

Do Financial Analysts Curb Earnings Management?

International Evidence

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Abstract

We investigate the role of analyst following as a monitoring device to reduce earnings management. We hypothesize that analysts will be more effective monitors in transparent environments than in opaque environments. We find empirical support for this hypothesis, in a sample of 51,401 observations for 10,866 non-financial firms in 26 countries from 1994 to 2002. We find that the more transparent the country, the stronger the reduction in earnings management activity associated with analyst following. Our results are robust to checks for reverse causality, and to our choice of earnings management measure.

Key words: analyst following, earnings management, international comparison.

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1. Introduction

Earnings management by companies has been documented for a long time¹. The magnitude of the problem has recently appeared in the spotlight, with major scandals around the world shaking investors' faith in company accounts (Enron, WorldCom and Parmalat are prime examples). Financial analysts have come under the accusation of encouraging earnings management, by effectively setting targets impossible to meet for company managers – except by manipulating company performance². Systematic evidence supports these claims. For example, using U.S. data, Degeorge, Patel and Zeckhauser (1999) find that companies appear to strive to meet or exceed the analyst consensus forecast of quarterly earnings. Moreover, Graham, Harvey and Rajgopal (2004) find that top U.S. executives are willing to give up positive NPV projects to meet earnings benchmarks. This suggests that (1) earnings management may have large social costs, and (2) analyst following may encourage earnings management.

In this paper, we ask whether analyst following might *curb* earnings management by companies. While this question might sound strange in the current corporate governance context, it should be recalled that analysts are (or should be) careful monitors of company performance. To the extent that analysts perform their duties with even a modicum of diligence, the very fact that they may watch and embarrass corporate management may act as a deterrent to earnings management activities. Other things equal, a company followed by security analysts may have less leeway to manipulate its earnings.

Our central hypothesis is that the effectiveness of analyst following as a curb on earnings management depends on the informational context in which companies are operating. In

¹ See the numerous surveys (Barnea et al., 1976; Imhoff, 1977; Ronen and Sadan, 1981; Buckmaster, 1992, 1997; Healy and Wahlen, 1999; Dechow and Skinner, 2000; Fields et al., 2001; Stolowy and Breton, 2004).

² See Arthur Levitt's 1998 speech at <http://accounting.rutgers.edu/raw/aaa/newsarc/pr101898.htm> and Fuller and Jensen (2002).

transparent national environments, characterized by high disclosure standards, analysts have access to timely and reliable information on the firms they follow, and on comparable companies. We posit that in a transparent national environment, analysts can perform their monitoring activity more effectively, and may be able to curb earnings management. By contrast, in opaque national environments, characterized by low disclosure standards, analysts' access to information is too patchy for them to be able to perform their duties effectively. In such contexts, it is unlikely that analyst following would act as a curb on earnings management.

The informational environment in which analysts operate is largely determined by national laws and regulations. We compare the effect of analyst following across 26 countries, using a sample of over 50,000 company-years. We find that the curbing effect of analyst following on earnings management activity is significantly more pronounced in transparent countries. Controlling for firm characteristics and country-specific effects, analyst following in the most transparent countries is associated with a reduction of absolute discretionary accruals (our measure of earnings management activity) of 0.30% of total assets – roughly 10% of income before extraordinary items for the average firm in our sample. By contrast, in less transparent countries, analyst following is not associated with less earnings management – in fact, we find that in the least transparent countries, analyst following is associated with an *increase* in our earnings management measure.

We address a couple of robustness concerns. We perform checks to ensure that our results are not driven by a potential reverse causality problem. We also compare our measure of earnings management with other measures used in the literature. Overall, our measure appears broadly consistent with those used by other authors. Finally, we address the apparent paradox between our findings and Degeorge, Patel and Zeckhauser (1999) who argue that the desire to meet the analyst's consensus induces earnings management.

To the best of our knowledge, our study is the first to address the effect of analyst following on earnings management. Other studies have compared earnings management across countries: Leuz, Nanda and Wysocki (2003) (LNW in the rest of the paper) find that earnings management is significantly higher in countries with lower investor protection. Bhattacharya, Daouk and Welker (2003) find that an increase in overall earnings opacity in a country is linked to an economically significant increase in the cost of equity and an economically significant decrease in trading in the stock market of that country. Haw et al. (2004) provide evidence of the role of both legal and extra-legal institutions in limiting the income management induced by the detachment of control rights from the cash flow rights of ultimate owners.

The remainder of this paper is organized as follows. Section 2 develops our research hypothesis. In section 3 we discuss our methodology and our sample selection. Section 4 presents our empirical results. Section 5 discusses our findings, and section 6 concludes.

2. Analyst following, earnings management, and transparency

Financial analysts have not received a favorable press lately. They have been at the center of major corporate governance scandals. They have been accused of being incapable of predicting them³, and perhaps even willing to condone the dubious activities of their corporate clients, for fear of losing their business. Worse, financial analysts have been accused of encouraging questionable earnings management practices. For earnings forecasts issued by financial analysts have progressively evolved into crucial targets that companies' executives strive to meet. By setting impossible hurdles to clear, analysts have in effect encouraged companies to manage their earnings. In Michael Jensen's words:

³ In October 2001, one week before Enron collapsed, a Goldman Sachs analyst published a recommendation on Enron beginning with "Still the best of the best." The full text of this recommendation can be found on the Web (see, e.g., <http://www.actwin.com/kalostrader/Analysts.html>).

“Earnings management” has been considered an integral part of every top manager’s job. But when managers smooth earnings to meet market projections, they’re not creating value for the firm; they’re both lying and making poor decisions that destroy value” (Jensen, 2004, p. 3).

In this context, the very suggestion that financial analysts might contribute to the solution, rather than to the problem of establishing good corporate governance, may seem incongruous. It was not always so. Consider this excerpt from Jensen and Meckling’s 1976 seminal article:

We would expect monitoring activities to become specialized to those institutions and individuals who possess comparative advantages in these activities. One of the groups who seem to play a large role in these activities is composed of the security analysts employed by institutional investors, brokers and investment advisory services [...] To the extent that security analysts activities reduce the agency costs associated with the separation of ownership and control they are indeed socially productive (Jensen and Meckling, 1976, p. 354).

Thus the effect of analyst following on earnings management by companies is a priori ambiguous. As monitors, analysts may curb earnings management. As participants in a contorted “earnings game” in which companies pump up earnings to reach or exceed analyst forecasts, analysts may (more or less unwittingly) encourage earnings management⁴.

When is analyst following most likely to function effectively as a monitoring mechanism? Consider two possible stylized informational environments in which an analyst might operate: in the first environment, which we label transparent, disclosure requirements are high, and are enforced. Information about companies is plentiful and reliable. An analyst following firm A can obtain data on A’s activities, projections, strategies, and financial policies. He can also compare the information about A with information about companies B and C, comparable firms in the same industry – in effect benchmarking A’s actions and performance. In the second environment, which we label opaque, disclosure requirements are minimal, and are not enforced. An analyst following firm X has to rely on voluntary and unverifiable disclosures from X to make an assessment of the firm’s quality and prospects. It is hard for him to compare company X with

⁴ See Collingwood (2001).

comparable companies Y and Z, for information about all three companies is patchy and unreliable.

Our central hypothesis is that a security analyst is more effective in his monitoring role in a transparent environment than in an opaque environment. More specifically, we predict that analyst following will curb earnings management more effectively in a transparent environment than in an opaque environment.

Previous work has documented differences in market openness across countries. We rely on these studies for our measure of transparency. LNW construct three country clusters based on various measures of financial market's openness⁵. La Porta et al. (2003) construct a country-level index of disclosure requirements. They report that their disclosure index is highly correlated with the origin of the countries' legal systems. Common law countries score higher on the disclosure index than code law countries. Finally, we use a widely accepted measure of the quantity of financial information in financial reports, the *Disclosure index* (Center for International Financial Analysis & Research - CIFAR, 1991). We use these three country classifications (clusters, legal tradition and *Disclosure index*) as measures of transparency.

We now state our research hypothesis:

Hypothesis: Analyst following will be more effective at curbing earnings management in more transparent countries.

⁵ "The first cluster is characterized by large stock markets, low ownership concentration, extensive outsider rights, high disclosure, and strong legal enforcement. The second and third clusters show markedly smaller stock markets, higher ownership concentration, weaker investor protection, lower disclosure levels, and weaker enforcements" (LNW, p. 519).

