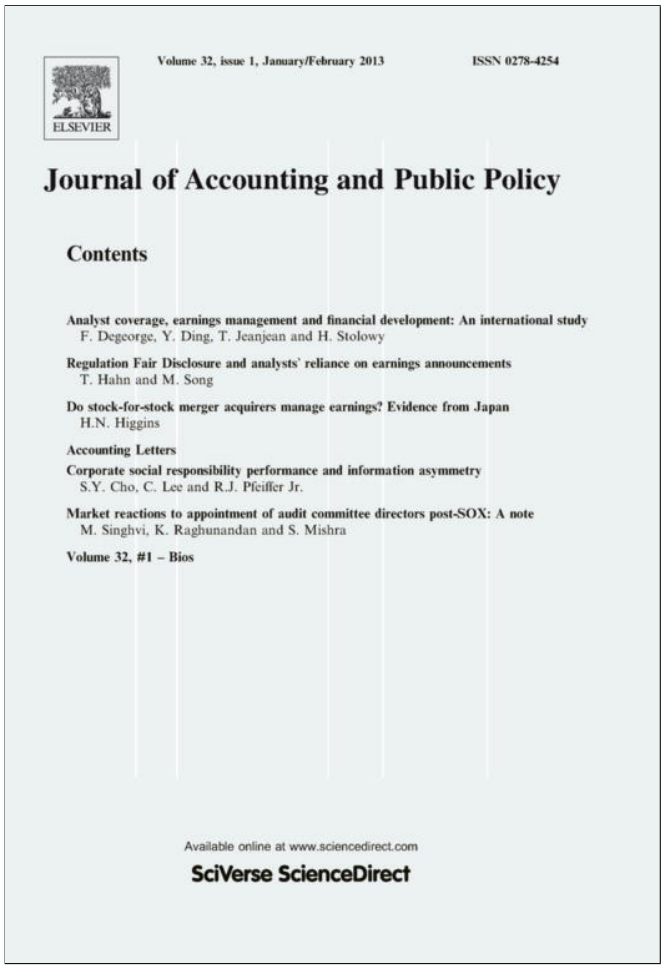

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Analyst coverage, earnings management and financial development: An international study

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A B S T R A C T

Using data from 21 countries, this paper analyzes the relation among analyst coverage, earnings management and financial development in an international context. We document that the effectiveness of financial analysts as monitors increases with a country's financial development (FD). We find that in high-FD countries, increased within-firm analyst coverage results in less earnings management. Such is not the case in low-FD countries. Our results are economically significant and robust to reverse causality checks. Our findings illustrate one mechanism through which financial development mitigates the cost of monitoring firms and curbs earnings management.

1. Introduction

A large body of research explores the differences between financial systems worldwide and documents the positive effects of financial development: It boosts industry growth, the formation of new establishments, and capital allocation (Beck and Levine, 2002). It predicts capital accumulation and productivity improvements (Levine and Zervos, 1998). It is especially important for firms that depend on external financing (Demirgüç-Kunt and Maksimovic, 1998; Rajan and Zingales, 1998).

While the benefits of financial development appear to be well established, the detailed mechanisms through which these benefits are brought to bear are still largely unknown. Levine (1997) lists

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five basic functions of a financial system: (1) to facilitate risk sharing; (2) to allocate resources; (3) to monitor managers; (4) to mobilize savings; and (5) to facilitate the exchange of goods and services.

Our paper's contribution is to focus on the monitoring function; specifically, on financial analysts as monitors of firms. We find that higher financial development is associated with a greater effectiveness of monitoring by financial analysts. Using a sample of 21 countries from 1994 to 2002, we find that in countries with highly developed financial systems (hereafter "high-FD countries"), increased within-firm coverage results in less earnings management. Such is not the case in countries with less well-developed financial systems (hereafter "low-FD countries").

There is evidence, both systematic and anecdotal, that financial analysts perform an important monitoring role, at least in the United States. Dyck et al. (2010) document that, in the US, financial analysts are among the quickest detectors of fraud. For example, in the mid-1990s Sunbeam, an appliance manufacturer, engaged in "bill-and-hold" deals with retailers: The retailers bought Sunbeam products at large discounts, but the products were then stored by the manufacturer at third-party warehouses for later delivery. In effect, Sunbeam was shifting revenue from the future to the present. The first warning to shareholders that Sunbeam was engaging in extensive earnings management came from a PaineWebber analyst, who noticed unusually large increases in sales of Sunbeam electric blankets in the summer and outdoor barbecue grills around Christmas time (Byrne, 1998).

The Sunbeam example illustrates a broader pattern. Using US data, Yu (2008) finds that earnings management tends to be lower in companies followed by more financial analysts. It is not hard to see why this might be so. Analysts have plenty of opportunities to probe a company's accounts to see whether they paint a fair picture of the company's true health. Provided they perform their duties with a modicum of diligence, the very fact that they are watching can in itself be a deterrent to earnings management and other activities that might embarrass corporate management. All else being equal, a company followed by financial analysts has less leeway to manipulate its earnings.

Findings based on US data, however, do not necessarily apply to countries with lower levels of financial development. To monitor company managers, analysts must overcome severe hidden information and hidden action problems: Managers might hide negative information about the company's prospects; they might hide some of their actions if they fear retribution from investors; they might be unable to reveal positive information about the firm to investors. We expect these difficulties to be easier to overcome in more financially developed countries like the United States. Holding constant incentives to manage earnings, we discuss possible reasons for this difference: Greater transparency may facilitate analyst monitoring in high-FD countries; investor demand for analyst monitoring may be greater; firms' incentives to facilitate analyst monitoring may be larger; and the quality and depth of the financial analyst pool may be improved.

We measure the effectiveness of analyst coverage of managers by the impact of that coverage on earnings management by companies. We posit that if more analyst coverage results in less earnings management, then analysts are useful monitors of managers' actions; this leads to our first testable hypothesis. If a country's level of financial development enhances analyst monitoring, then the association between analyst coverage and earnings management should be more negative in more financially developed countries.

Not everyone shares the view that the presence of financial analysts reduces earnings management. On the contrary, financial analysts in the United States have been accused of encouraging earnings management by setting company managers targets that are impossible to meet – except by manipulating company performance (Levitt, 1998; Fuller and Jensen, 2002). If the weight of analyst opinion is greater in more financially developed countries, the analyst's target-setting role, and the associated pressure on companies to meet those targets, may also be greater (Brown and Higgins, 2001, 2005). According to this view, as one moves from low-FD to high-FD countries, companies would become more fixated on trying to meet or beat the analyst consensus benchmark; this reasoning produces our second testable hypothesis: Analyst coverage leads to more earnings management in more financially developed countries.

Using a sample of 21 countries from 1994 to 2002 and controlling both for firm incentives to manage earnings (through various firm characteristics like size, leverage and growth) and for earnings management variation among countries and industries (through firm fixed effects), we find support for our first hypothesis: Financial development is associated with more effective monitoring

effectiveness by analysts. In high-FD countries, increased within-firm analyst coverage is associated with less earnings management: as analyst coverage moves from zero to one analyst (and respectively from zero to two analysts) earnings management falls by about 5% (respectively, 8%). By contrast, in low-FD countries analyst coverage is not associated with a reduction in earnings management. Our results are robust to corrections for reverse causality. We find no support for our second hypothesis.

Our paper is at the intersection of two streams of literature. The first one considers the influence of analysts on earnings management. Degeorge et al. (1999) and Burgstahler and Eames (2006) show that in the US managers tend to manipulate earnings in order to reach the analysts' consensus. Both studies are limited to a sample of firms actually covered by analysts, and they only consider the role of analysts when firms are near the consensus. Yu (2008) extends the scope of these studies by analyzing US firms both covered and not covered by analysts. He finds that firms with high analyst coverage have a lower level of discretionary accruals than firms with low coverage. His findings, however, cannot automatically be applied to other countries. We contribute to this field of literature by showing that analyst coverage reduces earnings management only in highly financially developed countries.

Our paper also contributes to the literature that analyzes the country-level determinants of earnings management. Past literature shows that earnings management decreases with investor protection (Leuz et al., 2003; Haw et al., 2004) and that financial development is positively correlated with investor protection (see Beck et al., 2003; Beck and Levine, 2005). We find that private monitoring activity (analyst following) complements country-level institutional characteristics. In other words, previous country-level work may actually have underestimated the costs of poor institutions (i.e., weak investor protection) by failing to take into account this complementarity between firm-level and country-level mechanisms.

The remainder of this paper is organized as follows: Section 2 develops our research hypotheses. Section 3 discusses our research design. Section 4 presents our main empirical findings. Section 5 takes a deeper look at the link between analyst coverage and financial development and Section 6 concludes.

2. Hypothesis development

In their seminal article, Jensen and Meckling (1976) hint at the role of financial analysts in promoting good corporate governance:

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).

Analysts have the means to be monitors. Unlike most investors, they are trained to analyze the numbers produced by companies and they enjoy privileged access to company management. Analysts also have a motive to be monitors. They could look foolish and see their reputations suffer if their research reports and recommendations were based on manipulated numbers. Anecdotal evidence, such as the Sunbeam example given above, suggests that financial analysts do sometimes perform an important monitoring role. Dyck et al. (2010) document that in the United States analysts are among the quickest monitors of fraud. Yu (2008) finds that US firms followed by more analysts manage their earnings less.

Our goal is to assess empirically whether analyst coverage also functions as a curb on earnings management in countries that are less financially developed than the United States. Beck and Levine (2002) define financial development as "the degree to which national financial systems assess firms, monitor managers, facilitate risk management, and mobilize savings" (p. 160).[1] Analysts are more likely to be effective monitors in curbing earnings management in high-FD countries than in low-FD countries for at least four reasons: in high-FD countries:

[1] Note that financial development is a concept distinct from legal origin, investor protection or legal enforcement, see Section 3.2, Sample and data.

– The supply of information is likely to be better.
– The demand for information by investors is likely higher.
– Followed firms have higher incentives to be monitored.
– Financial analysts are likely to be of higher quality.

First, financial analysts may be better able to perform their monitoring role when information is more diffuse. Dyck et al. (2010), for instance, discuss the importance of Hayek's "diffuse information" concept in the context of fraud detection. Consider two possible stylized environments in which an analyst might operate. In one environment, which we associate with high-FD countries, analysts have several sources of information at their disposal to use to check the plausibility of statements made by the companies they follow. This diffuseness of information is partly due to stricter and better-enforced disclosure requirements and partly to the existence of an active and competitive financial community of investors, journalists, and information sources. An analyst following firm A can obtain data on A's activities, projections, strategies, and financial policies, and can then compare that information with information about companies B and C, comparable firms in the same industry, in effect benchmarking A's actions and performance.

