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Firm- and Country-Level Attributes as Determinants of Earnings Management: An Analysis for Latin American Firms

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ABSTRACT: This article analyzes firm- and country-level determinants of the earnings management for a sample of Latin American companies from 1997 to 2015 by using panel data to deal with the endogeneity and heterogeneity problems. Results show that dividend pay-outs impact positively on earnings management. The ownership structure, however, is a double-edged sword as a controlling mechanism that may constrain earnings manipulation but may also exacerbate it. Concerning country-level variables, we found that the development of the financial system behaved opposite of expectation. Consequently, before inefficient financial markets in Latin America, managers had more room for manipulation of financial statements. The legal and regulatory system, however, proved itself to be efficient in reducing the opportunistic behavior of managers.

KEY WORDS: corporate governance, discretionary accruals, earnings management, emerging markets, legal system

JEL CLASSIFICATION: G30, G32, G34

The lack of efficiently monitoring the managerial performance, the eradication of opportunistic behavior, and the application of fair and appropriate—not perverse—incentives are real needs in current, more complex corporate environments. A tangible example of this has been the lack of efficient corporate governance systems that has contributed to recent worldwide financial crisis (Erkens, Hung, and Matos 2012). Accounting scandals like Enron, Worldcom, Parmalat, Lehman Brothers, and others have revealed the necessity of reinforcing the rules and regulations as well as enhancing internal governance systems toward a more transparent disclosure of the financial statements. Essentially, the financial markets could not anticipate the consequences of these scandals because the financial reports were opportunistically manipulated. Facts like these have been academically studied through the analysis of earnings management.

Previous studies on earnings management have only partially considered the alternative corporate governance mechanisms in constraining managerial opportunistic behavior. They have been focused on either firm-level or country-level variables. For instance, on the side of internal determinants of earnings management, Alves (2012) and Gabrielsen, Gramlich, and Plenborg (2002) examine the relationship between corporate ownership structure and earnings management for Portuguese and Danish firms, respectively. Dechow, Sloan, and Sweeney (1996) consider internal governance structures as boards of directors' characteristics in constraining earnings management. Similarly, Warfield, Wild, and Wild (1995) analyze how managerial ownership level, as a firm-based variable, affects both the informativeness and consequences of earnings manipulation. In addition, Davidson, Goodwin-Stewart, and Kent (2005) investigate the role of a firm's internal governance structure (e.g., board of directors, the audit committee, and the internal audit function) in constraining earnings management, while López and Saona (2005) study the ability of capital structure and ownership structure as control

mechanisms to reduce managers' accounting discretionary power for a sample of Chilean firms. Numerous other studies investigated similar relationships.

On the other hand, there are articles solely focused on external country-level determinants of earnings management. For instance, Han et al. (2008) study whether the degree to which managers exercise earnings discretion relates to the legal environment and to their culture as a proxy of their value system. Similarly, Hope (2003) and Ball, Kothari, and Robin (2000) use estimates based on models of common and civil-code law countries' characteristics to determine earnings management. Leuz, Nanda, and Wysocki (2003) present evidence that the level of outside investor protection endogenously determines the quality of financial information reported to outsiders, showing how the legal protection influences the agency conflicts between investors and controlling shareholders. Pelucio-Grecco et al. (2014), Ho, Liao, and Taylor (2015), and Kabir, Laswad, and Islam (2010) analyze how earnings management can be restricted by changes in accounting regulations using samples of firms from Brazil, Spain, and New Zealand, respectively.

Thus, in the empirical literature, we see a lack of all-embracing firm- and country-level determinants of the discretionary power of managers measured through earnings management in the Latin American context. Moreover, most of the empirical literature is still biased in analyzing samples of firms from developed economies. Consequently, through this study, we intend to reduce this gap in the empirical literature. In doing so, our research goal is to analyze, from a corporate governance approach, the firm- and country-level determinants of earnings management for a sample of representative firms from six Latin American countries. Specifically speaking, at the firm level, we study how capital structure, dividend policy, as well as the ownership structure of firms determine managers' accounting discretion. For the country-level variables, we included the development of the financial system as well as the legal and regulatory systems as determinants of managers' discretionary behavior. To the best of our knowledge, this is perhaps one of the first works that studies the impact of firm-level and country-level variables on the earnings management for a sample of firms from Latin America.[1]

This study contributes to the literature in different ways. First, as previously mentioned, this study includes the analysis of emerging Latin American countries such as Argentina, Brazil, Chile, Colombia, Mexico, and Peru from 1997 to 2015. This set of countries has somehow been omitted from the empirical literature in the specific area of earnings management, although they have been studied in other areas of finance and accounting. The second contribution of this article is rooted in considering a balance between firm- and country-level determinants of managerial opportunistic conduct. We believe that earnings management cannot be properly analyzed unless its internal and external determinants are not considered. With this, we try to tackle the scope and scale in the analysis of earnings management. Regarding the scope, we put together firm and country level governance variables, and regarding the scale, we analyze institutional contexts widely unstudied like the Latin American Region. Third, we contribute to the literature by applying the GMM System Estimator technique with robust standard errors that allows us to control for major econometric drawbacks observed in the empirical literature, such as the unobservable individual heterogeneity problem and the endogeneity problem. Fourth, our models consider certain local corporate characteristics, contextualizing some research hypotheses to the particularities of the Latin American countries. And fifth, through our research, we contribute by suggesting some policy implications for regulators, policy makers, and general users of financial reports.

Among the major results, we find evidence that firms discretionally manipulate their results, either by increasing or by reducing profits. We also found that firm-level variables are important drivers of the earnings management. Particularly, corporate ownership structure was revealed to be an efficient mechanism of control in constraining managerial opportunistic behavior. This is a salient finding that makes the role of firms in internalizing corporate governance systems clear when there is a weak market for corporate governance, as is the case in Latin America. However, unexpectedly, we found a positive relationship between the level of financial development and earnings management. Finally, as expected, improvement in regulatory and legal systems constrains managerial power to manipulate financial statements.

Theoretical Background

Agency Conflicts and Earnings Management

The agency approach is the theoretical body that studies the contractual conflicts caused by the different incentives between the contractual parties (Jensen 1994; Jensen and Meckling 1976). This conflict of interest demands mechanisms that encourage managers to behave in the best interest of shareholders instead of their own interests. This set of mechanisms is referred to as corporate governance systems. Broadly defined, corporate governance corresponds to the set of rules in capital markets governing the equity investments in firms (Claessens and Yurtoglu 2013; Vander Bauwhede 2009). As corporate governance systems are, by default, imperfect, managers have incentives to make discretionary decisions by following their own interests instead of following the wealth maximization of their shareholders. One of the mechanisms used to convey information to potential investors and capital markets is through financial reporting.

Therefore, a plausible reaction of managers to achieve their own interests is the choice of techniques to manage the earnings (Jensen 2003; Smith 1976; Wu, Lin, and Fang 2012). According to Shen and Chih (2007), earnings management is the alteration of firms' reported economic information and performance to either mislead stakeholders in order to reduce outsider interference or protect insiders' private control benefits. This discretionary use of the managerial capacity to manipulate or redirect the information reported in the financial statements is usually named discretionary accruals (Barth, Cram, and Nelson 2001; Beneish, Lee, and Nichols 2013). The discretionary accruals are perhaps the most common way to manage earnings. Where non-discretionary (or normal) accruals are basically a means to improve the content of the accounting information, the discretionary (or abnormal) accruals are a means to intentionally manipulate earnings in favour of managers' interests. Therefore, the financial reports may be meaningless if accounts are seriously manipulated or misrepresented (Dichev et al. 2016).

Since the origin of discretionary accruals is based on the ability and incentives of managers to manipulate the financial statements, and on the efficiency (or lack of it) of the corporate governance mechanisms, the goal of this article is to study how the firm- and country-level variables impact the discretionary use of accruals to manage the earnings.

Determinants of Earnings Management

Firm-Level Determinants

Capital structure decisions.   Capital structure decisions may be a double-edged sword when it comes to earnings management. On the one hand, the debt level might be used as a control mechanism of managerial behavior. Higher levels of debt constrain the opportunistic managers' power by reducing the cash flow available for spending in discretionary worthless assets, such as perks or negative net present value projects (Frank and Goyal 2009; Harris and Raviv 1991; Jensen 1986). For Hunsaker (1999), an increase in leverage also increases the bankruptcy risk that reduces the managerial consumption of resources in activities that do not add value. Therefore, one might expect that firms with more leveraged capital structures should observe less earnings management in the form of discretionary accruals. This is known as the reverse leverage effect.

Nevertheless, the capital structure decisions might play against the interest of shareholders and in favor of the managers' opportunistic behavior. Managers may manipulate the financial statements in order to achieve the goals imposed by the debt covenants (Mohrman 1996). Consequently, firms closer to violating debt covenants manage earnings more aggressively. Considering these arguments, the fostering or constraining roles of debt on earnings management—called the leverage effect and the reverse leverage effect (Shen and Chih 2007)—seem to be empirical issues. Both a positive and a negative effect can be justified by our null and alternative hypotheses as follow:

H1: An inverse U-shaped relation is expected between leverage and earnings management supported by the interaction between the leverage and the reverse leverage effects.

Dividend Policy Decisions.   The seminal work of Lintner (1956) documents that managers are reluctant to cut dividends and target long-term pay-out ratios (defined as dividend conservatism) when making dividend decisions. Similarly, Brav et al. (2005) indicate that consistent with dividend conservatism, most of the dividend payers have a strong desire to avoid dividend reductions and to smooth dividend streams from year to year. They suggest that maintaining the dividend levels is the main variable in deciding dividend policies, while pay-out ratios are of secondary importance.