3. Methodology and sample

3.1 Methodology

Healy and Whalen (1999) define earnings management as the alteration of firms' reported economic performance by insiders either to mislead some stakeholders or to influence contractual outcome such as to avoid the violation of debt covenants or political costs (Watts and Zimmerman, 1986). To measure earnings management, we use discretionary accruals, a widely-used measure in the accounting literature since Healy's seminal article in 1985. Accruals are adjustments to the cash flows to generate net earnings:

$$Earnings_t = cash\ flow_t + accruals_t$$

Accruals may have legitimate accounting purposes. For example, depreciation allowances reflect the ageing of assets. Accruals may also serve to manage companies' earnings. From the viewpoint of the researcher, the challenge is to disentangle the legitimate, non-discretionary portion of accruals, from its discretionary part:

$$accruals_t = discretionary\ accruals_t + normal\ accruals_t$$

According to Healy (1985, p. 89), non discretionary accruals are "the adjustments to the firm's cash flows mandated by the accounting standard-setting bodies", whereas discretionary accruals are "adjustments to cash flows selected by the manager". To compute discretionary accruals, we need first to model expected total accruals. Discretionary accruals are then defined as the difference between total and expected accruals:

$$\frac{DA_{i,t}}{TA_{i,t-1}} = \frac{TAc_{i,t}}{TA_{i,t-1}} - \frac{EAc_{i,t}}{TA_{i,t-1}}$$

Subscripts t and i respectively refer to time and to firm. DA means discretionary accruals, TAc 'total accruals' (change in non cash current assets minus change in operating liabilities minus the depreciation charge), TA means 'total assets', EAc are 'expected total accruals'.

There are two constituents of total accruals:

- (1) *Long term accruals* relate to the recognition in the income statement of long term assets (property, plant and equipment): the depreciation and amortization charge.
- (2) The counterpart of recognizing in the income statements sales instead of cash revenues is the change in receivables. The counterpart of recognizing expenses instead of cash outflows is the change in inventory and the change in current liabilities. These adjustments (change in non cash current assets minus change in operating liabilities) are labeled *short term accruals*.

For a given set of comparable firms we can expect that total accruals are roughly proportional to the change in net sales and to the gross value of property, plant and assets because of the rationale for the accruals process. As suggested by DeFond and Subramanyam (1998) and Becker et al. (1998), we consider that the accrual process is comparable among firms of the same industry. In each country, for each year and each industry, we estimate Equation 1 using OLS:

$$\frac{TAc_{c,ind,t}}{TA_{c,ind,t-1}} = \alpha_{c,ind,t} * \frac{1}{TA_{c,ind,t-1}} + \beta_{c,ind,t} * \frac{\Delta Sales_{c,ind,t}}{TA_{c,ind,t-1}} + \lambda_{c,ind,t} \frac{PPE_{c,ind,t}}{TA_{c,ind,t-1}} + \varepsilon_{c,ind,t} \quad (\text{Eq. 1})$$

where *c*, *ind* and *t* are respectively country, industry and year specific, $\Delta Sales$ stands for ‘change in net sales’, *PPE* is ‘property, plant and equipment’, all other variables are as previously defined. ε is the error term. Since ε is heteroskedastic, all variables are scaled by lagged total assets.

α , β and λ are country, year and industry specific. Following Jones (1991) and Dechow, Sloan and Sweeney (1995), we compute expected accruals by combining real data of the firm ($\Delta Sales$, *PPE*) with the estimated coefficients (α and β and λ) of the previous year as in equation 2. Thus, expected accruals represent an estimate of the normal level of accruals for a firm given its size and its industry. We then define discretionary accruals ($DA Jones_{it}$) as the difference between actual accruals and expected accruals:

$$DA Jones_{it} = \frac{TAc_{i,t}}{TA_{i,t-1}} - \underbrace{\left[\alpha_{c,ind,t-1} * \frac{1}{TA_{i,t-1}} + \beta_{c,ind,t-1} * \frac{\Delta Sales_{i,t}}{TA_{i,t-1}} + \lambda_{c,ind,t-1} \frac{PPE_{i,t}}{TA_{i,t-1}} \right]}_{\text{Expected accruals for } i \text{ in year } t} \quad (\text{Eq. 2})$$

Companies may manage their earnings upward or downward, depending on their situation. In most of our analyses, we do not condition on individual companies' economic situations, and we have no prior views on the direction of earnings management. Accordingly, we use the absolute value of discretionary accruals as our primary earnings management measure.

Sample

Our initial sample includes firms from 42 countries, a subset of that used in La Porta et al. (1997). Seven countries out of the 49 in their sample were not covered in our primary database sources. We obtain financial accounting information from the December 2003 version of the Global (Standard and Poor's) database (formerly known as "Global Vantage"), and coverage information from the I/B/E/S database. Global does not contain pre-1992 data, so we can compute total accruals from 1993 to 2002. Since we compute expected accruals in year t by combining year t company data with year $t-1$ coefficients, we obtain discretionary accruals from 1994 to 2002. We use two-digit GICS codes to compute the country-year-industry specific α , β and λ .

We apply a number of filtering rules to our initial sample:

- Following DeFond and Jiambalvo (1994), we drop industries with less than 7 observations.
- We drop countries with observations in less than 5 years on the 1994-2002 period and in less than 5 industries.
- Following Subramanyam (1996), we drop observations with total accruals in excess of the top or bottom 1% of the fitting sample.
- We drop countries with less than 150 observations of discretionary accruals.

This process yields a final sample of 51,401 observations from 26 countries.

Insert Table 1 About Here

Table 1 presents descriptive statistics of sample countries for discretionary accruals, institutional variables, and analyst following. As noticed before by LNW (p. 512-513), there is

significant variation in the number of firm-year observations across countries due to differences in capital market development, country size, and the availability of complete financial accounting data. Earnings management activity ranges from 4.69% of lagged total assets (in Japan) to 8.80% (in Indonesia). Our sample covers both legal traditions, with 10 common law countries and 16 code law countries. Institutional factors exhibit variance in terms of financial systems structure (*finance aggregate, structure aggregate and importance of equity markets*), transparency (*disclosure*) and distribution of power (*ownership concentration, investor rights and legal enforcement*). Our sample comprises countries from the three clusters defined by LNW. The average percentage of firms covered by at least one analyst in our sample is 74%.

4. Analyst following and earnings management activity

4.1 Univariate results

Table 2 reports average earnings management activity by country, breaking down our sample according to whether companies are followed by analysts or not. In Panels A, B and C we group countries according to their institutional cluster as defined by LNW.

Insert Table 2 about here

A comparison of our earnings management measure in the “not followed” and the “followed” columns of Table 2 offers a first-cut validation of our research hypothesis. In cluster 1 countries (the most transparent) earnings management is lower for followed firms by 0.61% of total assets on average – vs. 0.39% for cluster 2 countries (medium transparency). In cluster 3 countries, earnings management is actually slightly *higher* for followed firms.

In Table 3, we group countries according to their legal origin. Our results are qualitatively similar to those of Table 2. In common law countries, earnings management is lower for companies followed by analysts than for companies not followed by 0.56% of total assets – vs. 0.19% for code law countries.

Table 4 ranks countries according to the *Disclosure index* (Center for International Financial Analysis & Research - CIFAR, 1991), which represents an index created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items. For firms followed by analysts, earnings management appears strongly negatively correlated with the level of disclosure. Such is not the case for firms not followed by analysts.

Overall, the picture emerging from Tables 2 to 4 suggests a confirmation of our research hypothesis: in transparent countries, analyst following is associated with lower levels of earnings management, while in opaque countries, the difference is much less pronounced (if at all present).⁶

Insert Tables 3 and 4 about here

4.2. Multivariate results

We now investigate the role of financial analyst on earnings management in a multivariate setting. We use three alternative measures to rank countries by level of transparency: the institutional clusters of LNW, the legal tradition (La Porta et al., 1998)) and the Disclosure index (Center for International Financial Analysis & Research - CIFAR, 1991).

4.2.1. Comparison across clusters of countries

Using a panel data regression, we estimate the following equation:

$$\begin{aligned} |\text{DA Jones}| = & \alpha_0 + \alpha_1 \text{Following} + \alpha_2 \text{Following} * \text{Cluster2} \\ & + \alpha_3 \text{Following} * \text{Cluster3} + \alpha_4 \text{Cluster2} + \alpha_5 \text{Cluster3} + \alpha_6 \text{Size} \quad (\text{Eq. 3}) \\ & + \alpha_7 \text{Leverage} + \sum_{h=10}^{55} \alpha_{9,h} \text{Industry}_h + \sum_{k=1}^{26} \alpha_{10,c} \text{Country}_c + \varepsilon_{i,t} \end{aligned}$$

Where:

⁶ Patterns are similar when we compare median values median across clusters.

<i> DA Jones </i>	=	Absolute value of discretionary accruals (Jones, 1991)
<i>Following</i>	=	Dummy variable coded 1 if the firm is followed by at least one analyst in that year, zero otherwise
<i>Cluster 2</i>	=	Dummy coded 1 if the firm-year is from the institutional cluster 2, 0 otherwise
<i>Cluster 3</i>	=	Dummy coded 1 if the firm-year is from the institutional cluster 3, 0 otherwise
<i>Following*Cluster2</i>	=	Interaction variable between <i>Following</i> and <i>Cluster 2</i>
<i>Following*Cluster3</i>	=	Interaction variable between <i>Following</i> and <i>Cluster 3</i>
<i>Size</i>	=	Ranges from 1 to 10. It is computed as the decile (1 lowest size, 10 biggest) of total assets for the firm-year. Deciles are computed country by country.
<i>Leverage</i>	=	Ratio of total debts to total assets.
<i>Industry</i> and <i>Country</i>	=	Fixed effects refer to estimation with fixed-industry, and fixed-country dummies.