In the other environment, which we associate with low-FD countries, disclosure requirements are minimal and are not enforced. An analyst following firm X has to rely on voluntary and unverifiable disclosures by X to make an assessment of the firm's quality and prospects. It is hard to compare company X with companies Y and Z, for information about all three companies is patchy and unreliable.[2] Hope (2003a) finds that across countries, the level of disclosure about accounting policies is inversely related to forecast errors and dispersion. This finding suggests that the work of analysts is facilitated in high-disclosure environments typical of high-FD countries.[3]

Second, the incentives for investors to monitor firms may be greater in high-FD countries. La Porta et al. (2002) find that firms in countries with more investor protection enjoy stronger market valuations. Investors may have more to lose from misjudging the health of a company in such countries. Accordingly, investor demand for sophisticated analysis and information is likely to be greater in high-FD countries, and brokers may dedicate more resources to meet this demand. This suggests that "coverage" does not have the same meaning in different countries with different levels of financial development: Coverage initiation by an analyst is a significant event for a company operating in a high-FD country. It is not so for a low-FD country, where analyst time may be too thinly spread.[4]

Third, firms have a greater incentive to be properly monitored by analysts in high-FD countries. Firms in high-FD countries enjoy greater access to outside capital than firms in low-FD countries, at least potentially; that is, provided they succeed in convincing outside investors to purchase their securities. We would then expect firms in high-FD countries to do more to facilitate the work of the financial analysts monitoring them – by organizing company visits, being responsive to analysts' requests for clarifications, and giving analysts access to top management – since these firms stand to lose substantially due to analyst distrust. By contrast, firms in low-FD countries have little to gain from favorable analyst opinion, since access to outside finance is limited anyway.

Finally, the pool of financial analysts may be of better quality in high-FD countries. Financial analysts there may be better paid and better trained. This could explain why some financial analysts enjoy star status in the United States, while no such phenomenon exists in continental Europe. As a first pass on this issue, we gathered the number of CFA-certified analysts in each of our sample countries, using the online database at www.cfa.institute.com. We scaled it by the number of listed companies in each country. The correlation between this ratio and our measure of financial development is positive and

[2] These arguments do not assume, even implicitly, that firms are covered exclusively by local analysts, i.e., analysts located in the same country as the firm. Bae et al. (2008) provide data suggesting the opposite.

[3] For a related study suggesting that the quality of analysts' work is superior in countries with high-quality financial reporting environments, see Barniv et al. (2005).

[4] In his account of his career as a financial analyst in the US, Reingold (in Reingold and Reingold, 2006) states that he took 9 months to write his first report when he started working as a financial analyst at Morgan Stanley. By contrast, in a similar book about his experience as an analyst in France, Tétreau estimates that a typical French analyst can devote less than 40 h a year of actual research time to each of the companies he covers (Tétreau, 2005). France is in the middle range of our measure of financial development.

statistically significant at the 5% level. If we assume that CFA certification is a proxy for financial analyst quality, this result suggests that average analyst quality tends to be better in high-FD countries.

All of these arguments suggest that analyst coverage may be more effective in high-FD countries and lead to our first testable hypothesis:

Hypothesis 1. If a country's level of financial development enhances analyst monitoring, then the association of analyst coverage on earnings management should be more negative in more financially developed countries. We call this the *FD enhancement* hypothesis.

But the role of financial analysts as corporate monitors has been questioned lately, especially in the United States – hardly an example of low financial development. Financial analysts have been accused of fostering earnings management by effectively setting company managers targets that are impossible to meet – except by manipulating company performance (see Levitt, 1998; Collingwood, 2001; Fuller and Jensen, 2002). In Michael Jensen's words:

"Indeed, "earnings management" has been considered an integral part of every top manager's job for at least the last two decades. But when managers smooth earnings to meet market projections, they are not creating value for the firm; they are both lying and making poor decisions that destroy value" (Jensen, 2005, p. 8).

Systematic evidence supports these claims. Using US data, Degeorge et al. (1999) document sharp discontinuities in the forecast error distribution at zero, suggesting that firms strive to meet or exceed analysts' consensus forecasts for quarterly earnings. Graham et al. (2005) find that top US executives admit that they pass up positive NPV projects to meet earnings benchmarks. This suggests that in a financially developed country such as the US, analyst coverage might actually *increase* earnings management.[5]

We would expect the same four factors that enhance the quality of analyst coverage in high-FD countries (better supply of information, greater demand for information, higher incentives to be monitored, higher quality of financial analysts) to give greater weight to analyst opinion in those countries. High-FD countries might then be associated with a greater role for analysts in setting targets, and companies there might engage in more earnings management to reach the consensus forecast than they do in low-FD countries.

According to this view, as one moves from low-FD to high-FD countries, companies would become more fixated on trying to meet or beat the analyst forecast; this produces our second testable hypothesis:

Hypothesis 2. The association between analyst coverage and earnings management is more positive in high financially developed countries than in low financially developed countries. We call this the *FD analyst consensus fixation* hypothesis.

Thus, the effect of financial development on the quality of analyst coverage is a priori ambiguous. The relation of earnings management and analyst coverage is jointly determined by the four factors: managerial incentives of earnings management, managerial ability of earnings management, incentives of high-quality monitoring by analysts and the ability of high-quality monitoring by analysts.[6] In our previous hypothesis development, while a higher level of financial development may enhance analysts' ability to perform their monitoring tasks, the increased company fixation on meeting the analysts' forecast targets in high-FD countries might create earnings management incentives that would not exist in low-FD countries. Ultimately, the question of whether financial development tends to facilitate the analysts' monitoring role or whether it encourages a dysfunctional game of manipulation to meet analysts' earnings targets is an empirical issue.

[5] Jumps in the earnings forecast error distribution could be due both to earnings management and to forecast management (Brown and Higgins, 2001, 2005), that is, managers attempting to downplay analysts' earnings expectations to make them easier to beat. Several US-based studies report findings consistent with both interpretations. Hirst et al. (2008) provide a framework in which to view management earnings forecasts.

[6] We thank an anonymous reviewer for bringing up this point.

3. Research design

3.1. Methodology

We use the following regression to assess the impact of financial development on the enhancement of analyst monitoring for firm i in country j in year t:

$$EM\ Activity_{ijt} = \alpha_0 + \alpha_1 Analyst\ Coverage_{ijt} + \alpha_2 Analyst\ Coverage_{ijt} \times Medium\ FD_j + \alpha_3 Analyst\ Coverage_{ijt} \times High\ FD_j + \alpha_4 Control\ variables_{ijt} + \varepsilon_{ijt} \quad (1)$$

The dependent variable, *EM Activity,* is the amount of earnings management by a company in a year. *Medium FD* (resp. *High FD*) is a dummy variable equal to one if the company is in a medium-FD country (resp. high-FD country), and zero otherwise. We explain the details of the construction of our variables below and provide the exact definitions of all variables in Appendix A.

To test the FD enhancement hypothesis, the coefficients of interest to us are α_1, α_2, and α_3. If financial development is associated with analyst coverage, then a given amount of incremental analyst coverage should result in a greater reduction in earnings management as we move up in the level of financial development. α_1 measures the effect of analyst coverage on earnings management in low-FD countries. $\alpha_1 + \alpha_2$ measures the impact of analyst coverage on earnings management in medium-FD countries, while $\alpha_1 + \alpha_3$ measures it in high-FD countries. As we have discussed, two opposite effects may be at work for α_2 and α_3:

- According to the FD enhancement hypothesis (Hypothesis 1), higher financial development may facilitate the analysts' monitoring role, so that we should have $\alpha_1 + \alpha_3 < \alpha_1 + \alpha_2 < \alpha_1$ and $\alpha_1 + \alpha_3$ should be negative, i.e., analyst coverage reduces earnings management in high-FD countries. We form no expectations about the sign of $\alpha_1 + \alpha_2$ and α_1.
- According to the FD analyst consensus fixation hypothesis (Hypothesis 2), higher financial development may result in companies being more pushed to manage earnings to meet consensus expectations, so that we should have $\alpha_1 + \alpha_3 > \alpha_1 + \alpha_2 > \alpha_1$ and $\alpha_1 + \alpha_3$ should be positive under analyst consensus fixation hypothesis, i.e., analyst coverage increases earnings management in high-FD countries. We form no expectations about the sign of $\alpha_1 + \alpha_2$ and α_1 under Hypothesis 2.

This formulation clarifies our contribution relative to Yu (2008) who only uses US data. Yu's monitoring effect hypothesis, for which he finds empirical support, predicts that $\alpha_1 + \alpha_3 < 0$. His pressure effect hypothesis, which is rejected by the data, predicts that $\alpha_1 + \alpha_3 > 0$. We focus on assessing whether financial development is associated with the effectiveness of analyst monitoring across countries.

Several factors might simultaneously influence analyst coverage and earnings management, potentially creating an omitted variable bias. For example, the quality of a firm's accounting policy might impact the decision by analysts to follow it and also determine the leeway that managers have in reporting income. Similarly, the ownership structure of the firm might affect analyst coverage (firms with small float and trading volume might offer little inducement to analysts to follow them), as well as the potential and incentives for earnings management. Firms with better corporate governance might manage their earnings less and at the same time attract more coverage by analysts.[7]

To take into account this possible bias, we need to control for heterogeneity across observations. We, therefore, estimate our model using a panel fixed-effects regression, using the firm as the panel unit. This estimation technique reduces the bias generated by a simple pooled OLS estimation (see Wooldridge, 2002, p. 421).

[7] Hope (2003b) finds evidence consistent with disclosures being more important when analyst following is low. While these studies do not directly address the link between firm governance characteristics and analyst coverage, it is plausible that larger US institutional stockholdings would encourage financial analysts to follow a company. Lang et al. (2004) provide indirect evidence on this issue. They analyze the relationship between the quality of corporate governance, the extent of analyst coverage, and valuation. They find that analysts are less likely to follow firms with potential incentives to manipulate information.

We use the firm fixed effect to control for all time constant factors at the firm level that may influence earnings management. In other words, this term accounts for country, industry and firm effects (see Wooldridge, 2002, p. 441; Dal Bó and Rossi, 2007; Blalock and Simon, 2009, p. 1100).

The GAAP is a time constant factor and we control for it by including a firm fixed effect. Doing so, we are in particular assuming that all factors (firm-level governance characteristics, GAAP, institutions...) that simultaneously influence analyst coverage and earnings management are fixed over our 1994–2002 sample period. While surely not strictly correct, this assumption *is* a rough but reasonable approximation. If it holds, fixed-effect panel estimation will produce consistent estimates.[8]

Reverse causality is another potential concern in our setting. For example, analysts may shun firms that they believe have recently started to engage in earnings management. Our fixed-effect procedure would not correct for this problem. At least two techniques may mitigate this concern: (1) using the 1-year-lagged value of analyst coverage as an instrument for analyst coverage (see Chang et al., 2006); (2) estimating a two-stage least squares regression (Wooldridge, 2002, p. 461). The lagged value of analyst coverage is plausibly uncorrelated with the error term in our regression, since analysts made their coverage decisions before they learned about the firm's accounting practices or its incentives to manage its earnings for the current year.

In order to implement a 2SLS regression, we would first need to identify valid instruments, i.e., instruments that are uncorrelated with the error term in Eq. (1) but highly correlated with analyst coverage (Wooldridge, 2002, p. 470). Since using weak instruments may result in biased estimates (Larcker and Rusticus, 2010), we prefer not to implement a 2SLS regression, given the difficulty of identifying valid instruments.

We provide definitions of all variables in Appendix A.