Edelstein, Liu, and Tsang (2008) study firms that confront difficulties in meeting dividend requirements. They find that these firms are more likely to participate in real earnings management activities by reducing revenue and increasing expenses—both actions that would reduce taxable income. Similarly, Daniel, Denis, and Naveen (2008) show that dividend-paying firms tend to manage earnings upward when their earnings would otherwise fall short of expected dividend levels. Even though managing earnings does not alter the firm's capacity to pay dividends by generating additional cash, managing earnings upward still affects the firm's ability to pay dividends by allowing the firm to circumvent constraints imposed by the firm's debt covenants. These findings imply that firms view expected dividend levels as important earnings thresholds. Consequently, they manage earnings to meet expected dividend levels even though such earnings management behavior has no cash flow consequences and, therefore, does not affect the firm's capacity to pay dividends. Therefore, these arguments imply a positive relationship between dividend pay-out and the earnings manipulation.

The evidence on the interaction between dividend policy and governance structures comes also from transnational analyses where several studies document that the institutional and legal environments affect firms' pay-out policies (La Porta et al. 2000). In fact, according to Mitton (2004) and He et al. (2017), the preference for dividends may be stronger in emerging markets with weak investor protection and high opacity where shareholders perceive a greater risk of expropriation by insiders. Thus, we cannot dissociate the nature of the dividend policy and the characteristics of the legal systems across countries. Consequently, our hypotheses state that:

H2a: A positive relationship may be expected between the discretionary accruals and the cash dividends.

H2b: In institutional contexts with weaker corporate governance systems, higher earnings management might be expected in order to achieve certain cash dividend goals than in institutional contexts with relatively stronger governance systems.

Corporate ownership structure.   The ownership structure plays a critical role in a firm's governance.[2] When owners are also managers of the firms, there is an overlap between ownership and control, and consequently the potential agency problems are minimized. Latin American companies are characterized by ownership structures highly concentrated with shareholders who hold a predominant role as a manager too. Consequently, the inclusion in the analysis of these corporate ownership characteristics and their impact as governance systems on earnings management is a must rather than a recommendation.

The agency theory supports the argument that when managers have a certain proportion of their wealth in shares of the company that they lead, there is an alignment of interests with those of other shareholders (Sáenz and García-Meca 2014; Sun 2014), known as the convergence of interests hypothesis (Sánchez-Ballesta and García-Meca 2007). However, in the Latin American context, insider ownership may also have an adverse effect on the company when there is highly concentrated managerial ownership (Lefort 2005). With this excessive managerial power, executives can engage in accounting decisions that reflect personal reasons. Hence, according to Huang, Wang, and Zhou (2013), if insider ownership introduces managerial entrenchment, managers with relatively high levels of ownership would be insulated from shareholder discipline; therefore, they may engage in more earnings management.

Consistent with Morck, Shleifer, and Vishny (1988) and Ali, Salleh, and Hassan (2008), as mentioned before, at the lowest levels of insider ownership there is an alignment of interests, which means a negative relation between abnormal accruals and insider ownership. Nevertheless, at high levels of insider ownership, the risk of entrenchment increases, and consequently so does the likelihood of opportunistically managing the accounting earnings. According to these arguments, a non-monotonic relationship might exist between managerial ownership and the earnings management supported by the intertwining of the convergence of interests hypothesis and the entrenchment hypothesis.

> *H3a: A U-shaped relation is expected between insider ownership and earnings management.*

It has been widely argued that concentrated ownership structures solve some agency problems through direct supervision of managers (Ang, Cole, and Lin 2000; Brown, Beekes, and Verhoeven 2011). Dispersion produces free-rider problems and wrong incentives for minority shareholders for monitoring (Bottazzi, Da Rin, and Hellmann 2009). Therefore, it can be derived that the vertical agency conflict between managers and shareholders, and the subsequent accounting earnings management, might be efficiently reduced through a higher ownership concentration because managers would be scrutinized closely (Alves 2012; Jensen and Meckling 1976; López and Saona 2005; Shleifer and Vishny 1986). Hence, our following hypothesis states that:

> *H3b: There is a negative relationship between the corporate ownership concentration and the earnings management.*

Country-Level Determinants

Accounting standards.   The adaptation of the accounting systems to international standards is not new. In general, the extant literature has found a positive impact on accounting quality from the adoption of the International Financial Reporting Systems (IFRS). Positive accounting research provides evidence that the accounting policy choices made by firms are determined not only by the regulatory systems but also by factors that are specific to the firm, including its operating circumstances and managerial preferences, all of which will result in a diversity of accounting treatments (Beattie et al. 1994). Accounting rules can limit a manager's ability to distort reported earnings, but the extent to which rules influence the reported earnings depends always on how well the rules are enforced (Leuz, Nanda, and Wysocki 2003). What is expected from the accounting standards is that the reported information in the financial statements be more comparable and clear of potential discretionary adjustments. Empirically, Barth, Landsman, and Lang (2008) find that firms applying International Accounting Standards from developing and developed countries generally exhibit less earnings management, more timely loss recognition, and more value relevance of accounting amounts than do matched sample firms applying non-U.S. domestic standards. Similarly, Pelucio-Grecco et al. (2014) for Brazilian firms, and Ho, Liao, and Taylor (2015) for Chinese firms, find that the adoption of IFRS had a restrictive effect on accrual-based earnings management. Consequently, the hypothesis concerning the adoption accounting standards is:

> *H4: Less discretionary earnings management should be observed under the adoption of international accounting standards.*

Legal system.   The protection of outsiders depends on the conjunction of the existence of a legal body and the enforcement of the law. Leuz, Nanda, and Wysocki (2003) provide evidence that countries with lower investor protection usually have a higher magnitude of earnings management, and this lack of efficient protection gives insiders more incentives to obfuscate firm performance. Ball, Robin, and Wu (2003) argue that the institutional arrangements of a country are the most important factor in controlling managers' self-interest, reducing opportunistic behavior translated into earnings management, and improving the quality of the accounting information. The Sarbanes-Oxley Act of 2002 (SOX) from the United States is a clear example of these regulatory arrangements.[3] The major aim of the SOX legislation is to limit corporate fraud, especially fraud associated with manipulation of

financial statements and insider trading. Therefore, one might expect that better corporate governance rules would limit the corporate executives' discretionary behavior in managing earnings. Cohen, Dey, and Lys (2008) provide evidence that accrual-based earnings management increased steadily before the passage of the SOX Act and that this increase was concurrent with increases in equity-based compensation. In the same way, Shen and Chih (2005) suggest that a firm in a country with good anti-director rights does less earnings smoothing. Consequently, we can derive out of this that the legal origin of the country might also determine the way the executives use their discretionary capacity to manage the accounting earnings. This allows us to suggest the following hypothesis:

>   H5: *A negative association is expected between the efficiency of the regulatory system and the extent of earnings management.*

Financial development.   Widely accepted in the literature is the influence of the development of a country's financial sector on the extent of earnings management (Enomoto, Kimura, and Yamaguchi 2014). It is likely that financial development enhances the monitoring and scrutiny of accounting figures by the market participants. This is observed in the existence of strengthened laws for investor protection, and, by extension, it is due to more sophisticated market participants. Empirically, for a sample of 37 countries, Enomoto, Kimura, and Yamaguchi (2014) show that managers are restrained with regard to earnings management under higher levels of financial development. They support this relationship with three arguments. First, they argue that higher-quality accounting information is needed in countries with more developed financial systems; second, financial development disciplines managers and mitigates their incentives to manage earnings; and finally, they say that there is a correlation between financial development and accounting institutions in each country.

Empirically speaking, Degeorge et al. (2013) show that when financial markets are not well developed, market anomalies and opportunistic behavior arises, such as the discretionary management of accounting earnings. Therefore, we might hypothesize that:

>   H6: *The earnings management is expected to be lower in more developed financial systems.*

Methodology and Variables Measure

Methodology

Since we work with a data set of cross-sectional and time series information, we chose to use panel data in the empirical analysis. The statistical analysis is developed with a sample of 715 non-financial firms from Argentina, Brazil, Chile, Colombia, Mexico, and Peru. The panel data includes 4,894 observations from 1997 to 2015 as shown in Table 1. The sample firms are representative of the corporate sector of

Table 1. Panel data composition.

Country	Observations	Firms	Avg. Obs. per Firm and Country
Argentina	249	36	6.91
Brazil	1,804	271	6.66
Chile	864	142	6.08
Colombia	201	33	6.09
Mexico	987	112	8.81
Peru	789	121	6.52
Total	4,894	715	6.84

Notes: This table shows the number of observations and firms by country used to compound the panel data.

countries included in the study. For instance, as of December 2015, the World Federation of Stock Exchanges Statistics had listed about 1,200 firms on these six exchanges, and therefore our sample includes almost 60% of them. The microeconomic data at firm level corresponds basically to the financial reports and ownership structure information gathered from Thomson Reuters' dataset. The macroeconomic information at country level was obtained from the updated data based on the work of Beck, Demirgüç-Kunt, and Levine (2000) publicly available at the World Bank web page. This dataset reports basic information about financial development by country and year.[4] Worldwide governance indicators concerning the accounting standards and the legal system by country were obtained from the updated work of Kaufmann, Kraay, and Mastruzzi (2011) whose data set is also publicly available.[5]

Because of the panel structure of our data, which is a combination of cross-sectional and time series information, we have used in the econometric analysis the generalized method of moments (GMM). The panel data methodology allows us to control for two basic problems in these kinds of studies: the unobservable heterogeneity and the endogeneity problems (Arellano 2002; Arellano and Bover 1990).[6] Because in both of these problems the independent variables are endogenous and correlated with the residuals of the regressions, the OLS estimation is both biased and inconsistent (Brown, Beekes, and Verhoeven 2011). As a result, we address the endogeneity and unobservable heterogeneity problems in the estimations by using the GMM estimator with robust standard errors as proposed by Blundell and Bond (1998) and Bond (2002), which provides further efficiency gains (Baum, Schaffer, and Stillman 2003; Bond 2002; Wooldrigde 2002).[7]

Earnings Management Measures and Independent Variables

Two alternative estimations of the earnings management are used. For the measure of opportunistic earnings management, we use the absolute discretionary accruals. Since total accruals are known, the discretionary accruals must be estimated (see Models 1 and 2 below).