As reported in Table 5, we use four variations of equation 3:

- (1) With *Following* only
- (2) With *Following*, the interaction between *Following* and *Clusters 2* and *3*, and with the *Clusters 2* and *3*
- (3) With the preceding variables and the adjunction of *Size* and *Leverage*
- (4) With the preceding variables and fixed effects for country and industry.

Insert Table 5 about here

Panel A of table 5 reports the coefficients and their significance levels for the four variations of our model. The focus of our research hypothesis is on the dummy variable *Following*, and on the interactions terms *Following*Cluster 2* and *Following*Cluster 3*. The coefficient on the dummy variable *Following* represents the effect of analyst following on earnings management for companies in cluster 1 (the most transparent countries). In every specification of our model, this coefficient is negative, and it is always statistically significant at the 5% level. It is also economically significant: controlling for company characteristics, time, industry, and country fixed effects (Table 5, Panel A, column 4), in the most transparent countries analyst following is associated with a reduction in earnings management of 0.3% of total assets. In our sample income

before extraordinary items represents 3% of total assets on average: thus in transparent countries, the average reduction in earnings management associated with analyst following is worth about 10% (0.3%/3%) of income before extraordinary items⁷.

This finding is in stark contrast with the result we obtain for clusters 2 and 3 (medium transparency and opaque countries) as shown in Table 5, Panel B. In cluster 2, analyst following is associated with no change in earnings management activity. In cluster 3, the increase (0.43%) is statistically and economically significant.

These findings offer strong support for our research hypothesis that the curbing effect of analyst following on earnings management increases with transparency. However, we also uncover a puzzle: analyst following appears to be associated with an increase in earnings management in opaque countries. Might our modeling or sampling choices drive this puzzling finding, as well as our main result? To check this possibility, we verify the consistency of other results reported in Table 5 with those reported in previous studies. LNW find a higher level of earnings management in clusters 2 and 3 than in cluster 1. We report a similar finding: in the full model (specification 4) companies in clusters 2 and 3 engage in significantly more earnings management activity than companies in cluster 1⁸.

In specifications 3 and 4, we include *Size* and *Leverage* as control variables. *Leverage* is positively and significantly related to the level of discretionary accruals, suggesting that firms manage their earnings to avoid the violation of implicit or explicit debt covenants (Watts and Zimmerman, 1986).

⁷ Extraordinary items are computed by Global and not as reported by firms. Their mean approximately equals zero.

⁸ In fact, our empirical design enables us to reinforce the LNW result, since we control for company characteristics that may affect earnings management: to the extent that the distribution of these characteristics differs across clusters, studies based on country-level data only are potentially subject to an omitted variables problem. Our findings suggest that this concern is unwarranted here.

Overall, our ancillary findings conform well to those of previous work, and sometimes reinforce them. This increases our confidence that our main finding – in transparent countries analyst following is associated with a decrease in earnings management activity – is not spurious.

4.2.2. Comparison across legal traditions

We redo the same analysis using legal tradition as our measure of transparency. La Porta et al. (2003) construct a country-level index of disclosure requirements, and they report that their disclosure index is highly correlated with the origin of the countries’ legal systems: common law countries score higher on the disclosure index than code law countries. Accordingly, we label common law countries “transparent” and code-law countries “opaque.” We estimate the following model (panel data regression):

$$|DA\ Jones| = \alpha_0 + \alpha_1 Following + \alpha_2 Following * Code\ law + \alpha_3 Code\ law + \alpha_4 Size + \alpha_5 Leverage + \sum_{h=10}^{55} \alpha_{7,h} Industry_h + \sum_{k=1}^{26} \alpha_{8,c} Country_c + \varepsilon_{i,t} \quad (Eq. 4)$$

Table 6 reports the results of these regressions.

Insert Table 6 about here

For transparent countries, analyst following is associated with a negative effect on earnings management in almost all of our four specifications. The magnitude in the full model (specification 4) is 0.24% of total assets, similar to what we found using the LNW clusters as a proxy for transparency. In code law countries, analyst following is associated with an insignificant 0.01% increase in earnings management.

4.2.3. Comparison across levels of disclosure

We redo the same analysis using the *Disclosure index* (Center for International Financial Analysis & Research - CIFAR, 1991) as our measure of transparency. We estimate the following panel data model:

$$|DA Jones| = \alpha_0 + \alpha_1 Following + \alpha_2 Following * Disclosure + \alpha_3 Disclosure + \alpha_4 Size + \alpha_5 Leverage + \sum_{h=10}^{55} \alpha_{7,h} Industry_h + \sum_{k=1}^{26} \alpha_{8,c} Country_c + \varepsilon_{i,t} \quad (\text{Eq. 5})$$

Table 7 reports the results of these regressions.

Insert Table 7 about here

Consistent with our research hypothesis, the coefficient on the interaction term between *Following* and *Disclosure* is statistically significant at the 5% level and negative (-0.025%): the more transparent the country, the less earnings management for firms followed by at least one analyst. Combining this estimate with the coefficient on the *Following* dummy variable, we can compute the level of disclosure for which analyst following is associated with a decrease in earnings management, we find a level of 65 (0.016276/0.000252), close to the median of the *Disclosure Index* in our sample (which equals 68). For transparent countries (*Disclosure Index* above 66), analyst following is associated with a negative effect on earnings management in all of our four specifications. The sign and the magnitude of all other coefficients are consistent with Tables 5 and 6 and with previous literature. As LNW with find the earnings management is negatively associated with investor protection. As Watts and Zimmerman (1986) posit, earnings management and *Size* are negatively associated, earnings management and *Leverage* are positively related.

From tables 5, 6 and 7, we find that our results are robust to our measure of transparency.

4.3. Robustness checks

We address a couple of concerns about the interpretation of our results: first, might our main result be driven by reverse causality? Such would be the case if analyst following was endogenous, and analysts chose to follow firms that they knew, or suspected, managed their earnings less. We address this issue by re-running our models using an instrumental variable approach. Second, might our results be driven by our measure of earnings management? We have

partially addressed this issue above, and our diagnostic was encouraging, as we were able to replicate several findings reported in previous studies. We take a deeper look at this issue below.

4.3.1. Reverse causality

The results presented in tables 4 and 5 suggest that in transparent countries, analyst following is associated with a reduction in earnings management. However, analyst following may itself be a function of a firm's propensity to manage earnings. This raises a concern that our findings might be driven by reverse causality. We address this concern by using a two-stage least squares estimation.

First, we model analyst following (Logit regression, Equation 6). We then use the estimated analyst following in our model of earnings management (Panel data regression, Equation 7).

$$\left\{ \begin{array}{l}
 \text{Following}_{i,t} = \beta_0 + \beta_1 \text{Size} + \beta_2 \text{Leverage} + \beta_3 \text{Performance} + \beta_4 \text{Industry_Growth} \\
 + \beta_5 \text{Lag_Following} + \beta_6 \text{Volume} + \beta_7 \text{Volatility} \\
 + \sum_{k=1}^2 \beta_{8,k} \text{Cluster}_k + \sum_{t=1994}^{2002} \beta_{9,t} \text{Year}_t + \sum_{h=10}^{55} \beta_{10,h} \text{Industry}_h + \sum_{c=1}^{26} \beta_{11,c} \text{Country}_c + \varepsilon_{i,t}
 \end{array} \right. \quad (\text{Eq. 6})$$

$$\left\{ \begin{array}{l}
 |\text{DA Jones}| = \alpha_0 + \alpha_1 \text{Est Following} + \alpha_2 \text{Est Following} * \text{Transparency measure} \\
 + \alpha_3 \text{Transparency Measure} + \alpha_4 \text{Size} + \alpha_5 \text{Leverage} \\
 + \sum_{h=10}^{55} \alpha_{9,h} \text{Industry}_h + \sum_{c=1}^{26} \alpha_{10,c} \text{Country}_c + \delta_{i,t}
 \end{array} \right. \quad (\text{Eq. 7})$$

Performance is the return on assets.

Industry_growth is the average sales growth of the industry. This variable is computed for each industry of each country. Firms are matched to industries according to their two-digit GICS code.

Lag_Following is a dummy variable coded 1 if the firm was followed one year before.

Volume is the average daily trading volume.

Volatility is the standard deviation of daily stock returns.

Est_following is the estimated following from equation 5. We use three measures of transparency: *Clusters* of LNW, *Legal tradition* of Laporta et al. 1998 (1998) and the *Disclosure Index* from CIFAR (1991).

Based on the literature on the determinants of analyst following (e.g., McNichols and O'Brien, 2001) we instrument analyst following with size, leverage performance, industry growth, trading

volume and stock return volatility. We include a dummy for lagged following, and control dummies for countries, industries and time. The logit regression based on equation 6 exhibits a pseudo R^2 of almost 60% (results not tabulated). We then include estimated analyst following (*Est Following*) in the full model presented in section 4.2.