3.2. Sample and data

Our initial sample includes listed firms from 42 countries, a subset of that used in La Porta et al. (1997). Seven countries out of the 49 in their sample are not covered in our primary database sources. We obtain financial accounting information from the Global (Standard and Poor's) database, and information on analyst coverage from the I/B/E/S database. We use Global data from 1993 to 2002.

Healy and Wahlen (1999) define earnings management as the alteration of firms' reported economic performance by insiders, either to mislead stakeholders or to influence contractual outcome, for instance to avoid the violation of debt covenants or political costs (Watts and Zimmerman, 1986). To measure earnings management we use short-term (also called working capital or current) discretionary (also called abnormal) accruals. Discretionary accruals attempt to isolate the "suspicious" part of accruals from that which may be attributed to legitimate business purposes. This is a standard measure in the accounting and finance literature (e.g., Rangan, 1998; Teoh et al., 1998b, 1998a; DeFond and Park, 2001; Alcarria Jaime and De Albornoz Noguer, 2004; DuCharme et al., 2004; Park and Park, 2004; Carey and Simnett, 2006; Jo and Kim, 2007; Jaggi et al., 2009; Rodríguez-Pérez and van Hemmen, 2010). Short-term discretionary accruals are often preferred to total discretionary accruals because of the possible noises in the measurement of discretionary accruals due to the impacts from property, plant and equipment. Teoh et al. (1998b, p. 64) explain that "discretionary current accruals" represent the component most subject to managerial manipulation. In other words, managers have greater discretion over current accruals than over long-term accruals (Park and Park, 2004, p. 388),

Appendix B explains the calculation of our earnings management variable. Appendix C explains our sample construction. Our final sample contains 65,799 firm-year observations from 13,098 firms in 21 countries.

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

[8] As a robustness check, we reran our regressions for three sub-periods (1994–1996; 1997–1999; 2000–2002). Assuming that corporate governance characteristics remain stable over a three-year period seems more reasonable than over a nine-year period. Results are unchanged (see Table 3).

short-term discretionary accruals as our measure of earnings management activity, and we label it *EM Activity*. Hribar and Nichols (2007) provide evidence on the correlation between unsigned measures of discretionary accruals and stable firm characteristics such as market value of equity, total assets, sales growth, leverage, book-to-market ratios, cash from operations, volatility of sales, volatility of earnings, and volatility of cash flows. This implies that studies using unsigned measures of earnings management can suffer from an omitted variable problem if these measures of stable firm characteristics are not controlled for. Our use of fixed effects in our regressions enables us to steer clear of this problem because firm fixed effects account for all time constant factors.

Previous work has documented differences in financial system development across countries and their impact on economic activity.[9] We rely on Beck and Levine (2002) for our measure of financial development.[10] They compute an overall measure of financial development labeled *Finance-Aggregate* as the first principal component of two underlying measures of financial development. The first underlying measure (Finance-Activity) is a measure of "the overall activity of the financial intermediaries and markets" (p. 160). It equals the log of the product of Private Credit (the value of credits by financial intermediaries to the private sector divided by GDP) and Value Traded (the value of total shares traded on the stock market exchange divided by GDP). The second underlying measure of financial development (Finance-Size) is a measure of "the overall size of the financial sector" (p. 161) and equals the log of the sum of Private Credit and Market Capitalization. In the computation of the index, Beck and Levine aggregate the data over 1980–1989. We divide the 21 countries in our sample into three levels of financial development (Low FD, Medium FD, and High FD), using a *k*-means partition cluster analysis.[11] We obtained the three following clusters: low financial system development (Austria, Belgium, Denmark, Finland, India, and Italy), medium financial system development (Australia, Canada, France, Germany, Great Britain, Malaysia, Norway, South Africa, South Korea, Spain, and Sweden), and high financial system development (Japan, Netherlands, Singapore, and USA).

The ranking and clustering of countries using the Finance-Aggregate generally corresponds to our intuition, with a few surprises. For example, Great Britain falls into the medium FD cluster, while London is the leading European financial market sector. Note that the Finance-Aggregate measure scores the size of the financial system relative to GDP. Moreover, Finance-Aggregate incorporates not just financial market measures, but also bank financing measures. This measure captures both the activity and the size of the financial sector: this is why Italy ranks low (as the size of its financial sector is limited compared to other countries) whereas the Netherlands ranks high. Note that our classification of countries based on financial development is distinct from that based on legal origin (see Table 1).[12] For instance, while both the UK and Germany belong to the medium-FD group, the UK is common-law country with high investor protection, while Germany is a code-law country with lower investor protection (see Leuz et al., 2003). In our sample there is no discernible association between finance aggregate and legal origin ($Chi^2 = 1.66$, p-value = 0.436), neither with investor protection ($Chi^2 = 7.98$, p-value = 0.630), nor legal enforcement ($Chi^2 = 18.7$, p-value = 0.661).

For each firm-year we collect the number of analysts covering the firm at the time of the last consensus computation before the announcement of the year's earnings. We use $\ln(1 + coverage)$ as our main independent variable, as we expect the marginal effect of coverage to decrease as coverage increases.

[9] Levine (1997), Demirgüç-Kunt and Maksimovic (1998), Levine and Zervos (1998), Rajan and Zingales (1998), Beck and Levine (2002), and references therein.

[10] This measure has been used in a large number of studies (e.g., Purda, 2008). Cull et al. (2005) use two measures which are similar in spirit to Beck and Levine (2002)'s one: "PRIV" is the ratio of bank credit to the private sector to GDP and "LLIAB" is the ratio of liquid liabilities to GDP.

[11] *k*-Means partition cluster analysis breaks the observations into non-overlapping groups. Each observation is assigned to the group with the closest mean. Based on the new assignment of observations, the algorithm computes new group means, and the process is iterated until no observations change groups. We decided to split the countries into three groups, which appears to be an optimal figure (there is enough discrepancy between groups, while keeping a certain degree of simplicity in the treatments). We ran the treatment with our measure of financial development (the variable Finance-Aggregate), asking for three different clusterings and, as is the rule, we chose the cluster definition with the highest Calinski–Harabasz pseudo-*F*. As a robustness check, we ran all our regressions with a very basic cluster definition, dividing the 21 countries into three groups of equal size by rank of financial system development. We found qualitatively similar results.

[12] For a discussion of problems associated with basing international comparisons on legal origin, see Haxhi and Ees (2010).

4. Empirical findings

4.1. Univariate findings

Table 1 presents univariate evidence consistent with the FD enhancement hypothesis (Hypothesis 1). In high-FD countries, EM Activity is lower on average for firms followed by financial analysts (4.0%) than for firms that are not followed (4.3%). The difference, 0.3% of total assets, is statistically significant at the 1% level and represents about 7% of the average EM Activity for those countries (0.3/4.1). The picture is similar in medium-FD countries. In low-FD countries, there is no significant difference in EM Activity between followed and non-followed firms.

Another way to gauge the effect of analyst coverage on earnings management is to compare it to the effect of financial development. For firms not followed by financial analysts, EM Activity is about 5.2% of lagged total assets in low-FD countries, versus 4.3% in high-FD countries, a 0.9% decrease. So financial development in and of itself appears to be associated with lower levels of earnings management.[13] But in switching from not being followed to being followed, a firm in a high-FD country gets a further reduction of EM Activity equal to 0.3% of total assets. Thus, using these admittedly rough first-pass measures, the existence of analyst coverage affords companies about a third of the benefits of a hypothetical upgrade from low to high financial development.

4.2. Multivariate findings

Table 2 reports the results of our main regression equation for firm i in country j in year t:

$$EM\ Activity_{ijt} = \alpha_0 + \alpha_1 Analyst\ Coverage_{ijt} + \alpha_2 Analyst\ Coverage_{ijt} \times Medium\ FD_j + \alpha_3 Analyst\ Coverage_{ijt} \times High\ FD_j + \alpha_4 Control\ variables_{ijt} + \varepsilon_{ijt} \quad (2)$$

We are mainly interested in $\alpha_1 + \alpha_3$, which measures the impact of analyst coverage on earnings management in high-FD countries, while $\alpha_1 + \alpha_2$ measures it in medium-FD countries. For the sake of clarity, in Table 2 we report directly the sum of the coefficients $\alpha_1 + \alpha_2$ and the associated significance level under the label "Analyst coverage in medium-FD countries" and the sum of the coefficients $\alpha_1 + \alpha_3$ and the associated significance level under the label "Analyst coverage in high-FD countries." At the bottom of Table 2, we provide a comparison of the effect of analyst coverage in high-FD countries ($\alpha_1 + \alpha_3$) and in medium-FD countries ($\alpha_1 + \alpha_2$), as well as a comparison of the latter and the effect of analyst coverage in low-FD countries (α_1).

The literature on earnings management shows that abnormal accruals tend to be correlated with Return on Assets (McNichols, 2000). To control for this performance-related bias, we include Return on Assets (*ROA*), the absolute value of Return on Assets (|*ROA*|), and the change in *ROA* as independent variables in our regressions.[14] We also include size, leverage, country growth, and year fixed effects as in Haw et al. (2004).[15]

Table 2, column 1, reports the results of our baseline model. Based on these estimates, in high-FD countries a within-firm increase in analyst coverage from zero to one is associated with a reduction in EM Activity of 0.21% of total assets (0.21% = 0.003 × ln(1 + 1)). This reduction in EM Activity is statistically significant at the 1% level. For non-followed firms in those countries, average EM Activity is 4.3% of total assets (see Table 1), suggesting that the arrival of the first analyst following a firm in a high-FD country is associated with an average decline in EM Activity of about 5% (0.21/4.3). When analyst coverage jumps from zero to two in a high-FD country, EM Activity falls by 8% (0.003 × ln(1 + 2))/4.3). We

[13] Our finding that companies in high-FD countries exhibit lower levels of earnings management activity echoes that of Leuz et al. (2003), who use other measures of earnings management.

[14] For a more sophisticated methodology, see Kothari et al. (2005). Due to the international nature of our sample, we cannot implement their approach for it requires a much larger number of observations than are available.

[15] Haw et al. (2004, p. 436) note that "large firms likely face increased external monitoring, have more stable and predictable operations and stronger control structures, and hence report smaller abnormal accruals." They include leverage controls "for both income-increasing behavior (to alleviate the constraints of accounting-based debt contracts) and income-decreasing managerial activities (to facilitate debt renegotiations in the event of financial distress)."

Table 1
Univariate statistics.