Model 1

Based on Dechow, Sloan, and Sweeney (1995), the total accrual $\left(ACC_{it}^{Mod1}\right)$ (with the super index Mod1 for the Model 1) denotes the component of earnings for each i firm during the t period computed as:

$$ACC_{it}^{Mod1} = (\Delta CA_{it} - \Delta Cash_{it}) - (\Delta CL_{it} - \Delta STD_{it}) - Dep_{it} \qquad (1)$$

where CA denotes the current assets, $Cash$ is the cash and cash equivalent, CL are current liabilities, STD stands for the short-term debt and the current proportion of long-term debt, and Dep is the annual depreciation expense.

Once the total accruals are calculated, we must split them into their non-discretionary and discretionary components. Non-discretionary accruals are aimed to improve the informational content of financial statements, so we could wonder about the factors that cause these normal adjustments. According to Jones (1991) model, total accruals are affected by the firm's usual business (which can affect non-cash current assets and liabilities) and by fixed assets (which can affect the depreciation expense). Consequently, ACC is regressed depending on the change in sales ($\Delta Sales_{it}$) and the gross level of property, plant, and equipment (PPE_{it}) in the following equation:

$$\frac{ACC_{it}^{Mod1}}{A_{it-1}} = \beta_0 + \beta_1 \frac{\Delta Sales_{it}}{A_{it-1}} + \beta_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \qquad (2)$$

Regarding the expected signs for β_1 and β_2, it might be said that this is not trivial, except for β_2. In this case, it is expected that β_2 be negative because depreciation has been included with a negative sign in the definition of total accruals (ACC). However, there is no a clear prediction for the sign of β_1

because, on the one hand, higher level of sales might imply higher accounts receivable and, on the other hand, increases in sales usually imply increases in short-term debt too, so the net effect on the working capital might not be determined *a priori*.

So, the value of (ACC) in equation (2) is the level of total accruals depending on the firm's activity and the composition of the firm's assets. Therefore, the error term in the regression, which is the difference between observed and estimated accruals as stated in equation (3), would become the part of total accruals due to the discretionary behavior of managers. Thus, the discretionary accruals $\left(DACC_{it}^{Mod1}\right)$ should take the form:

$$\left|\frac{DACC_{it_{it}}^{Mod1}}{A_{it-1}}\right| = \frac{ACC_{it}^{Mod1}}{A_{it-1}} - \left(\hat{\beta}_0 \frac{1}{A_{it-1}} + \hat{\beta}_1 \frac{\Delta Sales_{it}}{A_{it-1}} + \hat{\beta}_2 \frac{PPE_{it}}{A_{it-1}}\right) \tag{3}$$

where $\hat{\beta}_0$, $\hat{\beta}_1$, and $\hat{\beta}_2$ are the estimators for β_0, β_1, and β_2 coefficients, respectively. Since the discretionary behavior in earnings management might be used either to increase or to reduce the earnings, we follow Gabrielsen, Gramlich, and Plenborg (2002) and calculate the absolute value for *DACC* to measure the extent of this discretionary behavior instead of its direction.

Model 2

In the same way as before, this is also a cross-sectional model of discretionary accruals based on Jones (1991) model as described in (Dechow, Sloan, and Sweeney 1995):

$$\frac{ACC_{it}^{Mod2}}{A_{it-1}} = \beta_0 + \beta_1 \frac{\Delta Sales_{it} - \Delta AR_{it}}{A_{it-1}} + \beta_2 \frac{PPE_{it}}{A_{it-1}} + \varepsilon_{it} \tag{4}$$

The coefficient estimates from Equation (4) are used to estimate the firm-specific non-discretionary accruals as:

$$NDACC_{it} = \hat{\beta}_0 \frac{1}{A_{it-1}} + \hat{\beta}_1 \frac{\Delta Sales_{it} - \Delta AR_{it}}{A_{it-1}} + \hat{\beta}_2 \frac{PPE_{it}}{A_{it-1}} \tag{5}$$

where integranet/Greetings_2017.pdf is the change in accounts receivable from the preceding year. Following Cohen, Dey, and Lys (2008), while computing the non-discretionary accruals, we adjust the reported revenues on the sample of firms for the change in accounts receivable to capture any potential accounting discretion arising from sale credits. Then the measure of discretionary accruals, in the same way as in Model 1, is the difference between total accruals and the fitted non-discretionary accruals $\left(DACC_{it}^{Mod2}\right)$, defined as:

$$\left|\frac{DACC_{it}^{Mod2}}{A_{it-1}}\right| = \frac{ACC_{it}^{Mod2}}{A_{it-1}} - \left(\hat{\beta}_0 \frac{1}{A_{it-1}} + \hat{\beta}_1 \frac{\Delta Sales_{it} - \Delta AR_{it}}{A_{it-1}} + \hat{\beta}_2 \frac{PPE_{it}}{A_{it-1}}\right) \tag{6}$$

Independent Variables

The independent variables include the capital structure measured at book value (*LevB*) and at market value (*LevM*), two alternative measures of the dividend policy (*Div*1 and *Div*2), and the ownership structure measured by ownership closely held (*InsOwn*) and corporate ownership concentration (*Own*1), in addition to the IFRS, the development of the financial system, and the legal and regulatory systems. Control variables were introduced in the model to lessen the sub-identification problems. The control variables are the firm size (*Size*), profitability (*ROA*), default

risk measured by two alternative variables ($Z1$ and $Z2$), and industry, time, and country dummy variables. Controlling by industry sector reduces potential biases in the estimations because of the particularities of the industrial sector where the company operates, such as regulation, competitiveness, and industry riskiness. Time and country dummy variables are also needed because of the panel configuration or our data. They measure any exogenous shock that impacts all the firms in a temporal basis as well as to recognize characteristics of each country individually, respectively. Details about the construction of the variables are described in the Supplementary Material available online.

Therefore, the general model to be estimated takes the following form:

$$DACC_{itc} = \beta_0 + \beta_1 Lev_{itc} + \beta_2 Div_{itc} + \beta_3 Own_{itc} + \beta_4 IFRS_{itc} + \beta_5 Size_{itc} + \beta_6 ROA_{itc}$$
$$+ \beta_7 Z_{itc} + \sum_{j=1}^{6} \delta_j X_{tc} + \sum_{k=1}^{6} \theta_k Y_{tc} + \beta_{10} IndDummy_{itc} + \beta_{11} TimeDummy_t \quad (7)$$
$$+ \beta_{12} CountryDummy_c + \eta_i + \mu_t + \varepsilon_{it}$$

where X_{tc} represents the vector of $J = 6$ variables for the development of the financial system in the time t and country c; Y_{tc} is the vector of $K = 6$ variables for the legal and regulatory system, and η_i, μ_t and ε_{it} measure the individual effect, the temporal effect, and the stochastic error, respectively. Industry, temporal, and country dummy variables are also included in the model.

Results

Descriptive Statistics

Table 2 displays the alternative measures of the discretionary accruals and the independent variables as well as their mean, median, and standard deviation. We can observe that the mean values for the discretionary accruals are always higher than 0. In Table 3, we have tested the hypothesis of whether such values for the discretionary accruals are statistically different from zero. Panel A of Table 3 supports the hypothesis that such mean values are in fact statistically different from zero. In the same way as the study by García-Meca and Sánchez-Ballesta (2009), this particular finding provides evidence that in the countries sample, the firms discretionally manipulate their results, either by increasing profits or by reducing them. The other panels in Table 3 describe the mean values of our two alternative measures for the discretionary accruals by country. Similarly, in all the cases, we observe that by country, firms do manipulate their earnings.

Table 2 displays that the leverage position ($LevB$) is about 48.32% of a company's total assets. At market values, this ratio ($LevM$) is 17.60%. In addition to that, we observe that firms do pay out a large proportion of their earnings in the form of dividends ($Div1$). This is in line with the argument that in emerging markets with weak protection of the investor rights, shareholders demand large dividend yields, and consequently firms pay large cash dividends. This weak protection of the shareholders' rights is also reflected in the corporate ownership structure (Espinosa 2009; Khanna and Palepu 2000; Lefort 2005), which is characterized by the presence of large controlling shareholders, pyramidal structures, institutional investors (e.g., pension funds), and highly concentrated corporate ownership in Latin America. In fact, the descriptive statistics show that the shares in hand of the controlling shareholder and in the hands of the executives ($InsOwn$) represent 57.34% of the outstanding shares, while the majority shareholder has about 27.01% of the ownership ($Own1$). Details about the correlation among the variables are provided in the correlation matrix in Table S1 included in the Supplementary Material, available online.

Table 2. Descriptive statistics by variables.