Table 8 reports the results of the second-stage regression. We use LNW's clusters, legal origin and *Disclosure Index* as our transparency measure. The panel data regression hierarchy of effects is still present: analyst following is associated with a reduction of earnings management in transparent countries, and with an insignificant change, or an increase, in more opaque environments. If anything, the 2SLS results are amplified relative to the OLS results. We conclude that the endogeneity of analyst following is not driving our main finding.

Insert Table 8 about here

4.3.2. *Earnings management proxies*

A second potential concern is our choice of discretionary accruals as our measure of earnings management. Wysocki (2004) addresses this issue directly and proposes benchmarks to assess earnings management measures. He deems an earnings management measure acceptable if it correlates well with country characteristics that LNW have shown to be associated with earnings management. We replicate his approach. We evaluate two proxies for earnings management: the absolute value of discretionary accruals, $|DA\ Jones|$, a fairly standard measure in the literature, which we use, and the earnings management proxy devised by LNW.

First, we examine whether the details of sample construction and filter rules may affect our results relative to LNW. We collected the values of the earnings management proxy computed by LNW, and we computed the values of their proxy on our sample. Panel A of table 9 reports a very strong correlation (0.8642) between these two sets of values. This suggests that our sample construction method exhibits no idiosyncracies.

Next, we compute the correlations between several measures of earnings management, including $|DA\ Jones|$, the one devised by LNW, and the ratio of absolute accruals to absolute cash from operations. Like Wysocki (2004), we find no significant correlation between $|DA\ Jones|$ and the LNW proxy, as computed by LNW on their sample or by us on our sample. Wysocki (2004) proposes to benchmark earnings management proxies with the ratio of accruals to cash from operations (both variables in absolute value). Unlike Wysocki (2004), we find a significant correlation between $DA\ Jones$ and this ratio in our sample. This difference could be due to the fact that our sample consists of 26 countries, while Wysocki (2004) uses a sample of 22 countries.

Insert Table 9 about here

Finally, we examine how well $|DA\ Jones|$ and $EM(LNW)$ correlate with various economic and institutional variables. We report our results in Table 9, Panel B. $|DA\ Jones|$ and $EM(LNW)$ (whether measured on our sample or on LNW's) exhibit similar correlations with the disclosure, importance of equity markets and private control benefits measures we find similar results for all three proxies. As to Enforcement/Ability to sue, our results are somewhat sensitive to the choice of institutional proxy. Like Wysocki (2004), we find no significant correlation between *Private Enforcement* (*Public Enforcement*) and $|DA\ Jones|$, whereas the correlation is significant and negative with $EM(LNW)$ measure. However, if we use other, equally plausible proxies for Enforcement/Ability to sue, the results are reversed. We find a strong and significantly negative correlation between *Finance aggregate* (*Legal enforcement*) and $|DA\ Jones|$, but not such correlations with $EM(LNW)$.

Overall, we find that by the Wysocki (2004) standard, at the country level our proxy of earnings management does not differ in quality from LNW's proxy. However, discretionary accruals have an advantage over country-level measures. They are a company-level measure

allowing us to interact company-specific measures (size, leverage or analyst following) with country-specific institutional variables.

5. Discussion

Our results so far suggest that in transparent economies, analyst following acts as a curb on earnings management. While this finding confirms our central research hypothesis, it does raise an apparent paradox. At least in the United States – a transparent country by any measure – companies are widely thought to manage their earnings to exceed the market consensus forecast. The U.S. executives surveyed by Graham, Harvey and Rajgopal (2004) admit as much. Degeorge, Patel and Zeckhauser (1999) find that an abnormally high number of companies report earnings that just meet or exceed the consensus number, suggesting manipulation. And many anecdotes indicate that the wish to make the numbers is a prime motivation of earnings management. In an infamous example, in late 1997 U.S. appliance manufacturer Sunbeam offered big discounts to retailers to buy barbecue grills at Christmas time. Under the “bill-and-hold” plan, Sunbeam clients did not have to pay for the grills or accept delivery of them for six months⁹. Coupled with our findings, this evidence raises a paradox because the importance of meeting financial market expectations should be all the higher as an economy is transparent and has well-developed equity markets. If this is so, we should expect *more* earnings management in transparent economies to meet the consensus.

A quick inspection of our dataset does indeed suggest that the consensus forecast is a more important focal point in transparent countries than in opaque countries. Consider the percentage of earnings numbers that are close to the consensus forecast (either small negative earnings surprises – hereafter SNES – or small positive earnings surprises – hereafter SPES). In

⁹ See “He anointed himself America’s best CEO. But Al Dunlap drove Sunbeam into the ground,” Business Week, October 18, 1999.

the United States, “close” would probably be defined as two cents below (henceforth, SNES: small positive earnings surprises) or above the estimate (henceforth, SPES: small positive earnings surprises). The median stock price of U.S. firms in our sample is \$15, so that we define a small earnings surprise as within 0.13% of the stock price ($0.13\% = 0.02/15$). Table 10, Panel A, illustrates the varying importance of the consensus forecast across transparency levels. In transparent countries (i.e., *cluster 1*, *common law* countries or countries with a *Disclosure Index* higher than 68), about 25% of the reported EPS in our sample are near the consensus. This proportion falls to 12% in opaque countries (*cluster 2* or *code law* countries, countries with a *Disclosure index* below 68). This might merely reflect a better quality of analyst forecasts in transparent countries. However, the distribution of SNES and SPES is strongly asymmetrical in transparent countries (twice as many SPES as SNES), and roughly symmetrical in opaque countries (see the last column of Panel A, Table 10)¹⁰. This is consistent with two non-mutually exclusive phenomena: (1) forecast management by companies in transparent countries – executives try to downplay analysts’ expectations to make it easier to exceed them, or (2) earnings management by companies in transparent countries to exceed the consensus forecast. (Brown and Higgins, 2001) report a similar asymmetry and interpret it as evidence of forecast management. While this interpretation is perfectly reasonable, we wish to examine whether the second interpretation might have some validity – in spite of the findings we report in section 4.2.

How could companies followed by financial analysts in transparent countries manage their earnings to exceed the consensus forecast – but manage their earnings less overall than companies not followed by financial analysts? To resolve this apparent paradox, it is useful to delve a little deeper into the details of earnings management. Recall that accruals come in two varieties, long accruals – which involve long-term decisions about how to depreciate assets – and

¹⁰ This result is robust to the interval used to define a “small” earnings surprises (intervals of +/- 0.15%, 0.2% and 0.25% were tested).

short-term accruals – which involve decisions about working capital (inventories, receivables and current liabilities). Consider a company striving to meet a market earnings forecast. Playing with long-term depreciation to achieve this goal is impractical, as it is highly visible and not easily reversible. Convincing clients to take part in a “bill-and-hold” scheme of the Sunbeam variety may be easier and less visible. It follows that any difference between transparent and opaque countries in the propensity to manage earnings to exceed thresholds should show up in short-term accruals, not long-term accruals. The measure of earnings management we have used so far, $|DA Jones|$, is the sum of short-term and long-term discretionary accruals. We now focus on short-term measure discretionary accruals, which we label $|SDA|$. Table 10, Panel B, reports mean earnings management for firms experiencing SNES and SPES. Whereas we find no significant difference in $|DA Jones|$ between SNES and SPES firms, we find that short discretionary accruals ($|SDA|$) are higher in the area of SPES than in the SNES’ region (p -value for difference in means < 0.0001).¹¹

In Panels C and D, we push the analysis further by distinguishing the level of earnings management in transparent (*cluster 1* countries, *common law* countries, countries with a *Disclosure Index* above 68) and opaque countries (*cluster 2* countries, *code law* countries, countries with a *Disclosure Index* below 68). We find that in transparent economies, companies experiencing SPES exhibit higher levels of short-term earnings management activity (panel C). Such is not the case for companies in opaque economies. This finding holds regardless of our measure of transparency. However, if we consider both long and short term earnings management (that is $|DA Jones|$, panel D), we find no significant difference for companies reporting an EPS above or below the consensus. We find similar results (not tabulated) if we compare earnings management of firms experiencing a SPES and small-medium positive earnings surprises

¹¹ Results are similar if we consider the algebraic value of SDA and $DA Jones$ rather than their absolute value.

(SMPES: between 0.13% and 0.26% of share price). $|SDA|$ are significantly higher in the small than in the small-medium range only for transparent countries. We find no significant differences, both in transparent and opaque countries, for total discretionary accruals between SPES and SMPES.

Overall, Table 10 indicates that, in the most transparent countries, meeting the consensus provides a strong incentive to manage earnings, but only via short discretionary accruals. This does not translate into a higher overall level of earnings management (measured by total discretionary accruals). The incentive for earnings management that financial analysts create by publishing forecasts that turn into earnings targets is more than offset by the beneficial effects of analyst monitoring.

6. Conclusion

This study provides evidence of and insight into the role of financial analysts as a curb on earnings management. We hypothesize that analyst following will be most effective in transparent countries. We find support for this hypothesis. In transparent countries, analyst following is associated with a statistically and economically significant reduction in earnings management. Surprisingly, we find that in the least transparent countries analyst following is associated with an increase in earnings management. Our results are robust to reverse causality checks and to our choice of measure of earnings management.