Level of financial development	Country	Legal origin	Investor protection	Legal enforcement	Number of firm-years	Mean analyst coverage per firm	Percentage of firms followed by analysts (%)	*Finance-aggregate*	*EM activity*		
									All firms (%)	Firms not followed by financial analysts (%)	Firms followed by financial analysts (%)
Low	Austria	Code	2	9.4	165	1.8	53	0.43	5.2	4.7	5.7
	Belgium	Code	0	9.4	184	4.0	49	−0.15	4.6	4.9	4.4
	Denmark	Code	2	10	238	2.7	63	0.07	5.2	4.9	5.4
	Finland	Code	3	10	203	5.9	69	0.25	5.7	4.5	6.2
	India	Common	5	5.6	984	2.7	38	−0.36	5.4	5.2	5.6
	Italy	Code	1	7.1	493	5.1	62	0.13	5.1	5.6	4.8
			Overall Low FD		2267	3.5	51	0.26	5.3	5.2	5.3
Medium	Australia	Common	4	9.5	1347	4.6	67	0.92	4.8	4.8	4.8
	Canada	Common	5	9.8	2723	4.2	61	0.92	4.6	4.5	4.7
	Germany	Code	1	9.1	2585	5.8	65	0.95	5.8	5.8	5.8
	Spain	Code	4	7.1	407	7.8	75	0.49	4.5	4.2	4.7
	France	Code	3	8.7	2580	4.9	65	0.69	5.6	5.7	5.5
	Great Britain	Common	5	9.2	6239	4.8	46	0.96	5.7	6.3	5.1
	South Korea	Code	2	5.6	311	4.6	80	0.70	4.6	4.6	4.6
	Malaysia	Common	4	7.7	2328	2.9	33	0.95	5.5	5.7	5.0
	Norway	Code	4	10	308	4.1	56	0.59	4.4	4.1	4.5
	Sweden	Code	3	10	642	3.7	66	0.94	4.9	4.4	5.1
	South Africa	Common	5	6.4	223	5.9	80	1.08	3.9	3.6	4.0
			Overall Medium FD		19,693	4.6	55	0.89	5.4	5.6	5.1
High	Japan	Code	4	9.2	21,849	2.2	62	1.73	3.4	3.6	3.2
	Netherlands	Code	2	10	474	11.1	85	1.18	6.2	6.1	6.3
	Singapore	Common	4	8.9	1126	3.9	49	1.51	5.6	5.8	5.5
	USA	Common	5	9.5	20,390	5.5	72	1.44	4.7	5.0	4.5
			Overall High FD		43,839	3.9	67	1.58	4.1	4.3	4.0
	All countries				65,799	4.1	63	1.33	4.5	4.8	4.3

The sample consists of 65,799 firm-year observations for the fiscal years 1994–2002, across 21 countries and 13,098 non-financial firms. We obtained financial information from the Global (Standard and Poor's) Database and coverage information from I/B/E/S. Finance-Aggregate (Beck and Levine, 2002) measures the level of financial development in a country. Legal origin is a dummy variable coded one if the country has a common law tradition and zero otherwise (La Porta et al., 1998). Investor protection 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. Legal enforcement is developed by Leuz et al. (2003) and is measured as the mean score across three legal variables used in La Porta et al. (1998): (i) the efficiency of the judicial system, (ii) an assessment of rule of law, and (iii) the corruption index. All three variables range from 0 to 10. EM Activity is measured as a percentage of lagged total assets.
Appendix A defines the variables. Appendix B explains the calculation of the EM Activity variable. Appendix C explains our sample construction.

find no such pattern for medium-FD countries, where more analyst coverage is not associated with a reduction in EM Activity. At the bottom of Table 2, we also test the difference of the effect of analyst coverage in high-FD countries versus medium-FD countries and in medium-FD countries versus low-FD countries. Consistent with Hypothesis 1, we find that analyst coverage is more associated with a reduction in earnings management in high-FD countries than in medium-FD countries (coeff = 1.95, $p = 0.026$). For low-FD countries, we find that analyst following is associated with more earnings management activity (coeff = 0.006, $p = 0.021$, Table 2, column 1). However, this effect of analyst coverage on earnings management in low-FD countries turns out to become insignificant when taking into account reverse causality issues (column 2).[16]

Table 2, column 2 addresses potential reverse causality concerns: Might analysts base their decision to follow the firm on whether the firm has recently started to manage its earnings? The results we obtain are slightly stronger than in the baseline specification of column 1, indicating that reverse causality does not drive our findings. Once again, we find support for Hypothesis 1: as analyst coverage is associated with a greater reduction in earnings management in high-FD countries than in medium-FD countries (coeff = −0.004, $p = 0.000$ versus coeff = −0.001, $p = 0.111$, the difference is significant at the 0.023 level – see bottom of Table 2), whereas medium and low-FD countries are indistinguishable in terms of effect of analyst coverage on earnings management (coeff = −0.001, $p = 0.111$ versus 0.000, $p = 0.966$, the difference is not statistically significant at conventional levels, $p = 0.374$ – see bottom of Table 2).

Table 2, columns 3 and 4, replicate the results of columns 1 and 2 using a panel Weighted Least Squares (WLS) regression. A potential concern with the results presented in columns 1 and 2 is that there are large variations in the number of firm-year observations across the countries in our sample, and the effect of financial development on analyst coverage might be driven by, say, US or Japanese firms. WLS estimation addresses this problem by giving each firm-year observation a weight that is inversely proportional to the number of firm-years in the sample for the firm's country. The results of columns 3 and 4 are qualitatively similar to those of columns 1 to 3, indicating that the effect of financial development is more than simply a "US effect" or a "Japan effect."

4.3. Robustness checks

To rule out the possibility of a Fair Disclosure act[17] effect in our sample (see Srinidhi et al., 2009), we ran three tests. First, we excluded years 2001 and 2002 from our sample. Second, we excluded US observations (and US observations and all post 2000 observations in a subsequent test). All specifications lead to coefficients consistent with those reported in Table 2. Finally, we also rerun equation 2 for three sub-samples: 1994–1996; 1997–1999 and 2000–2002. The advantage of this test is twofold. First, we control for changes in the regulatory landscape (such as the Fair Disclosure act) that might impact our findings. If any regulation adopted during a sub-period has an impact, then we should observe differences in the coefficients on the variables of interest across sub-samples. Second, while firm fixed effects are included in Eq. (1), our study for the whole nine-year observation period, it is possible that firms experience some changes during this period. Running equation 2 on short time periods (three periods of 3 years instead of 9 years) helps to relax this assumption. Table 3 reports our findings, which are consistent with those of Table 2.

We run some additional tests in order to see if our results are driven by one particular country. We exclude countries one by one and findings (untabulated) are similar to those reported in Table 2.

To better understand the interaction term results in Table 2, we divide the sample into the high and low-FD subsamples, then rerun the model without the interaction term to evaluate the coefficient of analyst coverage, One advantage of this specification is that we do not constrain coefficient on control variables to be identical for low and high-FD countries. Table 4 presents our findings. They are quite consistent with those of Table 2.

We also run a test to ensure that using firm fixed effects is adequate. Because our sample is large and varied, firm specific differences in addition to country specific differences may not be fully taken into

[16] As is apparent from Table 1, the mean analyst coverage per firm varies across countries. In results not reported, we replicated all of our analyses by scaling Analyst Coverage by its maximum number in each country. Our results were qualitatively unchanged.

[17] The fair disclosure act is limited to US firms or to firms listed in the US.

Table 2
Panel firm fixed-effects regression – Earnings management, analyst coverage, and financial system development.

	Panel A: OLS panel firm fixed-effects regressions		Panel B: WLS panel firm-fixed effects regressions	
	Analyst coverage = ln[1 + # of analysts] (1) *b*/*t*	Analyst coverage = lag ln[1 + # of analysts] (2) *b*/*t*	Analyst coverage = ln[1 + # of analysts] (3) *b*/*t*	Analyst coverage = lag ln[1 + # of analysts] (4) *b*/*t*
α_1 Analyst coverage in low-FD countries	0.006**	0.000	0.007**	0.001
	(0.021)	(0.966)	(0.021)	(0.686)
$\alpha_1 + \alpha_2$ Analyst coverage in medium-FD countries	−0.004	−0.001	−0.001	−0.002
	(0.962)	(0.111)	(0.498)	(0.164)
$\alpha_1 + \alpha_3$ Analyst coverage in high-FD countries	−0.003***	−0.004***	−0.002***	−0.004***
	(0.000)	(0.000)	(0.001)	(0.000)
ROA	0.000	0.000	0.000	0.000
	(0.454)	(0.605)	(0.926)	(0.870)
|ROA|	0.000	0.000	0.000	0.000
	(0.073)	(0.134)	(0.774)	(0.757)
Change in ROA	0.000*	0.000*	0.000***	0.000**
	(0.062)	(0.067)	(0.008)	(0.015)
Size	0.000	0.000	−0.001*	−0.001
	(0.536)	(0.704)	(0.063)	(0.162)
Leverage	0.000	0.000	0.000	0.000
	(0.255)	(0.430)	(0.651)	(0.725)
Growth	0.064***	0.061***	0.075***	0.071***
	(0.000)	(0.000)	(0.000)	(0.000)
Firm fixed effects	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included
Number of observations	65,799	63,113	59,560	59,560
F	28.9	28.7	18.9	20.565
Prob > *F*	0.000	0.000	0.000	0.000
R-squared	0.405	0.405	0.391	0.392
Adjusted *R*-squared	0.257	0.258	0.242	0.243
t-Statistic for a one-sided test that $\alpha_1 + \alpha_3 < \alpha_1 + \alpha_2$	1.95	1.99	3.21	2.33
p-Value	0.026	0.023	0.001	0.010
t-Statistic for a one-sided test that $\alpha_1 + \alpha_2 < \alpha_1$	2.70	0.321	2.78	0.789
p-value	0.003	0.374	0.003	0.215

For firm i in country j in year t: $EM\ Activity_{ijt} = \alpha_0 + \alpha_1 Analyst\ Coverage_{ijt} + \alpha_2 Analyst\ Coverage_{ijt} \times Medium\ FD_j + \alpha_3 Analyst\ Coverage_{ijt} \times High\ FD_j + \alpha_4 Control\ variables_{ijt} + \varepsilon_{ijt}$.

The dependent variable is EM Activity. Column 1 reports the results of the basic model, in which Analyst Coverage is measured as ln(1 + number of analysts following the firm). In column 2 we use the one-year lagged value of ln(1 + number of analysts following the firm) as our instrument for Analyst Coverage. Columns 3 and 4 replicate columns 1 and 2 with a WLS regression. We sorted countries into three categories of financial development (high FD, medium FD, low FD) based on the Finance-Aggregate measure of Beck and Levine (2002). Medium FD (respectively High FD) is a dummy variable equal to one if the company is from a medium-FD country (resp. high-FD country), and zero otherwise. ROA, |ROA|, and ΔROA are, respectively; the Return on Assets, the absolute value of ROA, and the change in ROA. Size ranges from 1 to 10, corresponding to the decile (1: lowest; 10: highest) of total assets for the firm-year. Deciles are computed country by country. Leverage is the ratio of total debts to total assets. Growth is the mean annual GDP growth rate per country. We report *p*-values in parentheses below the coefficients. In the last two lines of the table, we report the absolute value of the *t*-statistic and the associated *p*-value for the test of the difference between $\alpha_1 + \alpha_3$ and $\alpha_1 + \alpha_2$ (first line), between $\alpha_1 + \alpha_2$ and α_1 (second line).

Appendix A defines the variables. Appendix B explains the calculation of the EM Activity variable. Appendix C explains our sample construction.

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

account. To mitigate this concern, we present two additional tables. In Table 5, all continuous variables are standardized (centered on the country mean and scaled by the standard deviation of the variable). Taking the difference from the country means helps remove invariant yearly components per country from the models. Findings are consistent with our main results. A change in one standard deviation in analyst following translates in no change in earnings management in low-FD (the coefficient is not significantly different from zero); while it is associated with lower earnings management by 0.722 standard deviation in medium-FD countries, by 1.122 standard deviation in high-FD countries.