Variable	Acronym	Definition	Mean	Median	Std. Dev.
Discretionary accruals	DAcc1	Discretional accruals based on Model 1	0.0208	0.0185	0.0369
	DAcc2	Discretional accruals based on Model 2	0.0701	0.0426	0.0622
Capital structure	LevB	Leverage at book values	0.4832	0.4806	0.2385
	LevM	Leverage at market values	0.1760	0.1477	0.1852
Dividend policy	Div1	Pay-out ratio: DPS/EPS	1.0160	0.9509	0.0127
	Div2	Payout ratio: Cash Dividend/NI(t-1)	0.0242	0.0061	0.0392
Ownership structure	Own1	Ownership structure: % shares held by majority shareholder	0.2701	0.1794	0.2157
	InsOwn	Ownership closely held: % shares held by managers and insiders	0.5734	0.6193	0.2611
Firm size	Size	Ln(TA)	6.6236	6.6500	1.9759
Profitability	ROA	NI/TA	0.0679	0.0514	0.06801
Liquidity risk	Z1	Altman Z-Score for developed economies	4.2850	3.1431	0.7204
	Z2	Altman Z-Score for emerging markets	6.4849	5.3901	0.2558
Financial Devlpmnt.	CBAGDP	Central bank assets/GDP	6.350	0.3929	7.5988
	OIAGDP	Other financial institutions assets/GDP	10.288	2.0364	4.6984
	PCGDP	Private credit by deposit money banks/GDP	27.204	23.8972	17.7555
	SMKGDP	Stock market capitalization/GDP	41.897	45.6650	28.6424
	IDGDP	International debt issues/GDP	9.2647	8.9932	6.0154
	PBGDP	Private bond market capitalization/GDP	10.0250	10.3078	7.9771
Legal System	IFRS	0 if local and 1 if IFRS	0.3712	0.0000	0.4774
	VA	Voice & accountability	0.3620	0.3718	0.3495
	PS	Political stability	−0.2311	−0.2767	0.5282
	GE	Governance effectiveness	0.1749	−0.0393	0.5080
	RQ	Regulatory quality	0.4166	0.2886	0.5420
	RL	Rule of law	−0.1239	−0.3916	0.6695
	CC	Control of corruption	0.1040	−0.1167	0.6347

Notes: The table shows the mean, median, and standard deviation of the variables. Discretionary accruals are measured through DAcc1 and DAcc2 variables, according to models 1 and 2, respectively, depicted in the Earnings Management Measures and Independent Variables section. Variables LevB and LevM measure the capital structure as the leverage at book and market values, respectively. Dividend policy is measured through Div1 and Div2 variables. Ownership structure is measured by the percentage of shares held by controlling shareholder (Own1) and those shares in hands of insiders (InsOwn). Firm size (Size), profitability (ROA), and liquidity risk (Z1 and Z2) are control variables. The financial development by country is measured through several variables taken from the updated data set of Beck, Demirgüç-Kunt, and Levine (2000) such as CBAGDP, OIAGDP, PCGDP, SMKGDP, IDGDP, and PBGDP. Legal system variables were taken from the World Governance Indicators provided by Kaufmann, Kraay, and Mastruzzi (2011).

Multivariate Analysis

Firm-Level Variables

Table 4 displays the regressions between the firm-level variables and the earnings management measured according to Model 1 ($DAcc1$). We observe that the leverage at book value ($LevB$) shows a non-linear relationship with the earnings management ($DAcc1$). In this case, the coefficients of the $LevB$ variable are positive in all the cases, while the coefficients of its quadratic transformation ($LevB^2$) are systematically negative. This suggests that the relationship between leverage and earnings manipulation takes an inverse U-shaped relationship. We observe that at relatively low levels of debt, managers engage in active opportunistic manipulation of financial statements that might be motivated,

Table 3. Descriptive statistics of the alternative measures of earnings management for the whole sample and by country.

Panel A: Earnings management for the whole sample				
Variable	**Obs.**	**Mean**	**Std. Error**	**Std. Dev.**	**p-value**
DAcc1	4894	0.0208	0.0003	0.0229	(0.0000)
DAcc2	4894	0.0701	0.0013	0.0882	(0.0000)

Panel B: Earnings management (Model 1) by country				
DAcc1	**Obs.**	**Mean**	**Std. Error**	**Std. Dev.**	**p-value**
Argentina	249	0.0206	0.0012	0.0188	(0.0000)
Brazil	1804	0.0186	0.0004	0.0184	(0.0000)
Chile	864	0.0233	0.0012	0.0323	(0.0000)
Colombia	201	0.0214	0.0042	0.0394	(0.0000)
Mexico	987	0.0212	0.0006	0.0196	(0.0000)
Peru	789	0.0222	0.0008	0.0225	(0.0000)

Panel C: Earnings management (Model 2) by country				
DAcc2	**Obs.**	**Mean**	**Std. Error**	**Std. Dev.**	**p-value**
Argentina	249	0.0699	0.0051	0.0770	(0.0000)
Brazil	1804	0.0722	0.0021	0.0905	(0.0000)
Chile	864	0.0708	0.0034	0.0962	(0.0000)
Colombia	201	0.0612	0.0071	0.0658	(0.0000)
Mexico	987	0.0643	0.0027	0.0829	(0.0000)
Peru	789	0.0739	0.0031	0.0852	(0.0000)

Notes: This table is broken down in three panels. In Panel A, it is tested the hypothesis that the discretionary accruals, measured by DAcc1 and DAcc2 and estimated according to the Equations (3) and (6), respectively, are different from zero. Panel B tests the hypothesis that the discretionary accruals computed according to the variable DAcc1 by country are different from zero. Similarly, Panel B tests the hypothesis that the discretionary accruals computed according to the variable DAcc2 by country are different from zero.

for instance, in achieving the goals imposed by debt covenants (Mohrman 1996). This is typically denominated as the reverse leverage effect. However, at relatively high levels of debt, it constrains the opportunistic managerial behavior and the earnings management, as suggested by the leverage effect. In this case, creditors and financial institutions will establish more restrictive clauses in the contracts and eventually will demand for more information about the performance of the firm. As a consequence of better monitoring, managers will have less room for opportunistic manipulation of the financial statements. These findings allow us to accept our Hypothesis H1. In fact, as shown in the first regression, for instance, earnings management starts decreasing when leverage is about 12.15% as exhibited in its critical value. Such critical value was determined by optimizing the first regression.[8] Consequently, the reverse leverage effect is observed if the average is less than 12.15%—but eventually, it is dominated by the leverage effect if the leverage is in fact greater than this critical point. If all the regressions in Table 4 are considered, we observe that the average of the critical value of the leverage is 13.15%.[9]

The results in the second regression suggest that there is a positive and statistically significant relationship between the pay-out ratio ($Div1$) and the earnings management. In developing countries such as those in Latin America, managers are reluctant to cut dividends due to negative consequences of this action, and this impacts both upward and downward real earnings management (Anglin et al. 2013). The relative weakness of external corporate governance mechanisms (e.g., institutional

Table 4. Multivariate analysis: Dependent variable is DAcc1 and the independent variables are the internal corporate governance determinants.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.0364***	0.0270***	0.0310***	0.0388***	0.0374***	0.0206***
	(0.0015)	(0.0003)	(0.0003)	(0.0005)	(0.0000)	(0.0000)
LevB	0.0122	0.0159***	0.0103**	0.0135***	0.0184***	0.0094***
	(0.0550)	(0.0002)	(0.0001)	(0.0004)	(0.0000)	(0.0000)
LevB^2	−0.0502**	−0.0680**	−0.0446**	−0.0424***	−0.0507***	−0.0498***
	(0.0120)	(0.0011)	(0.0001)	(0.0002)	(0.0001)	(0.0008)
Critical Value	*0.1215*	*0.1169*	*0.1155*	*0.1592*	*0.1815*	*0.0944*
Div1		0.0003***	0.0110	0.0177***	0.01405***	0.0123*
		(0.0003)	(0.1406)	(0.0005)	(0.0000)	(0.0276)
Own1			−0.0075***	−0.0076*		
			(0.0001)	(0.0510)		
InsOwn					0.0148	−0.0652***
					(0.1204)	(0.0002)
InsOwn^2						0.0476***
						(0.0005)
Critical Value						*0.6849*
SIZE				0.0003***	0.0003***	0.0003***
				(0.0000)	(0.0000)	(0.0000)
ROA				−0.0084*	−0.0177***	−0.0140**
				(0.0580)	(0.0012)	(0.0460)
Z1				−0.0012***	−0.0017***	−0.0011**
				(0.0000)	(0.0022)	(0.0150)
Obs.	11,902	6,899	4,894	4,894	3,143	3,143
No. Ident.	977	850	715	715	626	626
Wald-test	350.43	47.05	22.58	29.16	41.10	90.00
p-value	0.0061	0.0000	0.0000	0.0000	0.0000	0.0000
AR(2)	−2.15	−1.15	1.16	0.87	1.23	1.23

(*Continued*)

Table4. Multivariate analysis: Dependent variable is DAcc1 and the independent variables are the internal corporate governance determinants. (Continued)

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
p-value	0.32	0.25	0.25	0.39	0.26	0.22
Sargan–Hansen-test	31.48	37.61	40.60	40.12	40.30	45.22
p-value	0.21	0.17	0.11	0.13	0.22	0.74
VIF test	2.77	2.18	2.76	2.11	2.87	2.08
Lind Mehlum-test for LevB	-	930.34	912.95	935.06	953.40	967.64
p-value	-	0.0000	0.0000	0.0000	0.0000	0.0000
Lind Mehlum-test for InsOwn	-	-	-	-	-	1714.11
p-value	-	-	-	-	-	0.0000

Notes: This table shows the regression estimates that explain the discretionary accruals measured though DAcc1. All the variables are described in Table 2. The Critical Values of LevB and InsOwn variables are computed according to the explanations provided in Footnotes 8 and 11, respectively. Industry, time, and country effects are included in the estimations but not tabulated. Wald test of statistical significance of independent variable is reported at the bottom of the table. Similarly, second order autocorrelation test is reported (AR(2)). The Sargan–Hansen contrast is used to test the hypothesis that the instruments are properly chosen. VIF test is used to formally examine the multicollinearity problem. To test the statistical significance of the non-linear relationship between InsOwn and DAcc1 variables, the Lind Mehlum test is used. Standard errors in parentheses. ***, **, and * represent statistical significance at the 1, 5, and 10% levels, respectively.

systems) implies that shareholders demand higher dividends. The catalyst of such demand for larger dividends is the discretionary manipulation of financial statements by managers. Agency theory suggests that outside shareholders have a preference for dividends over retained earnings because insiders might squander cash retained within the firm (Easterbrook 1984; Jensen 1986). Our findings show that to respond satisfactorily to this preference for dividends, managers take advantage of their discretionary decision-making power to opportunistically manipulate the financial statements to justify the dividend preferences. These results allow accepting Hypothesis H2a.[10] This finding is in the same line with those reported by Atieh and Hussain (2012).