This paper contributes to the debate on the role of financial analysts in market-based economies. Recently, financial analysts have come under much criticism, as evidence has accumulated that companies manage their earnings to beat or exceed analyst forecasts. This phenomenon notwithstanding, our findings suggest that in a transparent environment, analysts exert a significant monitoring role and can help reduce earnings management. They also suggest

that the positive impact of analyst following vanishes in opaque environments – or even reverses itself, depending on the measure of transparency we use.

More broadly, our paper contributes to the comparative economics literature. Our finding that private monitoring activity interacts with country-level institutional characteristics suggests that previous, country-level work may actually have underestimated the corporate governance costs of poor institutions.

In our interpretation of the statistical association between analyst following, we have pushed a causality view. Our robustness checks for reverse causality reinforce our confidence in this view. However, we cannot completely exclude that the causality links between analyst following and earnings management run in both directions. Even in this “milder” interpretation, we believe our results would still be of interest, because they would suggest that users of financial information can expect the earnings of companies followed by analysts to be less managed than those of companies not followed.

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Table 1

Descriptive statistics of sample firms, countries, discretionary accruals, institutional variables, and analyst following

The full sample consists of 51,401 firm-year observations for the fiscal years 1994 to 2002 across 26 countries and 10,866 non-financial firms. Financial accounting information is obtained from the December 2003 version of the Compustat - Global (formerly Global Vantage) Database. To be included in our sample, countries must have at least 150 firm-year observations for discretionary accruals. The classification of the *Legal Tradition* is based La Porta et al. (1998). CD(CM) indicates a code-law (common-law) country. *Mean |DA Jones|* is the average of absolute value of discretionary accruals for all observations of each country. Non expected accruals are computed according to the Jones (1991) model using a cross sectional approach (Dechow et al., 1995). *Mean |DA Jones|* proxies earnings management activity in percentage of lagged total assets. *Structure-Aggregate* is from Beck and Levine (2002). It provides a measure of the comparative role of banks and markets in the economy. It is the first principal component of two variables that measure the comparative activity and size of markets and banks. *Finance-aggregate* is from Beck and Levine (2002). It measures the level of financial development of a given country and equals the first principal component of two underlying measures of financial development. The *Importance of Equity Market* is the index devised by LNW. It is measured by the mean rank across three variables used in La Porta et al. (1997): (1) the ratio of the aggregate stock market capitalization held by minorities to gross national product, (2) the number of listed domestic firms relative to the population, and (3) the number of IPOs relative to the population. Each variable is ranked such that higher scores indicate a greater importance of the stock market. The *Disclosure Index* measures the inclusion or omission of 90 items in the 1990 annual reports of non-financial firms (La Porta et al., 1998). *Ownership Concentration* is measured as the median percentage of common shares owned by the largest three shareholders in the ten largest privately owned non-financial firms (La Porta et al., 1998). The *Investor Rights* variable is the anti-director rights index created by La Porta et al. (1998); it is an aggregate measure of minority shareholder rights and ranges from zero to five. The *Legal Enforcement* index is the measure created by of LNW. It is measured as the mean score across three legal variables used in La Porta et al. (1998): (1) the efficiency of the judicial system, (2) an assessment of rule of law, and (3) the corruption index. All three variables range from zero to ten. *Cluster* (1, 2, 3) refers to the corporate governance cluster analysis of LNW. Cluster ranges from 1 to 3: countries in cluster 1 are market-based economies or “outsider” economies (e.g., USA, United Kingdom), countries in cluster 2 represent bank-based economies (e.g., France, Germany, Japan) whereas countries in cluster 3 are found “insiders” economies (e.g., India, Italy, Spain). The last column indicated the percentage of firms covered by analysts according to the I/B/E/S database.

<i>Country</i>	<i>N</i>	<i>Legal tradition</i>	<i>Mean /DA Jones/</i>	<i>Finance aggregate</i>	<i>Structure aggregate</i>	<i>Importance of equity markets</i>	<i>Disclosure index</i>	<i>Ownership concentration</i>	<i>Investor rights</i>	<i>Legal enforcement</i>	<i>Cluster</i>	<i>% of firms covered by analysts</i>
Australia	1124	Common	5.92%	0.92	1.18	24	75	0.28	4.00	9.5	1	70%
Austria	214	Code	8.23%	0.43	-1.35	7	54	0.51	2.00	9.4	2	65%
Belgium	232	Code	6.83%	-0.15	0.63	11.3	61	0.62	0.00	9.4	2	79%
Canada	2140	Common	5.85%	0.92	1.06	23.3	74	0.24	5.00	9.8	1	69%
Switzerland	763	Code	6.23%			24.8	68	0.48	2.00	10.0	2	78%
Germany	2064	Code	7.00%	0.95	0.02	5	62	0.5	1.00	9.1	2	73%
Denmark	414	Code	6.34%	0.07	0.07	20	62	0.4	2.00	10.0	2	77%
Spain	433	Code	5.23%	0.49	-0.3	7.2	64	0.5	4.00	7.1	3	85%
Finland	324	Code	5.81%	0.25	-0.3	13.7	77	0.34	3.00	10.0	2	86%
france	2204	Code	6.09%	0.69	-0.45	9.3	69	0.24	3.00	8.7	2	73%
Great Britain	4284	Common	6.18%	0.96	1.38	25	78	0.15	5.00	9.2	1	82%
Honk Kong	380	Common	6.42%			28.8	69	0.54	5.00	8.9	1	56%
Indonesia	283	Code	8.80%			4.7		0.62	2.00	2.9	3	69%
India	813	Common	6.19%	-0.36	-0.07	14	57	0.43	5.00	5.6	3	45%
Italy	408	Code	6.08%	0.13	-0.34	6.5	62	0.6	1.00	7.1	3	70%
Japan	12785	Code	4.69%	1.73	1.07	16.8	65	0.13	4.00	9.2	2	70%
Korea	276	Code	7.45%	0.7	0.57	11.7	62	0.2	2.00	5.6	3	97%
Malaysia	2394	Common	6.71%	0.95	1.05	25.3	76	0.52	4.00	7.7	1	37%
Netherland	583	Code	6.67%	1.18	0.54	19.3	64	0.31	2.00	10.0	2	90%
Norway	294	Code	6.56%	0.59	-0.11	20.3	74	0.31	4.00	10.0	1	70%
Singapore	1141	Common	6.92%	1.51	1.42	28.8	78	0.53	4.00	8.9	1	54%
Sweden	662	Code	5.92%	0.94	0.83	16.7	83	0.28	3.00	10.0	2	81%

Thailand	959	Code	7.70%			14.3	64	0.48	2.00	4.9	3	26%
Taiwan	544	Common	6.13%			13.3	65	0.14	3.00	7.4	2	91%
USA	15510	Common	5.34%	1.44	1.1	23.3	71	0.12	5.00	9.5	1	84%
South Africa	173	Common	6.38%	1.08	1.39	16.3	70	0.52	5.00	6.4	2	96%

Table 2

Earnings management by cluster and by analyst following

This table reports earnings management activity (measured by *mean |DA Jones|*) for each country. Countries are classified according to the institutional clusters devised by LNW. Earnings management activity is tabulated for all firm-years of each country, for firms not followed by analysts and followed by analysts. Analyst following is defined in relation to firms for which an EPS (or net income) forecast is provided in the I/B/E/S database and analyst coverage comes from the I/B/E/S database. The last three rows report two-sided p-values for differences in the means of the earnings management activity across clusters using a t-test.

	Full sample		Not followed		Followed		Difference	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Panel A: countries from cluster 1 (high transparency)								
Australia	5.92%	4.50%	6.09%	4.55%	5.84%	4.47%	-0.24%	-0.07%
Canada	5.85%	4.24%	6.36%	4.92%	5.62%	4.04%	-0.74%	-0.87%
Great Britain	6.18%	4.73%	6.74%	5.31%	6.06%	4.64%	-0.68%	-0.67%
Hong Kong	6.42%	4.85%	7.00%	5.59%	5.96%	4.22%	-1.03%	-1.37%
Malaysia	6.71%	5.11%	6.86%	5.25%	6.47%	4.84%	-0.38%	-0.41%
Norway	6.56%	4.77%	7.03%	5.33%	6.35%	4.56%	-0.67%	-0.77%
Singapore	6.92%	5.38%	7.13%	5.60%	6.74%	5.03%	-0.39%	-0.57%
USA	5.34%	3.96%	5.96%	4.46%	5.23%	3.87%	-0.74%	-0.59%
<i>Mean</i>	5.75%	4.29%	6.44%	4.92%	5.54%	4.11%	-0.61% (***)	-0.67% (**)
Panel B: countries from cluster 2 (medium transparency)								
Austria	8.23%	7.21%	8.66%	7.60%	8.01%	6.74%	-0.65%	-0.86%
Belgium	6.83%	5.78%	7.46%	7.22%	6.66%	5.69%	-0.80%	-1.53%
Switzerland	6.23%	5.02%	6.34%	4.97%	6.20%	5.03%	-0.14%	0.06%
Germany	7.00%	5.60%	7.32%	5.75%	6.88%	5.56%	-0.44%	-0.19%
Denmark	6.34%	5.17%	6.06%	5.41%	6.42%	5.15%	0.35%	-0.25%