In Table 6, we include the main effects (*Medium-FD* and *High-FD*) in addition to interaction terms along with industry, country and year fixed effects. This specification is costly as we do not control for time invariant fixed effect at the firm level. However, as we incorporate the main effects, the economic interpretation of the findings is more straightforward. Findings concerning the main effects are consistent with intuition: earnings management is less pronounced in medium-FD countries (−0.012 in column 1, −0.009 in column 2) compared to low-FD countries (which is the base group); and less pervasive in *High-FD* countries (−0.015, $p = 0.013$) than in *Medium-FD* countries. Interaction terms are consistent with those reported in Table 2. The coefficient on *Analyst Coverage* measures the effect of analyst coverage on earnings management in low-FD countries. This coefficient is positive and significant in column 1 and insignificant otherwise. The coefficient on the interaction term *Analyst Coverage* $*$ *Medium-FD countries* is insignificant in all columns (−0.004, $p = 0.962$ in column 1, $p = 0.111$ in column 2, $p = 0.762$ in column 3 and $p = 0.225$ in column 4), meaning that the effect of analyst coverage on earnings management in medium-FD countries is not distinguishable from its effect in low-FD countries. The coefficient on the interaction term *Analyst Coverage* $*$ *High-FD countries* is significant and negative in all specifications (−0.003 in column 1, −0.004 in column 2, −0.002 in column 3 and −0.004 in column 4). In other words, analyst coverage is associated with less earnings management in high-FD countries where as it is not the case in low-FD countries.

5. A closer look at the FD analyst consensus fixation hypothesis

Our findings support the FD enhancement hypothesis (Hypothesis 1), and run against the FD analyst consensus fixation hypothesis (Hypothesis 2). Since the predictions of those hypotheses run in opposite directions, our results are consistent with two different interpretations. Under the first interpretation, both hypotheses have empirical validity, but the FD consensus fixation effect is more than offset by the FD enhancement effect. The FD consensus fixation effect might be strong for firms with earnings near the consensus, but non-existent for firms with unmanaged earnings "far" from the consensus, for which analysts deter earnings management. Since most firms don't have earnings close to the consensus, the FD enhancement effect prevails over the FD consensus fixation effect. Under the second interpretation, the FD analyst consensus fixation hypothesis is simply rejected by the data. We run additional tests to disentangle between these two interpretations. Our evidence is more consistent with the second interpretation.

Our approach is twofold: First, we examine the premise that companies in high-FD countries are more fixated on trying to meet or beat the analyst forecast than firms in low-FD countries; we find little support for this premise. Second, we tilt our analysis in favor of the FD fixation hypothesis by focusing on a sub-sample of firms in which analyst fixation is likely to be highest. Even then, we find no support for the FD fixation hypothesis.

5.1. Analyst consensus fixation is not higher in high-FD countries

Recall the logic of the FD analyst consensus fixation hypothesis: The increased fixation on meeting the analysts' forecast targets in high-FD countries might create earnings management incentives that would not exist in low-FD countries. An untested premise of this hypothesis is that analyst consensus fixation[18] is higher in high-FD countries. We now test this premise directly.

[18] Graham et al. (2005, p. 5) argue that "the two most important earnings benchmarks are quarterly earnings for the same quarter last year and the analyst consensus estimate". We use the term "analyst consensus benchmark" to refer to the analyst consensus estimate taken as a benchmark.

Table 3
Panel firm fixed-effects regression – earnings management, analyst coverage, and financial system development by sub-periods.

	1994–1996 Analyst coverage = ln[1 + # of analysts] *b*/*t*	1997–1999 Analyst coverage = ln[1 + # of analysts] *b*/*t*	2000–2002 Analyst coverage = ln[1 + # of analysts] *b*/*t*
α_1 Analyst coverage in low-FD countries	0.005**	0.007**	0.003*
	(0.031)	(0.015)	(0.051)
$\alpha_1 + \alpha_2$ Analyst coverage in medium-FD countries	−0.014	0.081	−0.003
	(0.621)	(0.329)	(0.234)
$\alpha_1 + \alpha_3$ Analyst coverage in high-FD countries	−0.002**	−0.002***	−0.004***
	(0.000)	(0.000)	(0.000)
ROA	0.000	0.000	0.000
	(0.512)	(0.417)	(0.424)
|ROA|	0.000	0.000	0.000
	(0.081)	(0.096)	(0.062)
Change in ROA	0.000*	0.000*	0.000*
	(0.062)	(0.062)	(0.062)
Size	0.000	0.000	0.000
	(0.623)	(0.469)	(0.376)
Leverage	0.000	0.000	0.000
	(0.328)	(0.721)	(0.155)
Growth	0.054***	0.041***	0.049***
	(0.000)	(0.000)	(0.000)
Firm fixed effects	Included	Included	Included
Year fixed effects	Included	Included	Included
Number of observations	65,799	65,799	65,799
F	29.200	28.517	28.278
Prob > *F*	0.000	0.000	0.000
R-square	0.412	0.398	0.399
Adjusted *R*-square	0.263	0.246	0.246
t-Statistic for a one-sided test that $\alpha_1 + \alpha_3 < \alpha_1 + \alpha_2$	3.067	2.765	2.852
p-Value	0.001	0.003	0.002
t-Statistic for a one-sided test that $\alpha_1 + \alpha_2 < \alpha_1$	1.813	2.701	1.367
p-Value	0.035	0.003	0.086

The dependent variable is EM Activity. Columns 1, 2 and 3 respectively tabulate the findings of our main regression for three 3-year periods in our sample: 1994–1996, 1997–1999 and 2000–2002. Analyst Coverage is measured as ln(1 + number of analysts following the firm). We sorted countries into three categories of financial development (high FD, medium FD, low FD) based on the Finance-Aggregate measure of Beck and Levine (2002). Medium FD (respectively High FD) is a dummy variable equal to one if the company is from a medium-FD country (resp. high-FD country), and zero otherwise. ROA, |ROA|, and ΔROA are, respectively; the Return on Assets, the absolute value of ROA, and the change in ROA. Size ranges from 1 to 10, corresponding to the decile (1: lowest; 10: highest) of total assets for the firm-year. Deciles are computed country by country. Leverage is the ratio of total debts to total assets. Growth is the mean annual GDP growth rate per country. We report *p*-values in parentheses below the coefficients. In the last two lines of the table, we report the absolute value of the *t* statistic and the associated *p* value for the test of the difference between $\alpha_1 + \alpha_3$ and $\alpha_1 + \alpha_2$ (first line), between $\alpha_1 + \alpha_2$ and α_1 (second line). Appendix A defines the variables. Appendix B explains the calculation of the EM Activity variable. Appendix C explains our sample construction.

* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

Table 7 reports the country-by-country ratios of small positive to small negative earnings surprises. This ratio measures the importance of the analyst consensus as a benchmark: Small positive surprises

Table 4
Panel firm fixed-effects regression – earnings management, analyst coverage, and financial system development – by low-FD – high-FD sub samples.

	Low FD Analyst coverage = ln[1 + # of analysts] *b*/*t*	High FD Analyst coverage = ln[1 + # of analysts] *b*/*t*
Analyst coverage	0.005**	−0.004**
	(0.011)	(0.017)
ROA	0.000	0.000
	(0.321)	(0.502)
|ROA|	0.000	0.000*
	(0.082)	(0.058)
Change in ROA	0.000*	0.000**
	(0.082)	(0.031)
Size	0.000	0.000
	(0.621)	(0.321)
Leverage	0.000	0.000
	(0.110)	(0.321)
Growth	0.044***	0.072***
	(0.000)	(0.000)
Firm fixed effects	Included	Included
Year fixed effects	Included	Included
Number of observations	2267	43,839
F	15.2	32.0
Prob > *F*	0.000	0.000
R-square	0.351	0.421
Adjusted *R*-square	0.231	0.287

For firm i in country j in year t: $EM\ Activity_{ijt} = \alpha_0 + \alpha_1 Analyst\ Coverage_{ijt} + \alpha_2 Control\ variables_{ijt} + \varepsilon_{ijt}$.
The dependent variable is EM Activity. The sample is divided into the high (Column 1) and low-FD (Column 2). The basic model is run without the interaction term to evaluate the coefficient of analyst coverage, Analyst Coverage is measured as ln(1 + number of analysts following the firm). We sorted countries into two categories of financial development (high FD, low FD) based on the Finance-Aggregate measure of Beck and Levine (2002). ROA, |ROA|, and ΔROA are, respectively; the Return on Assets, the absolute value of ROA, and the change in ROA. Size ranges from 1 to 10, corresponding to the decile (1: lowest; 10: highest) of total assets for the firm-year. Deciles are computed country by country. Leverage is the ratio of total debts to total assets. Growth is the mean annual GDP growth rate per country. We report *p*-values in parentheses below the coefficients. Appendix A defines the variables. Appendix B explains the calculation of the EM Activity variable. Appendix C explains our sample construction.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

should outnumber small negative surprises as firms strive to beat the consensus. If the pressure on firms to do so is greater in high-FD countries, we should observe a higher small positive/small negative ratio in more financially developed countries.

We use two definitions of "small" earnings surprise. In Table 7, column 2, we define a small earnings surprise as within 0.13% of the stock price. We base our definition of "small" on the fact that in the US, for a typical stock a "small" earnings surprise can be roughly defined as within two cents of the consensus. The median stock price of US firms in our sample is $15, and 0.13% = 0.02/15. In Table 7, column 3, we use an alternative metric to define a "small earnings surprise". We follow Silverman (1986) and Scott (1992) (see also Degeorge et al., 1999; Dichev and Skinner, 2002) who suggest a bin width of $2(\text{IQR})n^{-1/3}$ where IQR is the sample interquartile range of the variable and n is the number of observations. An observation qualifies as a "small earnings surprise" if it falls within ±1 bin around zero.

The Spearman rank correlation of the ratio of small positive to small negative surprises with the country measure of Finance-Aggregate is 0.33 or 0.38, depending on our definition of small surprises (*p*-values 0.14 and 0.09 respectively). Therefore, the link between financial development and analyst consensus fixation seems weak at best.

Table 5
Panel firm fixed-effects regression – Earnings management, analyst coverage, and financial system development – All continuous variables are demeaned and scaled by their S.D.