The results in the third and fourth regressions show that the ownership concentration ($Own1$) is negatively related to the earnings management. This finding allows us to accept Hypothesis H3b that states that the higher the ownership concentration, the lower the room for opportunistic behavior through earnings management. Consequently, we can observe that concentrated ownership structures efficiently solve the agency problems by scrutinizing the performance of managers.

The last regression in Table 4 is used to test Hypothesis H3a. In this hypothesis, we suggested a non-linear relationship between the ownership concentration in hands of the majority shareholder and in hands of executives (measured through the percentage of shares closely held, $InsOwn$) and the earnings management. In this case, we used the variable $InsOwn$ and its squared computation ($InsOwn^2$) to test this hypothesis. As shown, there is in fact a quadratic relationship between this variable and the overstatement of the financial reports. As the percentage of closely held shares increases, the earnings management decreases—but only up to a certain threshold. Beyond this level of inside ownership concentration, the opportunistic manipulation of the financial statements increases. It seems to be that in the countries of our sample, the agency costs and the moral hazard problems are minimized with more concentrated ownership structures. Nevertheless, whenever the controlling shareholder and managers hold more outstanding stocks than those needed for efficient control, the entrenchment and the expropriation agency problems arise. In this scenario, managers are more inclined to manage the earnings, expropriating in this way a certain part of the wealth of the minority shareholders. Such a threshold or critical point of ownership concentration might be determined basically by optimizing, for instance, the sixth regression in Table 4.[11] Our findings indicate that when the controlling shareholder and the managers hold no more than 68.49% of the outstanding shares, the earnings management is minimized, *ceteris paribus*. When they hold more than this threshold, expropriation and entrenchment agency problems appear that eventually are materialized in the opportunistic manipulation of the financial statements, to the detriment of the minority share-holders' wealth. In turn, this finding allows us to accept Hypothesis H3a that suggested that at low levels of insider ownership, alignment of interests exists, and the likelihood of earnings management is lowered.

To avoid problems of under-specification in Table 4, the control variables (e.g., firm size, profit-ability, and default risk) are added in the last three regressions. We included the firm size ($Size$) because it may affect corporate governance characteristics as well as the level of earnings management (Becker et al. 1998). Our findings show a positive relationship between the firm size and the earnings management. In the same line as Lobo and Zhou (2006), we suggest that larger firms may be more inclined to manage their earnings because the complexity of their operations makes it difficult for users to detect overstatement, and consequently, managers might apply more aggressive accounting policies (Richardson, Tuna, and Wu 2002). In the same regression, we notice that the profitability of the firm (ROA) is negatively related to earnings management. In other words, we observe that managers from profitable companies do not have the need to manipulate the financial statements.

Finally, in Table 4, we observe that the coefficient of the insolvency risk ($Z2$) variable shows a negative and statistically significant value. By design, the higher the values of $Z2$, the lower the company's default risk. Consequently, the interpretation of this variable suggests that when the default risk decreases, the discretionary accruals decrease too. And therefore, the lower the bankruptcy risk, the lower the need for opportunistically manipulating the earnings in one direction or another.[12]

Table 5. Multivariate analysis: Dependent variable is DAcc1 and the independent variables are the internal and external corporate governance determinants.

| | Development of the Financial System | | | | | | Development of the Legal and Regulatory System | | | | | |
| | Banking System | | | Capital Markets | | | | | | | | |
VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant	0.0390***	0.0393***	0.0377***	0.0370***	0.0318***	0.0319***	0.0374***	0.0360***	0.0373***	0.0375***	0.0342***	0.0345***
	(0.0006)	(0.0005)	(0.0006)	(0.0012)	(0.0005)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
LevB	−0.0311***	−0.0337**	−0.0349***	−0.0304***	−0.0330**	−0.0342***	−0.0385***	−0.0330*	−0.0311***	−0.0314***	−0.0370***	−0.0327***
	(0.0004)	(0.0304)	(0.0004)	(0.0004)	(0.0385)	(0.0004)	(0.0004)	(0.0613)	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Div1	0.0018***	0.0010***	0.0024***	0.0011***	0.0014***	0.0011***	0.0022***	0.0021***	0.0024*	0.0012***	0.0018***	0.0017***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0058)	(0.0000)	(0.0000)	(0.0000)	(0.0105)	(0.0000)	(0.0000)	(0.0000)
Own1	−0.0055***	−0.0052**	−0.0055***	−0.0047***	−0.0033**	−0.0077***	−0.0062***	−0.0052***	−0.0057***	−0.0056*	−0.0055***	−0.0052***
	(0.0001)	(0.0134)	(0.0001)	(0.0001)	(0.0160)	(0.0000)	(0.0001)	(0.0001)	(0.0000)	(0.0602)	(0.0000)	(0.0000)
SIZE	0.0010***	0.0013**	0.0027***	0.0012***	0.0022*	0.0019***	0.0013***	0.0017***	0.0010***	0.0021**	0.0018***	0.0020*
	(0.0000)	(0.0100)	(0.0000)	(0.0000)	(0.0771)	(0.0000)	(0.0005)	(0.0003)	(0.0000)	(0.0120)	(0.0000)	(0.0170)
ROA	−0.0112***	−0.0117***	−0.0110***	−0.0140***	−0.0160**	−0.0109***	−0.0128***	−0.0084***	−0.0111***	−0.0098***	−0.0117***	−0.0102***
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0183)	(0.0006)	(0.0008)	(0.0008)	(0.0006)	(0.0007)	(0.0006)	(0.0007)
Z2	−0.0009***	−0.0013***	−0.0009***	−0.0013***	−0.0012***	−0.0009***	−0.0009***	−0.0009***	−0.0009***	−0.0009***	−0.0011**	−0.0010***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0008)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0140)	(0.0000)
IFRS	−0.0108***	−0.0114*	−0.0112***	−0.0107***	−0.0104***	−0.0104***	−0.0106*	−0.0106***	−0.0106***	−0.0108***	−0.0107***	−0.0104***
	(0.0002)	(0.0680)	(0.0003)	(0.0003)	(0.0002)	(0.0003)	(0.0482)	(0.0003)	(0.0002)	(0.0003)	(0.0002)	(0.0002)
CBAGDP	0.0960**											
	(0.0182)											
OIAGDP		0.0063**										
		(0.0130)										
PCGDP			0.0024*									
			(0.0560)									
SMKGDP				−0.0495								
				(0.1858)								
IDGDP					0.0009**							
					(0.0330)							
PBGDP						−0.0153						
						(0.1034)						
VA							−0.0077***					

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
PS							(0.0001)					
GE								−0.0057*** (0.0061)				
RQ									−0.0025** (0.0111)			
RL										−0.0020*** (0.0002)	−0.0019*** (0.0003)	
CC												−0.0034*** (0.0002)
Obs.	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894	4,894
No. Ident.	715	715	715	715	715	715	715	715	715	715	715	715
Wald-test	49.84	41.43	28.40	26.35	75.75	28.40	26.91	25.20	27.25	31.01	29.08	50.59
p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR(2)	1.07	1.05	0.83	1.16	1.19	0.83	0.83	0.75	0.81	1.02	0.83	0.79
p-value	0.00	0.29	0.30	0.25	0.49	0.40	0.49	0.46	0.42	0.31	0.41	0.43
Sargan-Hansen test	378.50	378.50	382.13	381.96	378.50	382.13	378.62	382.67	378.50	36.23	379.72	380.94
p-value	0.47	0.30	0.34	0.34	0.36	0.33	0.34	0.29	0.32	0.47	0.33	0.31
VIF test	1.93	1.56	2.53	3.40	2.51	1.89	2.24	2.37	1.79	2.24	237	3.05

Notes: This table shows the regression estimates, which explain the discretionary accruals measured though DAcc1. All the variables are described in Table 2. Industry, time, and country effects are included in the estimations but not tabulated. To measure the impact of the development of the financial system and the development of the legal and regulatory system, this table shows the regression results separately for both groups of variables. Wald test of statistical significance of independent variable is reported at the bottom of the table. Similarly, second order autocorrelation test is reported (AR(2)). The Sargan-Hansen contrast is used to test the hypothesis that the instruments are properly chosen. VIF test is used to formally examine the multicollinearity problem. Standard errors in parentheses. ***, **, and * represent statistical significance at the 1, 5, and 10% levels, respectively.

Country-Level Variables

In addition to the firm-level variables studied in the previous section, Table 5 displays the set of country-level variables derived from the institutional system. Recall that these variables are exogenously determined. Among these variables we included a set of measures for the development of the financial system (first six regressions) and another set of variables that measure the efficiency of the legal and regulatory systems as corporate governance indicators (last six regressions).

First, we observe that the accounting standards are negatively related to the earnings management, indicating that there is less discretion in earnings management for those countries that adopted international accounting standards (*IFRS*), which proves Hypothesis H4. Companies using international accounting standards have greater incentives to report transparently because they are subject to higher restrictions. For the period considered in the analysis, we can state that 37.12% of our observations include firms that reported their statements under the international financial reporting standards (see Table 2). According to the findings shown in Table 5, firms reporting under the IFRS reduce the extent of their earnings management by about 1.07%[13] relative to those firms reporting in local accounting standards.