Finland	5.81%	4.72%	6.69%	5.79%	5.66%	4.54%	-1.03%	-1.25%
France	6.09%	4.97%	6.29%	5.22%	6.02%	4.83%	-0.27%	-0.39%
Japan	4.69%	3.47%	4.89%	3.52%	4.61%	3.44%	-0.28%	-0.08%
Netherland	6.67%	5.09%	6.99%	4.74%	6.63%	5.10%	-0.36%	0.36%
Sweden	5.92%	4.61%	6.23%	4.77%	5.84%	4.57%	-0.38%	-0.20%
Taiwan	6.13%	4.85%	5.02%	3.60%	6.24%	4.92%	1.22%	1.31%
South Africa	6.38%	5.57%	8.25%	8.12%	6.30%	5.54%	-1.96%	-2.58%
<i>Mean</i>	5.38%	4.02%	5.48%	4.03%	5.34%	4.02%	-0.39% (*)	-0.47% (*)
Panel C: countries from cluster 3 (opaque countries)								
Spain	5.23%	4.03%	5.63%	4.34%	5.16%	4.01%	-0.47%	-0.33%
Indonesia	8.80%	7.56%	8.96%	7.49%	8.72%	7.75%	-0.23%	0.27%
India	6.19%	4.95%	5.95%	4.73%	6.47%	5.15%	0.51%	0.42%
Italy	6.08%	4.59%	5.96%	4.60%	6.13%	4.57%	0.18%	-0.03%
Korea	7.45%	6.13%	6.61%	4.58%	7.48%	6.17%	0.87%	1.59%
Thailand	7.70%	6.29%	7.69%	6.21%	7.72%	6.58%	0.04%	0.37%
<i>Mean</i>	6.91%	5.59%	6.80%	5.32%	6.95%	5.70%	0.15%	0.38%
T-test (Cluster 1 vs Cluster 2)							-0.22%	-0.20%
T-test (Cluster 1 vs Cluster 3)							-0.76% (***)	-1.05% (**)
T-test (Cluster 2 vs Cluster 3)							-0.54% (**)	-0.85% (*)

Table 3

Earnings management by legal origin and by analyst following

This table reports earnings management activity (measured by *mean |DA Jones|*) for each country. Countries are classified according to their legal origin (La Porta et al., 2003). Earnings management activity is tabulated for all firm-years of each country, for firms not followed by analysts and followed by analysts. Analyst following is defined in relation to firms for which an EPS (or net income) forecast is provided in the I/B/E/S database and analyst coverage comes from the I/B/E/S database.

	Total		Not Followed		Followed		Difference	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Panel A: Common law countries								
Australia	5.92%	4.50%	6.09%	4.55%	5.84%	4.47%	-0.24%	-0.07%
Canada	5.85%	4.24%	6.36%	4.92%	5.62%	4.04%	-0.74%	-0.87%
Great Britain	6.18%	4.73%	6.74%	5.31%	6.06%	4.64%	-0.68%	-0.67%
Hong Kong	6.42%	4.85%	7.00%	5.59%	5.96%	4.22%	-1.03%	-1.37%
India	6.19%	4.95%	5.95%	4.73%	6.47%	5.15%	0.51%	0.42%
Malaysia	6.71%	5.11%	6.86%	5.25%	6.47%	4.84%	-0.38%	-0.41%
Singapore	6.92%	5.38%	7.13%	5.60%	6.74%	5.03%	-0.39%	-0.57%
Thailand	7.70%	6.29%	7.69%	6.21%	7.72%	6.58%	0.04%	0.37%
USA	5.34%	3.96%	5.96%	4.46%	5.23%	3.87%	-0.74%	-0.59%
South Africa	6.38%	5.57%	8.25%	8.12%	6.30%	5.54%	-1.96%	-2.58%
Mean	6.36%	4.96%	6.80%	5.47%	6.24%	4.84%	-0.56% (**)	-0.63% (**)
Panel B: Code law countries								
Austria	8.23%	7.21%	8.66%	7.60%	8.01%	6.74%	-0.65%	-0.86%
Belgium	6.83%	5.78%	7.46%	7.22%	6.66%	5.69%	-0.80%	-1.53%
Switzerland	6.23%	5.02%	6.34%	4.97%	6.20%	5.03%	-0.14%	0.06%
Germany	7.00%	5.60%	7.32%	5.75%	6.88%	5.56%	-0.44%	-0.19%
Denmark	6.34%	5.17%	6.06%	5.41%	6.42%	5.15%	0.35%	-0.25%
Spain	5.23%	4.03%	5.63%	4.34%	5.16%	4.01%	-0.47%	-0.33%
Finland	5.81%	4.72%	6.69%	5.79%	5.66%	4.54%	-1.03%	-1.25%
France	6.09%	4.97%	6.29%	5.22%	6.02%	4.83%	-0.27%	-0.39%
Indonesia	8.80%	7.56%	8.96%	7.49%	8.72%	7.75%	-0.23%	0.27%
Italy	6.08%	4.59%	5.96%	4.60%	6.13%	4.57%	0.18%	-0.03%

Japan	4.69%	3.47%	4.89%	3.52%	4.61%	3.44%	-0.28%	-0.08%
Korea	7.45%	6.13%	6.61%	4.58%	7.48%	6.17%	0.87%	1.59%
Netherland	6.67%	5.09%	6.99%	4.74%	6.63%	5.10%	-0.36%	0.36%
Norway	6.56%	4.77%	7.03%	5.33%	6.35%	4.56%	-0.67%	-0.77%
Sweden	5.92%	4.61%	6.23%	4.77%	5.84%	4.57%	-0.38%	-0.20%
Taiwan	6.13%	4.85%	5.02%	3.60%	6.24%	4.92%	1.22%	1.31%
Mean	6.50%	5.22%	6.63%	5.31%	6.44%	5.16%	-0.19%	-0.14%
Difference	0.14%	0.27%	-0.17%	-0.17%	0.20%	0.32%	0.37%	0.49%
T-test							-1.4719	2.6000
Sig. (1 tail)							7,7% (*)	10% (*)

Table 4

Earnings management by level of disclosure index and by analyst following

This table reports earnings management activity (measured by *mean |DA Jones|*) for each country. Countries are ranked across their disclosure index (Center for International Financial Analysis & Research - CIFAR, 1991). Earnings management activity is tabulated for all firm-years of each country, for firms not followed by analysts and followed by analysts. Analyst following is defined in relation to firms for which an EPS (or net income) forecast is provided in the I/B/E/S database and analyst coverage comes from the I/B/E/S database. The last three rows report the spearman's correlation between the disclosure index and the level of $|DA Jones|$.

country	Disclosure	<i> DA Jones </i>							
		Full sample		Not followed		Followed		Difference	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
Austria	54	8.23%	7.21%	8.66%	7.60%	8.01%	6.74%	-0.65%	-0.86%
India	57	6.19%	4.95%	5.95%	4.73%	6.47%	5.15%	0.51%	0.42%
Belgium	61	6.83%	5.78%	7.46%	7.22%	6.66%	5.69%	-0.80%	-1.53%
Germany	62	7.00%	5.60%	7.32%	5.75%	6.88%	5.56%	-0.44%	-0.19%
Denmark	62	6.34%	5.17%	6.06%	5.41%	6.42%	5.15%	0.35%	-0.25%
Italy	62	6.08%	4.59%	5.96%	4.60%	6.13%	4.57%	0.18%	-0.03%
Korea (South)	62	7.45%	6.13%	6.61%	4.58%	7.48%	6.17%	0.87%	1.59%
Netherland	64	5.23%	4.03%	5.63%	4.34%	5.16%	4.01%	-0.47%	-0.33%
Spain	64	6.67%	5.09%	6.99%	4.74%	6.63%	5.10%	-0.36%	0.36%
Thailand	64	7.70%	6.29%	7.69%	6.21%	7.72%	6.58%	0.04%	0.37%
Japan	65	4.69%	3.47%	4.89%	3.52%	4.61%	3.44%	-0.28%	-0.08%
Taiwan	65	6.13%	4.85%	5.02%	3.60%	6.24%	4.92%	1.22%	1.31%
Switzerland	68	6.23%	5.02%	6.34%	4.97%	6.20%	5.03%	-0.14%	0.06%
France	69	6.09%	4.97%	6.29%	5.22%	6.02%	4.83%	-0.27%	-0.39%