	Analyst coverage = ln[1 + # of analysts] (1) *b*/*t*	Analyst coverage = lag ln[1 + # of analysts] (2) *b*/*t*
Analyst coverage in low-FD countries	0.611	0.390
	(0.421)	(0.761)
Analyst coverage in medium-FD countries	−0.722**	−0.741**
	(0.000)	(0.001)
Analyst coverage in high-FD countries	−1.122***	−1.114***
	(0.002)	(0.001)
Control variables	Included	Included
Firm fixed effects	Included	Included
Year fixed effects	Included	Included
Number of observations	65,799	63,113
F	30.925	27.951
Prob > *F*	0	0
R-square	0.405	0.405
Adjusted *R*-square	0.257	0.258
t-Statistic for a one-sided test that $\alpha_1 + \alpha_3 < \alpha_1 + \alpha_2$	3.255	2.916
p-Value	0.000	0.000
t-Statistic for a one-sided test that $\alpha_1 + \alpha_2 < \alpha_1$	2.122	2.921
p-Value	0.000	0.000

The dependent variable is EM Activity. In this table, EM activity for each observation is centered on the country mean and scaled by the standard deviation of EM activity at the country level. Column 1 reports the results of the basic model, in which Analyst Coverage is measured as ln(1 + number of analysts following the firm). In column 2 we use the 1-year lagged value of ln(1 + number of analysts following the firm) as our instrument for Analyst Coverage. All measures of analyst following are centered on the country mean and scaled by the standard deviation of analyst activity measure at the country level. We sorted countries into three categories of financial development (high FD, medium FD, low FD) based on the Finance-Aggregate measure of Beck and Levine (2002). Medium FD (respectively High FD) is a dummy variable equal to one if the company is from a medium-FD country (resp. high-FD country), and zero otherwise. Control variables (output not tabulated for the sake of simplicity) are similar to the control variables presented in Table 2 (ROA, |ROA|, and ΔROA, Size, Leverage, Growth). ROA, |ROA|, and ΔROA are centered on the country mean and scaled by the standard deviation of the variable. We report *p*-values in parentheses below the coefficients.
In the last two lines of the table, we report the absolute value of the *t* statistic and the associated *p* value for the test of the difference between $\alpha_1 + \alpha_3$ and $\alpha_1 + \alpha_2$ (first line), between $\alpha_1 + \alpha_2$ and α_1 (second line).
Appendix A defines the variables. Appendix B explains the calculation of the EM Activity variable. Appendix C explains our sample construction.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

Table 8 reports average earnings management activity for firms with small negative (column 2) vs. small positive (column 3) earnings surprises, and the difference (column 4 = column 3 minus column 2). In a country with high analyst consensus fixation, firms should manipulate their earnings to beat the analyst consensus, and the small positive/small negative earnings management difference should be high. If high-FD countries exhibit higher analyst consensus fixation, we should find a positive correlation between the number reported in column 4 and financial development. In fact, the Spearman rank correlation between column 4 and Finance-Aggregate is slightly negative (−0.10) albeit not statistically different from zero (*p*-value 0.67).

Overall then, we find little support for the notion that analyst consensus benchmark is more important in high-FD countries, casting doubt on the validity of the FD analyst consensus fixation hypothesis. We now turn to an alternative approach that tilts the balance in favor of this hypothesis.

Table 6
Regressions with industry, year and country controls – earnings management, analyst coverage, and financial system development.

	Analyst coverage = ln[1 + # of analysts]	Analyst coverage = lag ln[1 + # of analysts]	Analyst coverage = ln[1 + # of analysts]	Analyst coverage = lag ln[1 + # of analysts]
	(1)	(2)	(3)	(4)
	b/*t*	*b*/*t*	*b*/*t*	*b*/*t*
Legal enforcement			−0.002	−0.003
			(0.395)	(0.452)
Investor protection			−0.002***	−0.001**
			(0.001)	(0.001)
Medium-FD countries	−0.012**	−0.009**	−0.028	0.021
	(0.021)	(0.019)	(0.291)	(0.349)
High-FD countries	−0.015**	−0.019**	−0.012**	−0.004**
	(0.013)	(0.014)	(0.021)	(0.031)
Analyst coverage	0.002*	0.001	0.006	−0.004
	(0.068)	(0.813)	(0.651)	(0.725)
Analyst coverage ∗ Medium-FD countries	−0.004	−0.001	−0.004	−0.001
	(0.962)	(0.111)	(0.762)	(0.225)
Analyst coverage ∗ High-FD countries	−0.003***	−0.004***	−0.002***	−0.004***
	(0.000)	(0.000)	(0.000)	(0.000)
Other control variables	Included	Included	Included	Included
Country fixed effects	Included	Included	Excluded	Excluded
Industry fixed effects	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included
Number of observations	65,799	63,113	65,799	63,113
F	17.951	17.921	18.251	16.611
Prob > *F*	0.000	0.000	0.000	0.000
R-square	0.205	0.210	0.171	0.172
Adjusted *R*-square	0.173	0.166	0.139	0.151

The dependent variable is EM Activity. Columns 1 and 4 tabulate findings for which Analyst Coverage is measured as ln(1 + number of analysts following the firm). In columns 2 and 4, we use the 1-year lagged value of ln(1 + number of analysts following the firm) as our instrument for Analyst Coverage. We sorted countries into three categories of financial development (high FD, medium FD, low FD) based on the Finance-Aggregate measure of Beck and Levine (2002). Medium FD (respectively High FD) is a dummy variable equal to one if the company is from a medium-FD country (resp. high-FD country), and zero otherwise. Other control variables include the same control variables as in Table 2 (ROA, |ROA|, ΔROA, Size, Leverage, Growth). Investor protection 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. Legal enforcement is developed by Leuz et al. (2003) and is measured as the mean score across three legal variables used in La Porta et al. (1998): (i) the efficiency of the judicial system, (ii) an assessment of rule of law, and (iii) the corruption index. All three variables range from 0 to 10. We report *p*-values in parentheses below the coefficients.
Appendix A defines the variables. Appendix B explains the calculation of the EM Activity variable. Appendix C explains our sample construction.
* Significant at the 10% level.
** Significant at the 5% level.
*** Significant at the 1% level.

5.2. Earnings close to the consensus

We have not been able to detect a higher level of analyst consensus fixation in high-FD countries. Let us suppose nevertheless that it is higher in high-FD countries, but in ways that we are not able to measure. The firms for which the fixation on trying to meet or beat the analyst forecast is likely to be strongest are those with earnings close to the analyst consensus. Accordingly, in Table 9 we replicate the previous analysis, now focusing exclusively on firms with earnings close to the consensus, and so tipping the scales in our analysis in favor of the FD consensus fixation hypothesis. If we find support

Table 7
Analyst consensus fixation across levels of financial development (firms covered by financial analysts).

	(1) Finance-aggregate	(2) Ratio of the number of small positive to the number of "small" negative earnings surprises	(3) Ratio of the number of small positive to the number of "small" negative earnings surprises (alternative definition of "small")
India	−0.36	0.91	0.93
Belgium	−0.15	0.88	0.92
Denmark	0.07	1.37	1.22
Italy	0.13	1.39	1.25
Finland	0.25	1.58	1.21
Austria	0.43	0.80	0.90
Spain	0.49	0.96	0.93
Norway	0.59	1.15	1.08
France	0.69	1.06	0.97
South Korea	0.70	1.62	1.65
Australia	0.92	1.17	1.21
Canada	0.92	1.52	1.59
Sweden	0.94	1.23	1.32
Germany	0.95	1.29	1.19
Malaysia	0.95	0.98	1.11
Great Britain	0.96	1.77	1.52
South Africa	1.08	1.06	0.99
Netherlands	1.18	1.56	1.41
USA	1.44	2.61	2.32
Singapore	1.51	1.23	1.19
Japan	1.73	1.07	1.09
Spearman rank correlation with Finance-aggregate		0.33	0.38
p-Value		0.14	0.09

In column 1 we rank countries by increasing level of financial development according to the Finance-Aggregate measure of Beck and Levine (2002). Column 2 reports the ratio of small positive to small negative surprises by country. Earnings surprise equals reported EPS, minus consensus forecast, divided by the share price 7 days before the earnings announcement date. We classify an earnings surprise as small if its absolute value is less than 0.13% of the stock price. Column 3, reports an alternative measure of the ratio of small positive to small negative surprises by country. We follow Silverman (1986) and Scott (1992) (see also Degeorge et al., 1999; Dichev and Skinner, 2002) who suggest a bin width of $2(IQR)n^{-1/3}$ where *IQR* is the sample interquartile range of the variable and *n* is the number of observations. An observation qualifies as a "small earnings surprise" if it falls within ±1 bin around zero.

for the hypothesis in this setting, it means that the FD consensus fixation effect exists, but it is confined to a subsample of firms close to the analyst consensus; for other firms, the FD enhancement effect prevails. If we cannot find support for the FD fixation hypothesis in this setting, then we must conclude that it is simply not supported by the evidence.

Table 9 shows that even for firms with earnings close to the consensus (i.e., with a small earnings surprise, see definition in Table 7), for all specifications, the coefficient on *Analyst Coverage in High-FD* countries is always negative (ranging from −0.003 to −0.005) and significant at the 1% level, whereas coefficients on Analyst Coverage in other FD levels (low or medium) are generally not. In other words, an increase in within-firm analyst coverage is associated with less earnings management only high-FD countries. The coefficient estimates are close to those of Table 2. This finding goes directly against the FD fixation hypothesis.

6. Relation of our findings to the literature and conclusion

Rajan and Zingales (1998) find that financial development is especially important for firms that depend on external financing for their growth. Their logic is that these are the firms for which moral hazard and adverse selection problems are likely to be the most severe. We find that financial analysts are

Table 8
Average *EM Activity* for firms with small earnings surprises.

	(1) Finance-aggregate	(2) Average *EM activity* firms with small negative earnings surprises (%)	(3) Average *EM activity* firms with small positive earnings surprises (%)	(4) Mean difference (small positive minus small negative) (3) minus (2)
India	−0.36	5.72	6.29	0.57%
Belgium	−0.15	4.04	3.75	−0.30%
Denmark	0.07	3.35	4.56	1.21%
Italy	0.13	5.08	4.10	−0.99%
Finland	0.25	5.92	5.63	−0.30%
Austria	0.43	3.77	7.27	3.49%
Spain	0.49	4.65	5.32	0.67%
Norway	0.59	3.22	5.25	2.04%
France	0.69	4.82	5.04	0.22%
South Korea	0.70	6.58	2.40	−4.18%
Australia	0.92	4.37	4.79	0.42%
Canada	0.92	4.87	4.64	−0.23%
Sweden	0.94	6.02	3.61	−2.41%
Germany	0.95	4.89	5.68	0.79%
Malaysia	0.95	4.58	4.47	−0.10%
Great Britain	0.96	4.98	4.71	−0.27%
South Africa	1.08	4.56	4.59	0.04%
Netherlands	1.18	5.13	6.96	1.82%
USA	1.44	4.24	4.40	0.16%
Singapore	1.51	5.36	5.02	−0.34%
Japan	1.73	2.86	2.97	0.11%
Spearman rank correlation with finance-aggregate				−0.10
p-Value				0.67

In column 1 we rank countries by increasing level of financial development according to the Finance-Aggregate measure of Beck and Levine (2002). Column 2 reports the average earnings management activity for firms with small negative surprises. Column 3 reports the average earnings management activity for firms with small positive surprises. Column 4 reports the difference column 3 minus column 2.

more effective monitors in high-FD countries. The greater effectiveness of financial analysts in high-FD countries may facilitate companies' access to outside finance. Hence, a two-way relationship may exist between financial development and the effectiveness of monitoring by analysts. Financial development promotes the effectiveness of analyst monitoring. In turn, the quality of analyst monitoring fosters financial development by facilitating firms' access to outside finance. Our results show the heterogeneity of financial development (e.g., within Europe) has an impact on the effectiveness of analysts' monitoring function even after controlling for other firm fixed effects.

In a related study, Wurgler (2000) finds that countries with developed financial sectors increased their investment more in growing industries and decreased their investment more in declining industries. To the extent that financial analysts in high-FD countries provide better monitoring, they offer better guidance to investors as to the growth prospects of firms, and thus may have contributed to this result.