The first six regressions in Table 5 include the country-level variables as measures of the development of the financial system. As stated in our hypothesis, it is likely that the level of financial development heightens the monitoring and scrutiny of accounting figures, because of strengthened laws and regulations for investor protection and, by extension, more sophisticated market participants. Enomoto, Kimura, and Yamaguchi (2014) suggest that the opportunistic behavior of managers is lower under more developed financial systems because higher quality in the accounting information is necessary. Our findings reject Hypothesis H6. In fact, earnings management seems to be higher when the banking system is more developed (see the first three regressions in Table 5). Contrary to expectation, our findings suggest that a more developed banking system increases the discretionary capacity of managers to misreport the financial information. According to this result, we can suggest that managers encounter moral hazard problems to overstate the financial statements to fulfil the requirements to issue, for instance, more sophisticated financial instruments. This result might be corroborated with the bank concentration index measured by

Table 6. Principal component factoring analysis: Financial development and legal and regulatory systems.

Variables	Factor	Eigenvalue	Difference	Proportion	Cumulative
Panel A: Financial Development Variables					
CBAGDP	Factor1	3.5559	2.4479	0.5927	0.5927
OIAGDP	Factor2	1.1080	0.2946	0.1847	0.7773
PCGDP	Factor3	0.8133	0.4773	0.1356	0.9129
SMKGDP	Factor4	0.3360	0.2174	0.056	0.9689
IDGDP	Factor5	0.1186	0.0505	0.0198	0.9886
PBGDP	Factor6	0.0681	0.0000	0.0114	1.0000
Panel B: Legal and Regulatory Systems					
VA	Factor1	5.0000	4.3130	0.8333	0.8333
PS	Factor2	0.6870	0.5310	0.1145	0.9478
GE	Factor3	0.1561	0.0701	0.0260	0.9738
RQ	Factor4	0.0859	0.0346	0.0143	0.9882
RL	Factor5	0.0514	0.0318	0.0086	0.9967
CC	Factor6	0.0196	0.0000	0.0033	1.0000

Notes: This table is broken down in two panels. Panel A displays the different factors generate according to the Principal Component Factoring technique for those variables representing the development of the financial system (e.g., CBAGDP, OIAGDP, PCGDP, SMKGDP, IDGDP, and PBGDP). Similarly, Panel B displays the factors generate for those variables measuring the development of the legal and regulatory system (e.g., VA, PS, GE, RQ, RL, and CC). Eigen values and the proportion as well as the cumulative variance of each factor are also reported.

the market share of the three largest banks (Beck, Demirgüç-Kunt, and Levine 2000), which, although it is not reported in this study, showed a negative and statistically significant relationship with the discretionary accruals measure ($DAcc1$). This finding demonstrates that in less competitive (more monopolistic) banking systems, managers have less need for earnings management. Accordingly, it seems to be that, at least concerning the development of the banking system, earnings management is a reaction to more developed and sophisticated financial instruments and requirements. The variables used to measure this impact are: i) the size of the assets of the central bank ($CBAGDP$), ii) other financial institutions ($OIAGDP$) relative to the national GDP, and iii) the size of the private credit by deposit money banks ($PCGDP$) over the GDP.

Concerning the development of the capital markets—basically corporate bonds and equity—we included the regressions 4 through 6 in Table 5. We observe that neither the stock market capitalization ($SMKGDP$) nor the private bond market capitalization ($PBGDP$) is statistically significant. Consequently, these two indicators of the development of the capital markets do not determine the earnings management. The international debt issued as a fraction of the GPD ($IDGDP$), however, is the only significant variable concerning the development of the capital markets. Nevertheless, its sign is the opposite of the expected one. Once again, we can observe that the exercise of the earnings discretion is a response to higher development of the overall financial system. We suggest that managers in the Latin American countries react by opportunistically managing the earnings before more developed financial systems—more sophisticated financial tools, the response to financial analysts who are tracking the firms' performance, the disclosure of information to more skilled stakeholders, and so on—are put in place. Han et al. (2008) offer an interesting explanation for a relationship like this. They suggest that cultural issues (e.g., uncertainty avoidance and individualism dimensions of national culture) explain managers' earnings discretion across countries and that this association varies with the strength of investor protection and the development of the institutional environment. Therefore, we suggest that the widely tested hypothesis in developed economies of an inverse relationship between the development of the financial system and the earnings management needs to be reformulated in emerging markets like those in Latin America, where the protection of the investors' rights is far behind than that observed in more mature (developed) economies.

Despite the previous results concerning the financial development, the findings about the development of the legal and regulatory systems are conclusive. For all the six governance indicators (VA, PS, GE, RQ, RL, and CC displayed in regressions 7 through 12 in Table 5) about the legal and regulatory systems, we observe a negative and statistically significant relationship with the $DAcc1$ variable. Consequently, we can state that the better the regulations, the smaller the room for managers to take advantage of their discretionary decision-making power on earnings. The legal and regulatory constraints help to efficiently protect the shareholders' rights, which allow us to accept the formulated H5 hypothesis.

Principal Component Factoring Analysis

Since we account with many variables used as measures for the external governance indicators, and since all these variables are highly correlated (see Table S1 in the Supplementary Material, available online), we cannot include them all together in the regression, so we opted by introducing these variables individually as displayed in Table 5. To address this drawback in modelling the discretionary accruals, we decided to apply the principal component factoring technique to enter all these variables in the same regression to take advantage of their informative content. The major benefits of this technique are that the factor(s) created is not correlated, on the one hand, and the factor(s) records a large extent of the variability of the individual variables used in the estimation of the factor(s). Table 6 displays the number of factors generated for the variables used to measure the financial development and the variables used for the legal and regulatory system. In its Panel A, we can observe that there are two factors whose Eigen values are higher than the unit set as the standard discrimination value, which measure the country financial development. These two factors record about 77.73% of the variability of the six alternative variables used to measure the financial development by country. Panel B,

Table 7. Regression results including factors for financial development and legal and regulatory systems. Dependent variable DAcc1.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.0355***	0.0343***	0.0370***	0.0012***	0.0039***	0.0009***
	(0.0006)	(0.0006)	(0.0006)	(0.0005)	(0.0002)	(0.0003)
LevB	0.0181**	0.0179**	0.0186***	0.0191**	0.0180**	0.0177**
	(0.0320)	(0.0141)	(0.0010)	(0.0155)	(0.0279)	(0.0205)
$LevB^2$	-0.0750***	-0.0678**	-0.0676***	-0.0669***	-0.0670***	-0.0738*
	(0.0000)	(0.0003)	(0.0000)	(0.0005)	(0.0000)	(0.0152)
Critical Value	0.1207	0.1320	0.1376	0.1428	0.1343	0.1199
Own1	-0.0054***	-0.0032***	-0.0042***			
	(0.0000)	(0.0000)	(0.0000)			
InsOwn				-0.0488***	-0.0475***	-0.0481***
				(0.0000)	(0.0000)	(0.0000)
$InsOwn^2$				0.0376***	0.0373***	0.0379***
				(0.0000)	(0.0000)	(0.0009)
Critical Value				0.6489	0.6367	0.6346
Div1	0.0055***	0.0045***	0.0049**	0.0071*	0.0016	0.0017*
	(0.0000)	(0.0000)	(0.0130)	(0.0701)	(0.4702)	(0.0336)
SIZE	0.0022***	0.0017**	0.0020***	0.0027***	0.0027***	0.0042*
	(0.0000)	(0.0604)	(0.0000)	(0.0000)	(0.0019)	(0.0506)
ROA	-0.0108***	-0.0133***	-0.0128***	-0.0360**	-0.0411***	-0.0471**
	(0.0007)	(0.0006)	(0.0008)	(0.0150)	(0.0004)	(0.0126)
Z1	-0.0009***	-0.0009***	-0.0009***	-0.0016***	-0.0018***	-0.0015*
	(0.0018)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
IFRS	-0.0116***	-0.0102***	-0.0117***	-0.0088*	-0.0083*	-0.0077**
	(0.0003)	(0.0003)	(0.0003)	(0.0507)	(0.0738)	(0.0308)
Fac1LegEnv	-0.0027*		-0.0031***	-0.0026**		-0.0014***
	(0.0870)		(0.0001)	(0.0033)		(0.0010)
Fac1FinDev		0.0004***	0.0011**		0.0014***	0.0013***
		(0.0001)	(0.0181)		(0.0066)	(0.0000)
Fac2FinDev		0.0006***	0.0015**		0.0017**	0.0015*
		(0.0092)	(0.0137)		(0.0164)	(0.0779)
Obs.	4,894	4,894	4,894	3,143	3,143	3,143
No. Ident.	715	715	715	626	626	626
Wald-test	60.34	72.05	48.61	34.38	22.06	17.40

p-value	0.000	0.002	0.000	0.001	0.008	0.000
AR(2)	1.60	1.35	1.35	0.96	1.53	1.55
p-value	0.22	0.42	0.39	0.41	0.22	0.12
Sargan-Hansen-test	378.60	381.49	382.15	382.09	337.09	265.76
p-value	0.73	0.30	0.30	0.29	0.86	0.73
VIF test	1.73	1.90	2.03	1.94	2.29	2.18
Lind Mehlum-test for LevB	640.22	593.87	536.19	698.00	739.41	711.66
p-value	0.000	0.000	0.000	0.000	0.000	0.000
Lind Mehlum-test for InsOwn	-	-	-	885.67	943.98	704.56
p-value	-	-	-	0.000	0.000	0.000

Notes: This table shows the regression estimates that explain the discretionary accruals measured though DAcc1. All the variables are described in Table 2. Variables Fac1LegEnv, Fac1FinDev, and Fac2FinDev were created according to the outputs from the Principal Component Factoring analysis developed in Table 6. The Critical Values of LevB and InsOwn variables are computed according to the explanations provided in Footnotes 8 and 11, respectively. Industry, time, and country effects are included in the estimations but not tabulated. Wald test of statistical significance of independent variable is reported at the bottom of the table. Similarly, second order autocorrelation tests is reported (AR(2)). The Sargan-Hansen contrast is used to test the hypothesis that the instruments are properly chosen. VIF test is used to formally examine the multicollinearity problem. To test the statistical significance of the non-linear relationship between InsOwn and DAcc1 variables, the Lind Mehlum test is used. Standard errors in parentheses. ***, **, and * represent statistical significance at the 1, 5, and 10% levels, respectively.

