate governance systems. Their weaker tradition of the board-monitoring role may be the reason that board independence is not such a useful control mechanism in preventing earnings management there.

The results also suggest that countries with poor legal environments might not have firms with “desirable and effective” boards of directors, noting that the effect of board independence on earnings management depends on inves-

TABLE 8
Meta-Analysis of the Impact of Ownership concentration on Earnings Management

Variable	Sample	Number of correlations	Mean correlation (r)	% S ² e/S ² r	Confidence interval (95%)		χ^2_{k-1}
					Min	Max	
OWNERSHIP CONCENTRATION							
	(1)	(2)	(3)	(4)	(5)		(6)
Ownership concentration overall	10,632	9	.013	26.768	-.024	.050	33.622***
Subgroups of ownership concentration							
– Largest shareholder	9,082	6	.026	35.768	-.009	.060	16.775**
– Others blockholders	7,527	4	.011	21.548	-.037	.060	18.563***
Subgroups of ownership concentration by measurement of accruals							
– Signed accruals	8,727	5	.024	36.205	-.011	.059	13.810**
– Absolute accruals	1,415	3	.009	100.000	-.038	.056	2.432
– Working capital accruals	821	2	.111***	100.000	.086	.135	0.271
– Total accruals	9,811	7	.005	28.097	-.032	.042	24.914***
Subgroups of ownership concentration by countries							
– Anglo-American	2,033	4	.049	50.338	-.012	.110	7.946*
– Emerging	8,396	4	.004	17.814	-.046	.055	22.455***

†p < .10; *p < .05; **p < .01; ***p < .001.

TABLE 9
Meta-Analysis of the Impact of Institutional Ownership on Earnings Management

Variable	Sample	Number of correlations	Mean correlation (r)	% S ² e/S ² r	Confidence interval (95%)		χ^2_{k-1}
					Min	Max	
INSTITUTIONAL OWNERSHIP							
	(1)	(2)	(3)	(4)	(5)		(6)
Institutional ownership overall	37,729	10	.005	8.969	-.029	.039	111.500***
Subgroups of Inst. Own. by measurement of Accruals							
– Signed Accruals	25,917	6	.031†	14.563	-.001	.062	41.199***
– Absolute value of Accruals	10,001	3	-.070***	41.964	-.100	-.040	7.149*

†p < .10; *p < .05; **p < .01; ***p < .001.

tor protection rights. Countries with better shareholder protection rights and enforcement should have empowered minority shareholders who should be able to affect board composition. This result contributes to the literature on the association between corporate governance and disclosure by testing how effective the governance recommendations introduced by codes of best practice are at constraining earnings manipulation in Anglo-American countries.

For the rest of the countries, these findings support the importance of establishing a nomination process that guarantees that directors are selected using independent and professional procedures. The findings also encourage the attempts of regulators in communitarian and emerging

economies to improve the independence of their corporate boards.

Nevertheless, these results should be interpreted with caution since there are few studies in the communitarian system. This would be well worth investigation in future research so as to confirm or reject these findings with more empirical evidence.

Another relevant limitation regarding the results of this corporate governance attribute is its measure. Regulators, commentators, and courts have all used "independence" to mean different things at different times for different reasons. In corporate governance literature most papers measure board independence as the proportion of independent direc-

tors divided by the total number of directors of the board. However, the definition of the independent director term varies across theoretical literature. Some papers distinguish between non-executive and executive director; other consider outsider versus insider directors. Although there is limited evidence that definition of outside/independent makes a difference (Rhoades *et al.*, 2000), we were unable to determine if there were differences between the definitions used in the earnings management literature. We consider that the term of board independence usually employed in this literature refers to non-executive directors, although it may depend on the country analyzed.

Apart from the fact that most of papers in the earnings management field do not give much information regarding the measure of board independence, the studies analyzed do not go deeply into the different approaches to measuring board independence. This may confirm previous concerns (Larcker *et al.*, 2007) that in corporate governance literature single indicators are used as measures for ill-defined and complex corporate governance constructs. Additional empirical evidence regarding refined measures of board independence – in terms of SEC regulation or those used in the literature (Dalton *et al.*, 1998; Rhoades *et al.*, 2000) – would be very useful to gain greater the understanding of how these different measures of board composition influence earnings management. For example, some kinds of directors (gray directors) have additional characteristics that call into question the actual level of independence they bring to the monitoring of management's financial reporting decisions. This category is not usually considered in most studies, and we are concerned about the possible inclusion of these directors in the category of board independence, overall in communitarian studies, where there are many fears that board members are not independent of those who nominate them. A report made in 2007 by the Financial Studies Association in Spain notes that only one-third of independent directors reported by Spanish listed firms are objectively independent. This serves as a timely reminder to regulators that if they wish to protect investors it is their duty to ensure that the board of directors governing the companies are capable of independent supervision of management.

The results confirm previous meta-analyses in other areas that suggest that the measurement of variables is an important moderator effect that justifies the heterogeneity found in a research field (Dalton *et al.*, 1998). Measurement consequences occur not only with corporate governance variables, but also with earnings management models. The negative effect of board independence and board size on earnings management occurs only with total accruals models, with the implication that firms with independent and larger boards usually have fewer discretionary accruals choices related to asset depreciation, which would show a controlling role for these mechanisms in earnings manipulation. This result may have occurred because depreciation is a very visible tool for systematic earnings management, and changes in depreciation policy cannot be made without attracting adverse attention from a large and independent board of directors. Our results suggest that accruals models that do not consider long-term discretionary accruals choices might lead us to make misleading inferences about the role

of these corporate governance mechanisms in earnings management behavior.