Our results suggest that financial development and analyst monitoring are complements. Doidge et al. (2007) find that country-level investor protection and firm-level governance are complements. To the extent that financial development is closely correlated with investor protection – and the typical measures of financial development and investor protection do exhibit such a positive correlation (see Beck et al., 2003; Beck and Levine, 2005) – our findings are consistent with theirs.

Morck et al. (2000) find that poorly developed stock markets are poor processors of firm-specific information. The pattern we document in our study – an inability of financial analysts to prevent earnings management in low-FD countries – may contribute to the phenomenon identified by Morck et al.

Table 9
Panel firm fixed-effects regression – earnings management, analyst coverage, and financial system development (firms with small earnings surprises) α_1.

	Panel A: OLS panel firm fixed-effects regressions		Panel B: WLS panel firm fixed-effects regressions	
	Analyst coverage = ln[1 + # of analysts] (1) *b*/*t*	Analyst coverage = lag ln[1 + # of analysts] (2) *b*/*t*	Analyst coverage = ln[1 + # of analysts] (3) *b*/*t*	Analyst coverage = lag ln[1 + # of analysts] (4) *b*/*t*
α_1 Analyst coverage in low-FD countries	0.017*	0.009	0.021**	0.008
	(0.065)	(0.109)	(0.038)	(0.250)
$\alpha_1 + \alpha_2$ Analyst coverage in medium-FD countries	−0.003	−0.002	0.001	−0.004
	(0.218)	(0.266)	(0.939)	(0.198)
$\alpha_1 + \alpha_3$ Analyst coverage in high-FD countries	−0.003***	−0.005***	−0.003***	−0.005***
	(0.000)	(0.000)	(0.021)	(0.000)
ROA	0.000	0.000	0.000	0.000
	(0.426)	(0.400)	(0.227)	(0.224)
|ROA|	0.000**	0.000***	0.000**	0.000**
	(0.018)	(0.011)	(0.027)	(0.029)
Change in ROA	0.000	0.000	0.000	0.000
	(0.198)	(0.427)	(0.139)	(0.228)
Size	−0.002***	−0.001**	−0.002***	−0.002**
	(0.004)	(0.027)	(0.010)	(0.032)
Leverage	0.001**	0.001**	0.000	0.000
	(0.033)	(0.021)	(0.197)	(0.231)
Growth	0.061***	0.052***	0.066***	0.055***
	(0.000)	(0.001)	(0.000)	(0.000)
Firm fixed effects	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included
Number of observations	21,081	20,882	19,546	19,546
F	10.848	12.535	7.953	9.267
Prob > *F*	0.000	0.000	0.000	0.000
R-square	0.500	0.515	0.483	0.484
Adjusted *R*-square	0.285	0.286	0.240	0.242

For firm i in country j in year t: $EM\ Activity_{ijt} = \alpha_0 + \alpha_1 Analyst\ Coverage_{ijt} + \alpha_2 Analyst\ Coverage_{ijt} \times Medium\ FD_j + \alpha_3 Analyst\ Coverage_{ijt} \times High\ FD_j + \alpha_4 Control\ variables_{ijt} + \varepsilon_{ijt}$.

The dependent variable is EM Activity. We restrict the analysis to firms with small earnings surprises. We classify an earnings surprise as small if its absolute value is less than 0.13% of the stock price. Column 1 reports the results of the basic model, in which Analyst Coverage is measured as ln(1 + number of analysts following the firm). In column 2 we use the 1-year lagged value of ln(1 + number of analysts following the firm) as our instrument for Analyst Coverage. Columns 3 and 4 replicate columns 1 and 2 with a WLS regression. We sorted countries into three categories of financial development (high FD, medium FD, low FD) based on the Finance-Aggregate measure of Beck and Levine (2002). Medium FD (respectively High FD) is a dummy variable equal to one if the company is from a medium-FD country (resp. high-FD country), and zero otherwise. ROA, |ROA|, and ΔROA are, respectively; the Return on Assets, the absolute value of ROA, and the change in ROA. Size ranges from 1 to 10, corresponding to the decile (1: lowest; 10: highest) of total assets for the firm-year. Deciles are computed country by country. Leverage is the ratio of total debts to total assets. Growth is the mean annual GDP growth rate per country. We report *p*-values in parentheses below the coefficients.

Appendix A defines the variables. Appendix B explains the calculation of the EM Activity variable. Appendix C explains our sample construction.

* Significant at the 10% level.

** Significant at the 5% level.

*** Significant at the 1% level.

Our study relies on the use of short-term discretionary accruals. We recognize the limitations of using this metric to capture earnings management. It is possible that earnings management is not primarily done via short-term accruals in some countries. Recently, Higgins (2013) showed earnings management via long-term accruals by Japanese companies. More broadly, the Jones (1991) and modified Jones (Dechow et al., 1995) models have been criticized for their lack of power and their possible misspecification (see, e.g., McNichols, 2000; Collins et al., 2011). We acknowledge that the literature has identified other measures of earnings management: total discretionary accruals, specific accruals and discontinuities in frequency distributions (Burgstahler and Dichev, 1997; Degeorge et al., 1999; McNichols, 2000). However, as Section 3.2 makes clear, a dominant stream of literature highlights the role of short-term discretionary accruals in earnings management and motivates our use of this metric.

Our study focuses on accounting-based earnings management. An interesting extension of our work would be to examine whether our results also extend to other forms of earnings management, such as cash-based earnings management (Jian and Wong, 2010) or real earnings management (Cohen et al., 2008; Cohen and Zarowin, 2010).[19]

We focus on an important class of agents in the financial intermediation process: financial analysts. We find that analyst monitoring is more effective in more financially developed countries. Using a sample of 65,799 firm-year observations in 21 countries from 1994 to 2002, we find that the higher the financial development of a country, the greater the reduction in earnings management associated with analyst coverage. In high-FD countries, as within-firm analyst coverage moves from zero to one, earnings management activity falls by about 5%. Our findings are robust to reverse causality checks. According to Levine (1997), "financial contracts, markets, and intermediaries may arise to mitigate the information acquisition and enforcement costs of monitoring managers." We find empirical support for this claim.

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[19] On the pros and cons of various measures of earnings management, see McNichols (2000) and Peasnell et al. (2000).

Appendix A. Variable definitions

Variables	Definitions
EM activity	Absolute value of short-term discretionary accruals (Jones, 1991; Teoh et al., 1998a, 1998b) (see Appendix B for details of the computation)
Analyst coverage	Ln(1+# analysts) in the baseline model (data source: I/B/E/S)
FD	Financial development: Finance-Aggregate measure, as defined by Beck and Levine (2002)
Analyst coverage * Financial development	Interaction variable between Analyst coverage and Financial development. The 21 countries were divided into three terciles of Financial development – Lower, Medium, and High – using a *k*-means cluster analysis
Medium-FD	Dummy variable equal to one if the company is in a country of medium financial development, and zero otherwise
High-FD	Dummy variable equal to one if the company is in a country of high financial development, and zero otherwise
Controls	*Control variables:*
ROA	Return on Assets (data source: Global Vantage)
|ROA|	Absolute value of ROA (data source: Global Vantage)
ΔROA	Change in ROA (data source: Global Vantage)
Size	Ranges from 1 to 10, corresponding to the decile (1: lowest; 10: highest) of total assets for the firm-year. Deciles are computed country by country (data source: Global Vantage)
Leverage	Ratio of total debts to total assets (data source: Global Vantage)
Growth	Mean annual GDP growth rate per country (data source: World Bank Development Indicators)

Appendix B. Computation of our earnings management measure

Accruals are adjustments to the cash-flow to generate net earnings:

$$Earnings_t = cash\ flow_t + accruals_t \tag{3}$$

Accruals may have legitimate accounting purposes: for example, depreciation allowances may be booked to reflect the ageing of assets. But accruals may also be used inappropriately to manage companies' earnings. The challenge for the researcher is to disentangle the legitimate, non-discretionary portion of accruals from its discretionary part:

$$Accruals_t = discretionary\ accruals_t + non\text{-}discretionary\ accruals_t \tag{4}$$

There are two constituents of total accruals:

(1) *Long-term accruals* relate to the recognition of depreciation expense in the income statement.
(2) When the income statement records sales instead of cash revenues, there is a corresponding change in receivables. When the income statement records expenses instead of cash outflows, there are corresponding changes in inventories and current liabilities. These adjustments (change in non-cash current assets minus change in operating liabilities) are labeled *short-term (*or *current) accruals*. As explained by Sloan (1996, p. 297), the majority of the variation in accruals is attributable to variation in the current asset component. Teoh et al. (1998b) consider current accruals and long-term accruals separately because accounting researchers (e.g., Guenther, 1994) have argued that managers have greater discretion over current accruals than over long-term accruals.

We use two-digit GICS codes to compute the country-year-industry specific α, and β in the following Eq. (5):

$$\frac{STAc_{c,ind,t}}{TA_{c,ind,t-1}} = \alpha_{c,ind,t} * \frac{1}{TA_{c,ind,t-1}} + \beta_{c,ind,t} * \frac{\Delta Sales_{c,ind,t}}{TA_{c,ind,t-1}} + \varepsilon_{c,ind,t} \tag{5}$$

Subscripts t and i refer, respectively, to time and to firm. *STAc* refers to "short-term accruals" (change in non-cash current assets minus change in operating liabilities), *TA* refers to "total assets," *c*, *ind* and *t* are respectively country, industry, and year specific, $\Delta Sales$ stands for "change in net sales," ε is the error term. Since ε is heteroskedastic, we scale all variables by lagged total assets.

α, and β are country, year, and industry specific. Following Jones (1991) and Dechow et al. (1995), we compute expected accruals by combining real data for the firm ($\Delta Sales$) with the estimated coefficients (α and β) of the previous year, as in Eq. (5). Thus, expected short-term accruals represent an estimate of the normal level of short-term accruals for a firm, given its size and industry. We then define short-term discretionary accruals (SDA_{it}) as the difference between actual short-term accruals and predicted short-term accruals:

$$\mathrm{SDA}_{it} = \frac{STAc_{i,t}}{TA_{i,t-1}} - \left[\underbrace{\alpha_{c,ind,t-1} * \frac{1}{TA_{i,t-1}} + \beta_{c,ind,t-1} * \frac{\Delta Sales_{i,t}}{TA_{i,t-1}}}_{\text{Expected accruals for i in year t}} \right] \tag{6}$$

Appendix C. Sample construction

Our initial sample consists of all non-financial firms with sufficient data to compute discretionary accruals and belonging to the countries included in Beck and Levine (2002). This leads to an initial sample of 76,430 observations from 42 countries. We apply a number of filtering rules to our initial sample:

(1) We drop countries with less than 150 observations of short-term accruals. We lose 12 countries and 1422 observations.
(2) Following DeFond and Jiambalvo (1994), we drop industries with less than 7 observations. We lose 1359 observations.
(3) We drop countries with observations in less than 5 of the years 1994–2002 and in less than 5 industries. We lose 6507 observations and 9 countries.
(4) Following Subramanyam (1996), we drop observations with total accruals in excess of the top or bottom 1% of the fitting sample. We lose 1343 observations.