Table 8. Robustness analysis including factors for financial development and legal and regulatory systems. Dependent variable DAcc2.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Constant	0.0112**	0.0221***	0.0198***	-0.0107***	-0.0312***	0.0144***
	(0.0024)	(0.0026)	(0.0028)	(0.0041)	(0.0001)	(0.0001)
LevB	0.0288***	0.0290**	0.0315***	0.0248*	0.0251**	0.0247**
	(0.0000)	(0.0170)	(0.0010)	(0.0386)	(0.0470)	(0.0220)
LevB^2	-0.0941**	-0.1004**	-0.0944**	-0.0833*	-0.0790*	-0.0802**
	(0.0112)	(0.0270)	(0.0109)	(0.0660)	(0.0639)	(0.0742)
Critical Value	*0.1530*	*0.1444*	*0.1668*	*0.1489*	*0.1589*	*0.1540*
Div1	0.0115	0.0090**	0.0077*	0.0098*	0.0104***	0.0108**
	(0.3022)	(0.0178)	(0.0651)	(0.0366)	(0.0013)	(0.0124)
Own1	-0.0060***	-0.0055*	-0.0018**			
	(0.0017)	(0.0311)	(0.0357)			
InsOwn				-0.0414***	-0.0503**	-0.0426**
				(0.0001)	(0.0470)	(0.0329)
InsOwn^2				0.0315***	0.0395***	0.0320***
				(0.0001)	(0.0001)	(0.0000)
Critical value				*0.6571*	*0.6367*	*0.6656*
IFRS	-0.0370*	-0.0321***	-0.0266***	-0.0368***	-0.0485***	-0.0472***
	(0.0617)	(0.0016)	(0.0017)	(0.0084)	(0.0080)	(0.0083)
SIZE	0.0028***	-0.0004	-0.0015	0.0044***	0.0061***	0.0032***
	(0.0012)	(0.6005)	(0.3447)	(0.0007)	(0.0071)	(0.0027)
ROA	-0.1650***	-0.1604**	-0.1669*	-0.2114	-0.2308	-0.2477*
	(0.0032)	(0.0154)	(0.0558)	(0.2670)	(0.1830)	(0.0366)
Z1	-0.0018	-0.0018*	-0.0018*	-0.0025*	-0.0022	-0.0022*
	(0.5609)	(0.0686)	(0.0651)	(0.0740)	(0.1380)	(0.0782)
Fac1LegEnv	-0.0062***		0.0016	-0.0071***		-0.0058***
	(0.0005)		(0.1506)	(0.0010)		(0.0008)
Fac1FinDev		0.0115***	0.0116***		0.0170***	0.0164***
		(0.0011)	(0.0010)		(0.0006)	(0.0001)
Fac2FinDev		0.0006	0.0007		0.0008***	0.0014***
		(0.1677)	(0.2740)		(0.0021)	(0.0012)
Obs.	4,894	4,894	4,894	3,143	3,143	3,143
No. Ident.	715	715	715	626	626	626
Wald-test	48.25	55.05	53.48	34.02	27.44	60.98

p-value	0.000	0.000	0.000	0.000	0.001	0.002
AR(2)	−0.48	0.81	0.77	0.72	0.77	0.70
p-value	0.63	0.42	0.44	0.63	0.52	0.49
Sargan-Hansen-test	363.20	381.49	378.79	383.50	379.79	378.74
p-value	0.87	0.30	0.32	0.27	0.32	0.29
VIF test	2.89	2.33	2.71	2.04	2.84	2.46
Lind Mehlum-test for LevB	390.14	438.59	359.39	626.24	501.34	542.74
p-value	0.00	0.00	0.00	0.00	0.00	0.00
Lind Mehlum-test for InsOwn	-	-	-	432.36	607.98	350.83
p-value	-	-	-	0.00	0.00	0.00

Notes: This table shows the regression estimates that explain the discretionary accruals measured though DAcc2. All the variables are described in Table 2. Variables Fac1LegEnv, Fac1FinDev, and Fac2FinDev were created according to the outputs from the Principal Component Factoring analysis developed in Table 7. The Critical Values of LevB and InsOwn variables are computed according to the explanations provided in Footnotes 8 and 10, respectively. Industry, time, and country effects are included in the estimations but not tabulated. Wald test of statistical significance of independent variable is reported at the bottom of the table. Similarly, second order autocorrelation tests is reported (AR(2)). The Sargan-Hansen contrast is used to test the hypothesis that the instruments are properly chosen. VIF test is used to formally examine the multicollinearity problem. To test the statistical significance of the non-linear relationship between InsOwn and DAcc2 variables, the Lind Mehlum test is used. Standard errors in parentheses. ***, **, and * represent statistical significance at the 1, 5, and 10% levels, respectively.

Table 9. Comparative analysis by institutional context: DEPENDENT variable DAcc1.

VARIABLES	(1) Chile+Brazil	(2) Other Countries	(3) Chile+Brazil	(4) Other Countries
Constant	0.0112***	0.0240***	0.0158***	0.0227***
	(0.0018)	(0.0004)	(0.0007)	(0.0011)
LevB	–0.0172*	–0.0327***	–0.00680**	–0.0360*
	(0.0680)	(0.0001)	(0.0475)	(0.0525)
Div1	0.0024***	0.0051*	–0.0009***	0.0004**
	(0.0008)	(0.0063)	(0.0016)	(0.0205)
Own1	–0.0066***	0.0024**		
	(0.0000)	(0.0226)		
InsOwn			–0.0360**	0.0152***
			(0.0115)	(0.0044)
InsOwn^2			0.0340***	–0.0096***
			(0.0005)	(0.0003)
Critical Value			*0.5394*	*0.7917*
IFRS	–0.0141***	–0.0047***	–0.0088*	–0.0012**
	(0.0011)	(0.0000)	(0.0602)	(0.0370)
SIZE	0.0016***	–0.0004***	0.0023**	–0.0022***
	(0.0080)	(0.0004)	(0.0150)	(0.0001)
ROA	–0.0360***	0.0172***	0.0380	0.0214*
	(0.0003)	(0.0001)	(0.5377)	(0.0318)
Z1	–0.0010**	–0.0009***	–0.0016***	–0.0011***
	(0.0139)	(0.0016)	(0.0001)	(0.0000)
Fac1LegEnv	0.0061***	–0.0020***	0.0026***	0.0072***
	(0.0001)	(0.0000)	(0.0006)	(0.0005)
Fac1FinDev	0.0015***	–0.0026***	0.0006*	0.0080**
	(0.0006)	(0.0001)	(0.0636)	(0.0050)
Fac2FinDev	0.0038*	0.0072*	0.0011*	–0.0027**
	(0.0732)	(0.0630)	(0.0823)	(0.0335)
Obs.	2,668	2,226	2,169	974
No. Ident.	413	302	378	245
Wald-test	133.14	84.36	63.28	25.70
p-value	0.000	0.000	0.000	0.000
AR(2)	1.22	–1.55	–1.60	–1.47
p-value	0.22	0.12	0.56	0.38
Sargan-Hansen-test	420.87	248.48	178.11	240.02
p-value	0.86	0.87	0.89	0.49
VIF test	1.93	1.88	2.72	2.50
Lind Mehlum-test	-	-	390.16	8.31
p-value	-	-	0.00	0.74

Notes: This table shows the regression estimates that explain the discretionary accruals measured though DAcc1 by institutional context. The sample was split into two groups according to the relative efficiency of their legal and regulatory systems as described in the Comparative Analysis by Institutional Context section. All the variables are described in Table 2. Variables Fac1LegEnv, Fac1FinDev, and Fac2FinDev were created according to the outputs from the Principal Component Factoring analysis developed in Table 6. The Critical Value of InsOwn variable is computed according to the explanation provided in Footnote 8. Industry, time, and country effects are included in the estimations but not tabulated. Wald test of statistical significance of independent variable is reported at the bottom of the table. Similarly, second order autocorrelation test is reported (AR(2)). The Sargan-Hansen contrast is used to test the hypothesis that the instruments are properly chosen. VIF test is used to formally examine the multicollinearity problem. To test the statistical significance of the non-linear relationship between InsOwn and DAcc1 variables, the Lind Mehlum test is used. Standard errors in parentheses. ***, **, and * represent statistical significance at the 1, 5, and 10% levels, respectively.

however, shows that only one factor is enough to record more than 80.00% of the variability of the variables used to measure the legal and regulatory systems.

These three factors were entered in the regression analysis as shown in Table 7. All the regressions show that the factors are statistically significant. Consequently, we can suggest that to a large extent, the financial development, as well as the enforcement of the law channelled by the legal and institutional systems, is determinant of the discretionary accruals (either by increasing or by decreasing the earnings). Additionally, we have found that the direction of this relationship is in accordance with the results displayed in Table 5—positive for the financial development (*Fac1FinDev* and *Fac2FinDev*) and negative for the legal and regulatory systems (*Fac1LegEnv*). These findings might be considered as robustness checks of our main results.

The last three regressions in Table 7 show the models estimated by using the *InsOwn* variable. These regressions compute the critical values of the ownership in hands of both controlling shareholder and managers at which the discretionary manipulation of the financial statements is minimized. The estimation of such critical values is like the one explained in Footnote 8. The average value among these three models is 64.01%. If the majority shareholder and the managers hold more than this fraction of the outstanding shares, the likelihood of discretionary accruals increases, which in turn erodes the firms' value. The U-shaped relationship between *InsOwn* and *DAcc*1 is tested empirically through the Lind-Mehlum contrast. According to this test, we can accept the fact that there is a statistically significant U-shaped relationship between *InsOwn* and *DAcc*1.