Hong-Kong	69	6.42%	4.85%	7.00%	5.59%	5.96%	4.22%	-1.03%	-1.37%
South Africa	70	6.38%	5.57%	8.25%	8.12%	6.30%	5.54%	-1.96%	-2.58%
USA	71	5.34%	3.96%	5.96%	4.46%	5.23%	3.87%	-0.74%	-0.59%
Canada	74	5.85%	4.24%	6.36%	4.92%	5.62%	4.04%	-0.74%	-0.87%
Norway	74	6.56%	4.77%	7.03%	5.33%	6.35%	4.56%	-0.67%	-0.77%
Australia	75	5.92%	4.50%	6.09%	4.55%	5.84%	4.47%	-0.24%	-0.07%
Malaysia	76	6.71%	5.11%	6.86%	5.25%	6.47%	4.84%	-0.38%	-0.41%
Finland	77	5.81%	4.72%	6.69%	5.79%	5.66%	4.54%	-1.03%	-1.25%
Great Britain	78	6.18%	4.73%	6.74%	5.31%	6.06%	4.64%	-0.68%	-0.67%
Singapore	78	6.92%	5.38%	7.13%	5.60%	6.74%	5.03%	-0.39%	-0.57%
Sweden	83	5.92%	4.61%	6.23%	4.77%	5.84%	4.57%	-0.38%	-0.20%
Indonesia		8.80%	7.56%	8.96%	7.49%	8.72%	7.75%	-0.23%	0.27%
<hr/>									
Spearman's rho		-0.3562		0.0066		-0.4658		-0.3674	
Test of Ho (independent)									
Prob > t		0.0805	*	0.9752		0.0189	**	0.0708	*
<hr/>									

Table 5

Panel data regression results – Earnings management and analyst following - Countries classified by institutional clusters

Panel A reports multivariate analysis of the determinants of earnings management activity. *|DA Jones|* is our measure for earnings management. *Following* is a dummy variable coded 1 if the firm-year is followed by at least one analyst, zero otherwise. *Cluster i* ($i=2,3$) is a dummy coded 1 if the firm-year is from the institutional cluster i , 0 otherwise. *Following * Cluster i* ($i=2,3$) is an interaction variable between *Following* and *Cluster i*. *Size* ranges from 1 to 10. It is computed as the decile (1 lowest size, 10 biggest) of total assets for the firm-year. Deciles are computed country by country. *Leverage* is the ratio of total debts to total assets. Fixed effects refer to estimation with fixed year/industry/country effects. The specific intercepts are untabulated. Panel B presents the aggregated effect of analyst following for each cluster. Earnings management of firms followed by analysts in cluster 1 is the coefficient *Following* if significant, 0 otherwise. Earnings management of firms followed by analysts in cluster i ($i=2$ or 3) is the sum of the coefficients on *Following* if significant (0 otherwise) and on the interaction term *Following*Cluster i*.

	(1)	(2)	(3)	(4)
	<i> AD Jones </i>	<i> AD Jones </i>	<i> AD Jones </i>	<i> AD Jones </i>
Panel A: Coefficients and t-statistics				
Following	-0.004076 (6.88)**	-0.007674 (8.78)**	-0.004649 (5.22)**	-0.003001 (3.26)**
Following * Cluster 2		0.007054 (5.74)**	0.006825 (5.59)**	0.003009 (2.44)*
Following * Cluster 3		0.007589 (3.19)**	0.006554 (2.78)**	0.007269 (2.86)**
Cluster2		-0.009767 (8.87)**	-0.009682 (8.87)**	0.003178 (0.62)
Cluster 3		0.004279 (2.27)*	0.005644 (3.02)**	0.024461 (5.48)**
Size			-0.001673 (15.51)**	-0.001427 (13.22)**
Leverage			0.000034 (2.93)**	0.000039 (3.43)**
Fixed effects				,Industry & country
Constant	0.061134 (116.01)**	0.06518 (82.94)**	0.071765 (80.74)**	0.073489 (27.09)**
Observations	51401	51401	51401	51401
Number of firms	10866	10866	10866	10866
adj - R2	<1%	2%	2%	5%

Panel B: Marginal effect of analyst following on earnings management

<i>Firms followed in cluster 1</i>	-0.77%	-0.46%	-0.30%
<i>Firms followed in cluster 2</i>	-0.06%	0.22%	0.00%
<i>Firms followed in cluster 3</i>	-0.01%	0.19%	0.43%

Absolute value of z statistics in parentheses

* significant at 5%; ** significant at 1%

Table 6

Panel data regression results – Earnings management and analyst following - countries classified by legal tradition (code law versus common law)

Panel A reports multivariate analysis of the determinants of earnings management activity. Mean $|DA\ Jones|$ is our proxy for earnings management. *Following* is a dummy variable coded 1 if the firm-year is followed by at least one analyst, zero otherwise. *Code law* is a dummy coded 1 if the firm-year is from a code law country, 0 otherwise. *Following * Code law* is an interaction term between *Following* and *Code law*. *Size* ranges from 1 to 10. It is computed as the decile (1 lowest size, 10 biggest) of total assets for the firm-year. Deciles are computed country by country. *Leverage* is the ratio of total debts to total assets. Fixed effects refer to estimation with fixed year/industry/country effects. The specific intercepts are untabulated. Panel B presents the aggregated effect of analyst following for each legal origin.

	(1)	(2)	(3)	(4)
	$ AD\ Jones $	$ AD\ Jones $	$ AD\ Jones $	$ AD\ Jones $
Panel A: Coefficients and t-statistics				
Following	-0.004076 (6.88)**	-0.007755 (9.31)**	-0.004977 (5.87)**	-0.002368 (2.66)**
Following * Code law		0.007315 (6.19)**	0.007252 (6.18)**	0.002516 (2.11)*
Code law		-0.009488 (9.03)**	-0.009602 (9.21)**	0.008471 (1.83)
Size			-0.001642 (15.17)**	-0.001433 (13.27)**
Leverage			0.000033 (2.91)**	0.000039 (3.41)**
Fixed effects				Industry & country
Constant	0.061134 (116.01)**	0.065779 (89.28)**	0.072464 (84.74)**	0.073145 (26.98)**
Observations	51401	51401	51401	51401
Number of firms	10866	10866	10866	10866
adj - R2	<1%	2%	2%	5%
Panel B: Marginal effect of analyst following on earnings management				
<i>Firms followed in code law countries</i>		-0.04%	0.23%	0.01%
<i>Firms followed in common law countries</i>		-0.78%	-0.50%	-0.24%

Table 7

Panel data regression results – Earnings management, analyst following and disclosure levels

Table 7 reports multivariate analysis of the determinants of earnings management activity. Mean */DA Jones/* is our proxy for earnings management. *Following* is a dummy variable coded 1 if the firm-year is followed by at least one analyst, zero otherwise. *Disclosure* is the CIFAR index (Center for International Financial Analysis & Research - CIFAR, 1991). *Following * Disclosure* is an interaction term between *Following* and *Disclosure*. *Size* ranges from 1 to 10. It is computed as the decile (1 lowest size, 10 biggest) of total assets for the firm-year. Deciles are computed country by country. *Leverage* is the ratio of total debts to total assets. *Code law* is a dummy coded 1 if the firm-year is from a code law country, 0 otherwise. The *Investor Rights* variable is the anti-director rights index created by La Porta et al. (1998); it is an aggregate measure of minority shareholder rights and ranges from zero to five. The *Legal Enforcement* index is the measure created by of LNW. It is measured as the mean score across three legal variables used in La Porta et al. (1998): (1) the efficiency of the judicial system, (2) an assessment of rule of law, and (3) the corruption index. All three variables range from zero to ten. Fixed effects refer to estimation with fixed-year/industry/country effects. The specific intercepts are untabulated.

	(1)	(2)	(3)	(4)
	<i>/AD Jones/</i>	<i>/AD Jones/</i>	<i>/AD Jones/</i>	<i>/AD Jones/</i>
Following	-0.004076 (6.88)**	0.022307 (3.01)**	0.022987 (3.13)**	0.016276 (2.17)*
Following * Disclosure		-0.000384 (3.59)**	-0.000354 (3.33)**	-0.000252 (2.32)*
Disclosure index		0.000592 (6.43)**	0.000567 (6.22)**	-0.000941 (3.88)**
Size			-0.001641	-0.001439

Leverage			(15.13)**	(13.31)**
			0.000033	0.000039
			(2.85)**	(3.45)**
Fixed effects				Industry & country
Constant	0.061134	0.020092	0.028428	0.143852
	(116.01)**	(3.16)**	(4.48)**	(8.18)**
Observations	51401	51118	51118	51118
Number of firms	10866	10775	10775	10775
adj – R2	<1%	2%	2%	5%

Absolute value of z statistics in parentheses

* significant at 5%; ** significant at 1%

Table 8

Two stage least squares regression (panel data regression)

Table 8 reports the results of a two-stage determinants of earnings management activity. *Mean |DA Jones|* is our measure for earnings management. *Following* is endogenized with the instrumental variables: size, deciles of return on assets, industry growth, lag following and fixed effects for time, industry and countries. Fitted values of *Following* (*Est Following*) are used in the reported regressions. *Code law* is a dummy coded 1 if the firm-year is from a code law country, 0 otherwise. *Cluster i* is a dummy coded 1 if the firm-year is from the institutional cluster i (i=2,3), 0 otherwise. *Size* ranges from 1 to 10. It is computed as the deciles (1 lowest size, 10 biggest) of total assets for the firm-year. Deciles are computed country by country. *Leverage* is the ratio of total debts to total assets. *Disclosure* is the CIFAR index (Center for International Financial Analysis & Research - CIFAR, 1991). The *Investor Rights* variable is the anti-director rights index created by La Porta et al. (1998); it is an aggregate measure of minority shareholder rights and ranges from zero to five. The *Legal Enforcement* index is the measure created by of LNW). It is measured as the mean score across three legal variables used in La Porta et al. (1998): (1) the efficiency of the judicial system, (2) an assessment of rule of law, and (3) the corruption index. All three variables range from zero to ten. Fixed effects refer to estimation with fixed- industry/country effects. The specific intercepts are untabulated.