At the end of this process we are left with a sub-sample of 65,799 firm-year observations on 21 countries.

References

Alcarria Jaime, J.J., De Albornoz Noguer, B.G., 2004. Specification and power of cross-sectional abnormal working capital accruals models in the Spanish context. European Accounting Review 13, 73–104.
Bae, K.-H., Tan, H., Welker, M., 2008. International GAAP differences: the impact on foreign analysts. The Accounting Review 83, 593–628.
Barniv, R., Myring, M., Thomas, W.B., 2005. The association between the legal and financial reporting environments and forecast performance of individual analysts. Contemporary Accounting Research 22, 727–758.
Beck, T., Levine, R., 2002. Industry growth and capital allocation: does having a market- or bank-based system matter? Journal of Financial Economics 64, 147–180.
Beck, T., Levine, R., 2005. Legal institutions and financial development. In: Ménard, C., Shirley, M.M. (Eds.), Handbook of New Institutional Economics. Kluwer, Dordrecht, pp. 251–280.
Beck, T., Demirgüç-Kunt, A., Levine, R., 2003. Law, endowments, and finance. Journal of Financial Economics 70, 137–181.
Blalock, G., Simon, D.H., 2009. Do all firms benefit equally from downstream fdi? The moderating effect of local suppliers' capabilities on productivity gains. Journal of International Business Studies 40, 1095–1112.

Brown, L.D., Higgins, H.N., 2001. Managing earnings surprises in the US versus 12 other countries. Journal of Accounting and Public Policy 20, 373–398.
Brown, L.D., Higgins, H.N., 2005. Managers' forecast guidance of analysts: international evidence. Journal of Accounting and Public Policy 24, 280–299.
Burgstahler, D., Dichev, I., 1997. Earnings management to avoid earnings decreases and losses. Journal of Accounting and Economics 24, 99–126.
Burgstahler, D., Eames, M.J., 2006. Management of earnings and analysts' forecasts to achieve zero and small positive earnings surprises. Journal of Business Finance & Accounting 33, 633–652.
Byrne, J., 1998. How Al Dunlap self-destructed. Business Week July 6, 58.
Carey, P., Simnett, R., 2006. Audit partner tenure and audit quality. The Accounting Review 81, 653–676.
Chang, X., Dasgupta, S., Hilary, G., 2006. Analyst coverage and financing decisions. Journal of Finance 61, 3009–3048.
Cohen, D.A., Zarowin, P., 2010. Accrual-based and real earnings management activities around seasoned equity offerings. Journal of Accounting and Economics 50, 2–19.
Cohen, D.A., Dey, A., Lys, T.Z., 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes–Oxley periods. The Accounting Review 83, 757–787.
Collingwood, H., 2001. The earnings game: everyone plays, nobody wins. Harvard Business Review 79, 65–74.
Collins, D.W., Pungaliya, R.S., Vijh, A.M., 2011. The effects of firm growth and model specification choices on tests of earnings management. SSRN eLibrary. <http://ssrn.com/abstract=1823835>.
Cull, R., Senbet, L.W., Sorge, M., 2005. Deposit insurance and financial development. Journal of Money, Credit and Banking 37, 43–82.
Dal Bó, E., Rossi, M.A., 2007. Corruption and inefficiency: theory and evidence from electric utilities. Journal of Public Economics 91, 939–962.
Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1995. Detecting earnings management. The Accounting Review 70, 193–225.
DeFond, M.L., Jiambalvo, J., 1994. Debt covenant violation and manipulation of accruals. Journal of Accounting and Economics 17, 145–176.
DeFond, M.L., Park, C.W., 2001. The reversal of abnormal accruals and the market valuation of earnings surprises. The Accounting Review 76, 375.
Degeorge, F., Patel, J., Zeckhauser, R., 1999. Earnings management to exceed thresholds. Journal of Business 72, 1–33.
Demirgüç-Kunt, A., Maksimovic, V., 1998. Law, finance and firm growth. Journal of Finance 53, 2107–2137.
Dichev, I.D., Skinner, D.J., 2002. Large-sample evidence on the debt covenant hypothesis. Journal of Accounting Research 40, 1091–1123.
Doidge, C., Andrew Karolyi, G., Stulz, R.M., 2007. Why do countries matter so much for corporate governance? Journal of Financial Economics 86, 1–39.
DuCharme, L.L., Malatesta, P.H., Sefcik, S.E., 2004. Earnings management, stock issues, and shareholder lawsuits. Journal of Financial Economics 71, 27–49.
Dyck, A., Morse, A., Zingales, L., 2010. Who blows the whistle on corporate fraud? Journal of Finance 65, 2213–2253.
Fuller, J., Jensen, M.C., 2002. Just say no to wall street. Journal of Applied Corporate Finance 14, 41–46.
Graham, J.R., Harvey, C.R., Rajgopal, S., 2005. The economic implications of corporate financial reporting. Journal of Accounting and Economics 40, 3–73.
Guenther, D.A., 1994. Earnings management in response to corporate tax rate changes: evidence from the 1986 tax reform act. The Accounting Review 69, 230–243.
Haw, I.-M., Hu, B., Hwang, L.-S., Wu, W., 2004. Ultimate ownership, income management, and legal and extra-legal institutions. Journal of Accounting Research 42, 423–462.
Haxhi, I., Ees, H.V., 2010. Explaining diversity in the worldwide diffusion of codes of good governance. Journal of International Business Studies 41, 710–726.
Healy, P.M., Wahlen, J.M., 1999. A review of the earnings management literature and its implications for standard setting. Accounting Horizons 13, 365.
Higgins, H.N., 2013. Do stock-for-stock merger acquirers manage earnings? Evidence from Japan. Journal of Accounting and Public Policy 32, 44–70.
Hirst, D.E., Koonce, L., Venkataraman, S., 2008. Management earnings forecasts: a review and framework. Accounting Horizons 22, 315–338.
Hope, O.-K., 2003a. Accounting policy disclosures and analysts' forecasts. Contemporary Accounting Research 20, 295–321.
Hope, O.-K., 2003b. Disclosure practices, enforcement of accounting standards and analysts' forecast accuracy: an international study. Journal of Accounting Research 41, 235–272.
Hribar, P., Nichols, D.C., 2007. The use of unsigned earnings quality measures in tests of earnings management. Journal of Accounting Research 45, 1017–1053.
Jaggi, B., Leung, S., Gul, F., 2009. Family control, board independence and earnings management: evidence based on Hong Kong firms. Journal of Accounting and Public Policy 28, 281–300.
Jensen, M.C., 2005. Agency costs of overvalued equity. Financial Management 34, 5–19.
Jensen, M.C., Meckling, W.H., 1976. Theory of the firm: managerial behavior, agency costs and ownership structure. Journal of Financial Economics 3, 305–360.
Jian, M., Wong, T.J., 2010. Propping through related party transactions. Review of Accounting Studies 15, 70–105.
Jo, H., Kim, Y., 2007. Disclosure frequency and earnings management. Journal of Financial Economics 84, 561–590.
Jones, J.J., 1991. Earnings management during import relief investigations. Journal of Accounting Research 29, 193–228.
Kothari, S.P., Leone, A.J., Wasley, C.E., 2005. Performance matched discretionary accruals measures. Journal of Accounting and Economics 39, 163–197.
La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R., 1997. Legal determinants of external finance. Journal of Finance 52, 1131–1150.
La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R., 1998. Law and finance. Journal of Political Economy 106, 1113–1155.

La Porta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R., 2002. Investor protection and corporate valuation. Journal of Finance 57, 1147–1170.
Lang, M.H., Lins, K.V., Miller, D.P., 2004. Concentrated control, analyst following, and valuation: do analysts matter most when investors are protected least? Journal of Accounting Research 42, 589–624.
Larcker, D.F., Rusticus, T.O., 2010. On the use of instrumental variables in accounting research. Journal of Accounting and Economics 49, 186–205.
Leuz, C., Nanda, D., Wysocki, P.D., 2003. Earnings management and investor protection: an international comparison. Journal of Financial Economics 69, 505–527.
Levine, R., 1997. Financial development and economic growth: views and agenda. Journal of Economic Literature 35, 688–726.
Levine, R., Zervos, S., 1998. Stock markets, banks, and economic growth. American Economic Review 88, 537–558.
Levitt, A., 1998. The 'numbers game'. CPA Journal 68, 14–18.
McNichols, M.F., 2000. Research design issues in earnings management studies. Journal of Accounting and Public Policy 19, 313–345.
Morck, R., Yeung, B., Yu, W., 2000. The information content of stock markets: why do emerging markets have synchronous stock price movements? Journal of Financial Economics 58, 215–260.
Park, M.S., Park, T., 2004. Insider sales and earnings management. Journal of Accounting and Public Policy 23, 381–411.
Peasnell, K.V., Pope, P.F., Young, S., 2000. Detecting earnings management using cross-sectional abnormal accruals models. Accounting and Business Research 30, 313–326.
Purda, L.D., 2008. Risk perception and the financial system. Journal of International Business Studies 39, 1178–1196.
Rajan, R.G., Zingales, L., 1998. Financial dependence and growth. American Economic Review 88, 559–586.
Rangan, S., 1998. Earnings management and the performance of seasoned equity offerings. Journal of Financial Economics 50, 101–122.
Reingold, D., Reingold, J., 2006. Confessions of a Wall Street Analyst: A True Story of Inside Information and Corruption in the Stock Market. HarperCollins, New York.
Rodríguez-Pérez, G., van Hemmen, S., 2010. Debt, diversification and earnings management. Journal of Accounting and Public Policy 29, 138–159.
Scott, D.W., 1992. Multivariate Density Estimation: Theory∗ Practice and Visualization. Wiley, Newyork.
Silverman, B.W., 1986. Density Estimation for Statistics and Data Analysis. Chapman & Hall, London.
Sloan, R.G., 1996. Do stock prices fully reflect information in accruals and cash flows about future earnings? The Accounting Review 71, 289–315.
Srinidhi, B., Leung, S., Jaggi, B., 2009. Differential effects of regulation FD on short- and long-term analyst forecasts. Journal of Accounting and Public Policy 28, 401–418.
Subramanyam, K.R., 1996. The pricing of discretionary accruals. Journal of Accounting and Economics 22, 249–281.
Teoh, S.H., Welch, I., Wong, T.J., 1998a. Earnings management and the long-run market performance of initial public offerings. Journal of Finance 53, 1935–1974.
Teoh, S.H., Welch, I., Wong, T.J., 1998b. Earnings management and the underperformance of seasoned equity offerings. Journal of Financial Economics 50, 63–99.
Tétreau, E., 2005. Analyste: Au coeur de la folie financière. Grasset & Fasquelle, Paris.
Watts, R.L., Zimmerman, J.L., 1986. Positive Accounting Theory. Prentice-Hall (Englewood Cliffs).
Wooldridge, J.M., 2002. Introductory Econometrics – A Modern Approach, second ed. South-Western College Publishing.
Wurgler, J., 2000. Financial markets and the allocation of capital. Journal of Financial Economics 58, 187–214.
Yu, F., 2008. Analyst coverage and earnings management. Journal of Financial Economics 88, 245–271.