The findings also provide evidence that the insider ownership/earnings management relation is moderated by the particular measure of the insider ownership variable. When we focus on management ownership, we find that high levels of ownership are not significant in aligning owner and manager interests in avoiding manipulating of results. When we focus only on board ownership, the convergence-of-interests hypothesis suggested by agency theory is confirmed. Thus, although in their initial development of agency theory Jensen and Meckling (1976) focus on managerial ownership as an incentive to align the interests of managers and shareholders, our findings suggest that this effect on earnings management is confirmed only in the case of board members, suggesting that the two groups (directors and managers) have different objectives. The meta-analytic results suggest that board ownership can be seen as a mechanism to constrain the opportunistic behavior of managers, and highlights the importance of considering the type of insider ownership when one investigates its effect on earnings management.

The findings of the overall meta-analysis of the relation between board size and earnings management suggest that this governance mechanism limits managerial discretion; that is, larger boards are more effective in preventing managerial discretionary behavior. Although this finding could be contrary to what is to be expected according to Jensen (1993), one reason behind these results may be that larger boards are more likely to devolve responsibilities to board committee members than are smaller boards. The formation of subcommittees of larger boards is likely to provide greater monitoring benefits than smaller boards themselves (Klein, 2002). Moreover, as boards become larger, they are likely to include more independent directors with valuable experience (Xie *et al.*, 2003).

In terms of CEO duality, our results show that in spite of differences in the findings of previous studies, these are due to sampling error, and the real correlation between CEO duality and discretionary accruals in the population is not significantly different from zero. Although most corporate practice recommendations strongly suggest separating the roles of board chairman and CEO, the evidence until now does not support the view that independence of roles favours control over managers' discretionary accruals activities and behavior.

Audit Committee independence is found to be one of the major corporate governance mechanisms in constraining earnings management. This governance attribute is likely to provide shareholders with the greatest protection in maintaining the credibility of a firm's financial statements. Since the audit committee samples examined in our study are comprised, on average, of a majority of independent directors, this finding supports both the published literature and governance recommendations which suggest that audit committees should consist exclusively of non-executive or independent directors in order to constrain discretionary accruals and to enhance the credibility of financial statements (e.g., BRC, 1999; Menon & Williams, 1994).

One limitation of our results is the number of studies available for some tests. Additional empirical evidence

would be most useful to confirm the relationships analyzed. In this sense, the addition of new studies with different correlation signs could influence the estimates in some groups with few correlations. New research would also help us to evaluate the moderating role played by other variables that could influence the effectiveness of governance mechanisms in constraining earnings management, such as changes in governance regulation (e.g., the Sarbanes-Oxley legislation in the US). Another limitation is the bias of the sample to Anglo-American countries (68.57 per cent), particularly the US (37.14 per cent), whereas the percentage of studies in emerging and communitarian is, respectively, 17.15 per cent and 14.28 per cent. Differences in accounting systems, rather than governance systems, could also have explained some differences in results.

Further research in the area of ownership identity (ownership by different types of large shareholders – other corporations, families, and government) would be fruitful, and may provide more insight into blockholders and earnings management relationships. Moreover, as many of the critical decisions of boards are driven by committees, further research on their roles and status would be rewarding to provide evidence on the effect of board committees on firms' earnings management; examples might relate to their nomination and compensation, and to strategy, audit, and ethics committees.

Finally, although much of the attention in earnings management has been directed towards large corporations, they represent only a small part of the total business world. Consideration of small- and medium-sized enterprises in the corporate governance-earnings management area may also be fruitful.

Despite these limitations, we believe that this study makes an important theoretical and practical contribution. First, the paper shows that the measurement of variables, especially discretionary accruals, influences the findings found in previous studies on the association of this variable with corporate governance factors. Consequently, if theoretical differences and managerial motivations comprised in accruals models are not taken into account and looked at in more depth in corporate governance studies, research faces a severe limitation to precisely ascertain the theoretical knowledge on factors associated to discretionary accounting choices. Second, the findings emphasize the need to explicitly consider the legal and institutional setting when one analyzes the effect of mechanisms of corporate governance on discretionary accruals, suggesting that the implementation of some good practices from other countries without considering the origin of a country's legal institution could be ineffective. Finally, another important theoretical implication is the need to consider matrix correlations and more attributes of board (e.g., CEO compensation, audit expertise) in future research in order to be included in future meta-analyses.

Regarding the practical implications, the results suggest that some board independence, board size, and audit committee independence can improve investor confidence by constraining earnings management. This is especially important as corporate governance may be used as a key to help restore investor confidence in markets that have experienced financial problems, which, at the present, is a real problem in most of the world economies. Additional empirical evidence

regarding refined measures of ownership and board, specifically board independence, would be very useful to gain greater understanding of how the different approaches to these constructs influence earnings management.

The findings also support regulators' attempts in communitarian and emerging countries to improve the independence of corporate boards, through the use of professional nomination processes that guarantee that directors are selected via independent procedures.

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NOTE

1. This is why the number of studies of the overall meta-analysis does not agree with the sum of the correlations of the subgroups.

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