	(1)	(2)	(3)
	AD Jones	AD Jones	AD Jones
Est Follow	0.030704 (2.86)**	-0.005454 (4.11)**	-0.004812 (3.77)**
Est Follow * Disclosure	-0.000472 (3.04)**		
Disclosure index	0.001876 (17.27)**		
Investor protection	-0.008126 (5.54)**		
Legal enforcement	-0.003713 (4.52)**		
Est Follow * Cluster2		0.006635 (3.84)**	
Est Follow * Cluster3		0.004899 (1.39)	
Cluster 2		0.019621 (3.75)**	
Cluster 3		0.022825 (4.41)**	

Est Follow * Code			0.005693 (3.41)**
Code law		0.073483 (25.12)**	0.020253 (3.87)**
Size	-0.00103 (8.23)**		-0.00103 (8.24)**
Leverage	0.000047 (3.93)**	-0.001025 (8.20)**	0.000046 (3.89)**
Fixed effects	Industry & country	Industry & country	Industry & country
Observations	36737	36927	36927
Number of firms	9298	9371	9371
Adj - R2	5%	5%	5%

Absolute value of z statistics in parentheses

* significant at 5%; ** significant at 1%

Table 9
Earnings management activity proxies

Table 9 presents a benchmark of two measures of earnings management activity. *EM(LNW)* is the indicator devised by LNW. *Mean |DA Jones|* is the average of the median absolute value discretionary accruals of each year for all observations of each country. Discretionary accruals are computed according to Jones (1991) model using a cross sectional approach (Dechow et al., 1995). The *Disclosure Index* measures the inclusion or omission of 90 items in the 1990 annual reports (Center for International Financial Analysis & Research - CIFAR, 1991). *Common law* is a dummy coded 1 if the country is common law country, 0 otherwise. *Structure-Aggregate* is from Beck and Levine (2002). It provides a measure of the comparative role of banks and markets in the economy. It is the first principal component of two variables that measure the comparative activity and size of markets and banks. The *Importance of Equity Market* is the index devised by LNW. It is measured by the mean rank across three variables used in La Porta et al. (1997): (1) the ratio of the aggregate stock market capitalization held by minorities to gross national product, (2) the number of listed domestic firms relative to the population, and (3) the number of IPOs relative to the population. Each variable is ranked such that higher scores indicate a greater importance of the stock market. *Ownership Concentration* is measured as the median percentage of common shares owned by the largest three shareholders in the ten largest privately owned non-financial firms (La Porta et al., 1998). *Block premium* is the median country-level block premium paid for control contests from Dyck and Zingales (2004). The *Investor Rights* variable is the anti-director rights index created by La Porta et al. (1998); it is an aggregate measure of minority shareholder rights and ranges from zero to five. *Finance-aggregate* is from Beck and Levine (2002). It measures the level of financial development of a given country and equals the first principal component of two underlying measures of financial development. The *Legal Enforcement* index is the measure created by LNW. It is measured as the mean score across three legal variables used in La Porta et al. (1998): (1) the efficiency of the judicial system, (2) an assessment of rule of law, and (3) the corruption index. All three variables range from zero to ten. *Private enforcement* is the mean of a disclosure index and an index of procedural burden of proof in filing civil cases for financial fraud from La Porta et al. (2003). *Public enforcement* is the mean of indices of securities' characteristics, investigative powers, procedural orders, and the sanctions applicable in criminal fraud cases from La Porta et al. (2003).

	Predicted sign	EM(LNW) (our sample)	EM(LNW) (LNW sample)	DA Jones
Panel A: Earnings Management Measures				
EM(LNW) (our sample)		1.0000		
EM(LNW) (LNW sample)	+	0.8642*	1.0000	
AD Jones	+	0.2783	0.2754	1.0000
accruals / CFO	+	0.5382*	0.5767*	0.3282*
Panel B: Correlations with Economic/Institutional Variables				
Disclosure				
Disclosure	-	-0.6914*	-0.6594*	-0.4197*
Common law	-	-0.4713*	-0.3950*	-0.2037
Equity markets				
Structure aggregate	?	-0.5533*	-0.4637*	-0.3826
Importance of equity markets	?	-0.4820*	-0.3629	-0.4659*
Private control benefits				
Ownership concentration	+	0.4117*	0.3723	0.5362*
Block premium	+	0.2995	0.5907*	0.5042*
Investor rights	-	-0.5512*	-0.5639*	-0.3988*
Enforcement / Ability to sue				
Finance aggregate	-	-0.2332	-0.1924	-0.5423*
Legal enforcement	-	-0.1927	-0.1904	-0.6574*
Private enforcement	-	-0.2687*	-0.4543*	-0.1326
Public enforcement	-	-0.2676*	-0.4498*	-0.0231

Table 10
Short discretionary accruals and threshold effect

Table 10 presents an analysis of earnings management around analysts' consensus. Earnings surprises are computed as (Reported EPS-Consensus)/Share price seven days before the announcement date. Earnings surprises are classified as small earnings surprise (SES) if they fall into the range $[0; 0.13\%[$.

Panel A reports the number of observations below and above the consensus when countries are classified by institutional cluster (LNW), Legal tradition (La Porta et al., 1998) and according their level of disclosure (Center for International Financial Analysis & Research - CIFAR, 1991). A country is classified as "Transparent" if its Disclosure index is above the median (68) and as "Opaque" otherwise.

Panel B reports both total discretionary accruals and short discretionary accruals around the consensus. $|SDA|$ is the absolute value of short discretionary accruals, $|DA Jones|$ is the absolute value of discretionary accruals.

Panel C and D detail panel B by providing, respectively, an analysis of $|SDA|$ and $|DA Jones|$ around the consensus when countries are grouped by institutional cluster (LNW), legal tradition (La Porta et al., 1998) and disclosure index (Center for International Financial Analysis & Research - CIFAR, 1991).

	<i>Small negative earnings surprise</i>	<i>Small positive earnings surprise</i>	Total SES	Total SES in % of followed firms	#SPES /#SNES
Panel A: Number of observations					
# observations - Cluster 1	1'791	3'646	5'437	26.17%	2.04
# observations - Cluster 2	923	989	1'912	12.49%	1.07
# observations - Cluster 3	63	76	139	8.02%	1.21
# observations - Common Law	1'810	3'678	5'488	25.70%	2.03
# observations - Code Law	967	1'033	2'000	12.15%	1.07
# observations - Transparent countries	1'956	3'809	5'765	24.46%	1.95
# observations - Opaque countries	765	847	1'612	11.81%	1.11
	<i>Small negative earnings surprise</i>	<i>Small positive earnings surprise</i>	Mean difference	t test	p value
Panel B: Discretionary accruals					
<i>/SDA/</i>	1.26%	1.44%	-0.18%	-4.3524	0.0000
<i>/AD Jones/</i>	5.10%	5.19%	-0.09%	-0.8314	0.4058

Panel C: Earnings surprise & short discretionary accruals (SDA)					
<i>Countries classified by Clusters (LNW, 2003)</i>					
Cluster 1	1.37%	1.55%	-0.18%	-3.5089	0.0005
Cluster 2	1.00%	1.00%	0.01%	0.0942	0.9250
Cluster 3	1.72%	1.81%	-0.09%	-0.2944	0.7689
<i>Countries classified by Legal Tradition</i>					
Common Law countries	1.39%	1.55%	-0.16%	-3.2543	0.0011
Code Law countries	1.01%	1.03%	-0.02%	-0.2504	0.8023
<i>Countries classified by Disclosure Index</i>					
Transparent countries	1.36%	1.54%	-0.18%	-3.7004	0.0020
Opaque countries	0.94%	0.97%	-0.03%	-0.3591	0.7196
Panel D: Earnings surprise & total discretionary accruals (DA Jones)					
<i>Countries classified by Clusters (LNW, 2003)</i>					
Cluster 1	5.23%	5.19%	0.04%	0.3019	0.7627
Cluster 2	4.73%	5.12%	-0.39%	-1.8955	0.0582
Cluster 3	6.74%	6.12%	0.62%	0.6748	0.5009
<i>Countries classified by Legal Tradition</i>					
Common Law countries	5.25%	5.20%	0.05%	0.3667	0.7139
Code Law countries	4.81%	5.15%	-0.34%	-1.6827	0.0926
<i>Countries classified by Disclosure Index</i>					
Transparent countries	5.21%	5.23%	-0.02%	-0.1386	0.8898
Opaque countries	4.73%	5.02%	-0.29%	-1.2731	0.2032