Robustness Checks

The consistency of our findings is tested by using as the dependent variable the one estimated based on Model 2 (see Equation 6). Table 8 shows the main results by using this variable (*DAcc*2). This variable is slightly different from the *DAcc*1 because it is adjusted by the change in accounts receivable to account for any accounting discretion in collecting the credit sales.

Table 8 includes six regressions accounting for the firm-level variables in addition to the country-level variables. We observe that the leverage (*LevB*) still has an inverse U-shaped relationship with discretionary accruals. This finding supports what was found above—at low levels of leverage, managers engage more in earnings manipulation, while at higher levels of debt, it reduces the opportunistic behavior of managers through restrictive debt covenants and lower levels of free cash flow available for discretionary use. The pay-out policy and the ownership structure show the same relationships as in our previous findings. Therefore, we can observe that our hypotheses concerning the firm-level variables are accepted.

The external corporate governance systems were entered in the regressions through the different factors that are basically a composite of the financial and legal systems. These three factors (*Fac1LegEnv*, *Fac1FinDev*, and *Fac2FinDev*) are statistically significant, although some significance power is lost in regressions three and four. Cautiously, we might still suggest that besides this lack of significance, the results in general are still very consistent by using the alternative variable *DAcc*2.

Comparative Analysis by Institutional Context

The last part of the empirical analysis offers a comparison by institutional context. In this case, we decided to split the sample into two big groups depending on relative efficiency of their legal and regulatory systems. To do so, we computed the averages among *VA*, *PS*, *GE*, *RQ*, *RL*, and *CC* by country, which measure the efficiency of the regulatory and legal systems. Only Chile and Brazil had a positive value, and the other countries had a negative average. Consequently, for our period of analysis and sample, Chile and Brazil had a relatively better institutional environment than Argentina, Colombia, Mexico, and Peru. Therefore, we re-estimated the regressions, taking into consideration these two groups of countries. The results are displayed in Table 9. In this table, we observe that the capital structure plays the same role as a driver of earnings management under a strong (e.g., Chile and Brazil) or relatively weak (e.g., Argentina, Colombia, Mexico, and Peru) institutional context as described above. When we study the dividend policy

in detail, we observe that the coefficient of *Div*1 for countries with relatively strong corporate governance (Chile and Brazil in regression 1) is smaller than for countries with relatively weaker governance systems (Argentina, Colombia, Mexico, and Peru in regression 2). This means that the positive impact of the dividend policy on the discretionary accruals is stronger in countries with weak governance systems. We rejected the hypothesis that such coefficients are statistically equal at the standard confidence level of 5%. Consequently, we can accept our hypothesis H2b that suggested that there is higher earnings management under institutional contexts with weaker corporate governance systems to achieve certain cash dividend goals than in countries with stronger governance systems. This result might be reinforced with the findings in regressions 3 and 4 of Table 9. Between these couple of regressions, we observe that in fact the dividend policy impacts negatively on the accounting discretion for the group compounded by Chile and Brazil, but positive for all the other countries with relatively weaker institutional systems.

Concerning the corporate ownership structure measured through the *Own*1 variable, we observe that it is an efficient monitoring tool in countries with better protection of the investors' rights (e.g., Chile and Brazil), impacting negatively on the discretionary capacity of managers to manage earnings. However, under institutional contexts with weak governance indicators (those included in the second regression such as Argentina, Colombia, Mexico, and Peru), more concentrated ownership structures lead to higher managerial discretion. Similar findings are shown when *InsOwn* is considered (see regressions 3 and 4 in Table 9). For instance, in the third regression, we still observe that the U-shaped relationship between *InsOwn* and *DAcc*1 holds in the institutional contexts with relatively better corporate governance systems. However, such a relationship is the opposite in institutional environments with relatively poor protection of investors' rights (see regression 4). We observe that, in fact, for most of the range of the *InsOwn* variable (79.17%), the earnings management increases as the *InsOwn* increases, too. Moreover, as it can be seen at the bottom of the fourth regression, according to the Lind-Mehlum test, a U-shaped relationship between *InsOwn* and *DAcc*1 does not exist.

Finally, we still observe that, independently of how good the corporate governance is under the two institutional environments, the adoption of the IFRS still reduces the managerial discretionary accounting.

Conclusions

In this article, we analyzed the impact of firm- and country-level determinants on the managerial discretionary behavior for a sample of companies from Argentina, Brazil, Chile, Colombia, Mexico, and Peru. To the best of our knowledge, this is perhaps the first work in studying the relationship between this set of variables on the earnings management for a sample of representative firms from Latin American countries.

The varying efficiency of controlling mechanisms in the region is reflected in the way in which accounting discretion is performed. An example of this is the dividend policy, which states that to meet the demand for dividends by shareholders, managers are motivated to manipulate accounting information to meet the required dividends. Similarly, ownership structure is a double-edged sword as a controlling system in the region. We observe that the insider ownership might constrain earnings management up to a certain extent, but it also may stimulate opportunistic behavior of managers to manipulate financial reporting. The impact of these two determinants on earnings management highlights the need for further improvements of efficient monitoring mechanisms at the firm level.

We found that country-level variables associated with the development of the financial system behaved opposite of expectation. From this, we conclude that financial systems in the region are still in a stage of premature development that allows managers to make use of accounting discretion to manipulate financial information. In immature financial markets, with large imbalances of information and opacity, investors may not be able to discriminate between which companies give good or which companies give bad information (Akerlof 1970; Saona and Vallelado 2012). Consequently, concerning inefficient financial markets in Latin America, managers have more room to manipulate the financial

statements. However, regarding the legal and regulatory systems, we conclude that they are an efficient monitoring mechanism, since the opportunistic behavior of managers is mitigated.

We derive from this that it is necessary for governments, institutions, and policy makers to develop policies that promote market efficiency. Similarly, policies that more effectively protect the rights of minority shareholders are needed, because they have a greater risk of expropriation in emerging markets than in developed markets. Consequently, we argue that more efficient markets might eliminate opacity and information asymmetries, which eventually will decrease managers' discretionary power.

Several directions arise for future research. Ownership concentration is particularly concentrated in Latin American countries as well as the formation of pyramidal structures dominated by family-owned firms. Consequently, corporate ownership structure, interacted with other governance mechanisms such as the characteristics of the board of directors, might shed some further light on the opportunistic managerial behavior as a result of the inside-firm dynamics in the composition of governance structures. Additionally, this work might be extended toward other smaller markets in the Latin American region. We have focused on the major economies in this work, but many other smaller countries in the region have not been subjected to empirical analysis.

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Supplementary Information

Supplemental data for this article can be accessed on the publisher's website.

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Notes

1. There are two kinds of earnings management techniques: The accounting methods and the operating methods (Tirole 2006). This work is only focused on the accounting methods.

2. In fact, Bebchuk and Hamdani (2009) argue that all the effort invested in creating a composite index of corporate governance is worthless unless ownership structure is not incorporated.

3. This regulation came after a series of financial scandals involving accounting irregularities and share price manipulation in several leading companies of that time, such as the energy company Enron, Worldcom, and Tyco, among many others, which filed restated financial results with the Securities Exchange Commission (SEC) during 2001 and 2002.

4. Updated information can be downloaded from the permanent URL http://go.worldbank.org/X23UD9QUX0.

5. Updated information can be downloaded from www.govindicators.org.

6. An exogenous variable is that whose values are given and are not affected by the variable to be explained, which is said to be endogenous. As a result, there is an endogeneity problem when some of the explanatory variables are not strictly exogenous.

7. Several standard diagnostic tests for panel data are used. The Hansen/Sargan test assesses the model specification validity (Hansen, Heaton, and Yaron 1996). This test examines the lack of correlation between the instruments and the error term. The AR(2) statistic measures the second-serial correlation. The Wald test of joint significance is also used to assess the significance of all the independent variables in the sample. We conduct the variance inflation factor (VIF) as a formal test to ensure that multicollinearity does not bias our results in the models' estimation. Finally, the Lind-Mehlum contrast is used to study the statistical significance of the non-monotonic relationships suggested in this study (e.g., the cases of leverage and the insider ownership). As observed in all the regression outputs, the results are robust according to these diagnostic tests.

8. To do so, we must compute the first derivative of this regression relative to the *LevB* variable, and then make it equal to zero. After that we must solve for *LevB* that represents the point at which the discretional accruals are maximized. Specifically speaking, this solution takes the form: $\frac{\partial \text{DACC1}}{\partial \text{LevB}} = 0.0122 - 2 \times 0.0502 \times \text{LevB} = 0$ from the first regression output in Table 4. Consequently, when LevB = 12.15%, the earnings management are maximized.

9. As described at the lowermost of the table, we used the appropriate Lind and Mehlum (2010) test to accept the hypothesis that the there is a statistically significant inverse U-shaped relationship between the firm's leverage and the earnings manipulation.

10. Similar regressions were computed by using *Div*2 calculated as the absolute value of the cash dividends divided by the previous year after-tax income. The results were comparable to those shown in Table 4, **5**, **7**, **8**, **a**nd 9 although with some loss of significance in some estimations. For space-saving reasons, these results are not included in this work, but they are available upon request to the corresponding author.

11. To do so, we must compute the first derivative of this regression relative to the *InsOwn* variable, and then make it equal to zero. After that, we must solve for *InsOwn* that represents the point at which the discretional accruals are minimized. Calculations are like those already described in Footnote 8.

12. Originally, the models used the *Z1* variable. However, for most of the regressions, this variable was not statistically significant (not reported here for space-saving reasons). Consequently, we decided to use *Z2* variable that had much better explicative power than *Z1*. As it was mentioned in the Supplementary Material available online, *Z1* is based on the formulation for developed countries (Altman 1968), while *Z2* is based on the computation for emerging economies (Altman 2005). Therefore, we believe that *Z2* is more suitable for the goals of this article than *Z1*.

13. Computed as the arithmetic mean of the coefficient for *IFRS* variable among the 12 regressions in Table 5.

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