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"Analyst Coverage and Earnings Management"

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Analyst Coverage and Earnings Management

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Abstract

This study investigates the effect of analyst coverage on both accrual-based and real earnings management. Regarding accrual-based earnings management, I find that firms followed by more analysts engage in less accruals management and that more experienced analysts seem to be more effective in constraining accruals management, consistent with the role of analysts as external monitors to managers. In addition, I find that the effect of analyst coverage concentrates on firms with income-increasing discretionary accruals and that such effect is stronger for firms who narrowly meet or beat earnings targets with positive discretionary accruals, while the latter results could be due to stronger monitoring effect of analysts or due to firms' switching from accruals management to expectations management. Finally, I find that analyst coverage affects neither the magnitude nor the occurrence of real earnings management, failing to support the monitoring effect hypothesis of the original study.

1. Introduction

While the impact of corporate governance mechanisms on earnings management has received great attention in recent years, Yu (2008) is among the first to investigate the role of financial analysts as external monitors to managers. Specifically, Yu examines whether firms followed by more analysts engage in less accrual-based earnings management due to the monitoring effect of analysts or do they engage in more accruals management due to the excessive pressure generated by analysts. In this study I not only reexamine the effect of analyst coverage on accruals management, but also extend my analysis to include proxies for real earnings management. By including real earnings management, I seek to provide more complete evidence on the role of analysts in corporate governance.

There are reasons for and against analysts' role as a governance mechanism. On the one hand, Jensen and Meckling (1976) argue that analysts help reduce the agency costs associated with the separation of ownership and control. Healy and Palepu (2001) also suggest analysts' potential role as external monitors to managers. On the other hand, however, Fang and Yasuda (2009) show that analysts pursuing investment banking business may sacrifice their long-term reputation for short-term benefits, which would weaken their role as a governance mechanism. Similarly, analysts' conflict of interest may distort their incentives and therefore influence their potential role as external monitors to managers.

Using absolute discretionary accruals as a proxy for accrual-based earnings management, I first

reexamine the association between analyst coverage and accruals management for a sample of U.S. firms from 1988 to 2002, and find that analyst coverage is significantly negatively associated with accrual-based earnings management, consistent with the monitoring effect hypothesis proposed by Yu. However, I notice that the firms with positive discretionary accruals (DA) are driving the results; that is, for my sample more analyst coverage is associated with less income-increasing accruals, but not with less income-decreasing accruals. For robustness, I estimate a two-stage least squares regression, using the S&P index dummy as an instrument variable to capture the exogenous variation in analyst coverage. The results from the two-stage least squares regression also suggest that firms followed by more analysts engage in less accruals management.

In an additional test, I examine the effect of analyst coverage conditional on a firm's narrowly meeting or beating earnings target. I find that the negative association between analyst coverage and accrual-based earnings management is stronger for the MBE firms, especially the MBE firms with positive DA. However, an alternative explanation could be that the MBE firms followed by more analysts rely more on expectations management, therefore reducing the use of accruals management. For example, I find that while analyst coverage does not affect a firm's propensity to narrowly meet or beat earnings target, expectations management proxied by the change in analyst consensus does, and that the effect of expectations management is increasing with analyst coverage. These results appear to be consistent with the alternative explanation.

Consistent with the original study, I find that covered firms engage in less accrual-based

earnings management than do firms with no analyst coverage, although Yu recognizes that the results could be driven by other omitted firm characteristics associated with earnings management. In addition, I examine the effects of analysts' general experience and firm-specific experience on a firm's earnings management behavior, and find that firms followed by more experienced analysts engage in less accruals management, suggesting that more experienced analysts are more effective monitors[1]. However, an alternative explanation could be that managers have better relationships with these more experienced analysts, allowing them to manage expectations about earnings without resorting to accruals management. For example, I find that the effect of expectations management, proxied by the change in analyst consensus, on a firm's probability of narrowly meeting or beating earnings target is increasing with the average experience of analysts following the firm.

Next, using two overall real earnings management measures as proxies for real activities manipulation (e.g. Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010), I investigate the association between analyst coverage and real earnings management. Whether greater analyst coverage can reduce real earnings management is potentially important to investors, especially when prior studies have found very little support for the effectiveness of other governance mechanisms, including the board of directors, audit committee, and external auditor, on real earnings management (e.g. Visvanathan, 2008; Garven, 2009; Chi et al., 2011). However, I do not find support for the monitoring effect hypothesis in my tests for real earnings management, as analyst

[1] Alternatively, more experienced analysts may choose to follow firms with lower level of discretionary accruals (i.e. better accrual quality).

coverage affects neither the magnitude of real earnings management nor the use of real earnings management in my tests. I also examine the effects of analysts' general experience and firm-specific experience on real earnings management, but again do not find support for the monitoring hypothesis.

The rest of the paper is organized as follows. Section 2 reviews the literature and develops the hypotheses. Section 3 describes the sample selection and the measure of accrual-based earnings management. Section 4 presents the model specifications and the results of the effect of analyst coverage on accrual-based earnings management. Section 5 presents the results of the effect of analyst coverage on real earnings management. Section 6 concludes.

2. Literature review and hypothesis development

In recent years extensive literature in accounting and financial economics has documented the association between corporate governance mechanisms and earnings management. Most of these studies use discretionary accruals to proxy for earnings management (Jones, 1991; Dechow et al., 1995), and there are relatively fewer studies examining the impact of governance mechanisms on real earnings management.

2.1. Corporate governance and accrual-based earnings management

Regarding internal governance mechanisms and accruals management, Klein (2002) finds that

both the board and audit committee independence are negatively associated with the absolute adjusted discretionary accruals, supporting the role of the board and audit committee in monitoring managerial behavior. On the other hand, for a sample of UK firms, Peasnell et al. (2005) use cash flow from operations as a proxy for pre-managed earnings to identify firms with different earnings management incentives, and then investigate the monitoring effects of the board and audit committee on firms with different incentives. They find that outside directors are helpful in monitoring accruals management and that the mere presence of audit committee has no monitoring effects.

As for external governance mechanisms, Kim et al. (2003) find that Big N auditors can monitor accruals management, although there exists an asymmetric monitoring effect due to the conflict of reporting incentives between Big N auditors and management. On the other hand, Cornett et al. (2008) argue that institutional investors also can constrain accruals management, since they have the opportunity, resources, and ability to monitor, discipline, and influence managers. Specifically, they find a significantly negative association between institutional ownership and absolute discretionary accruals, and a significantly negative association between the number of institutional investors and absolute discretionary accruals as well.

2.2. Corporate governance and real earnings management

Regarding internal governance mechanisms and real earnings management, Visvanathan (2008) investigates whether several overall board characteristics and audit committee characteristics found

to be helpful in limiting accruals management also constrain real earnings management; the results suggest that while the effect of overall board independence is significant, there is limited support for other characteristics such as board size and audit committee independence. Garven (2009) further considers the effects of several other board characteristics and audit committee characteristics on the occurrence of real earnings management, but still finds very limited support for the board and even no support for the audit committee.

Regarding external governance mechanisms, Chi et al. (2011) investigate the relation between audit quality and real earnings management, and find that both auditor industry expertise and the presence of a Big N audit firm are associated with greater real earnings management. They argue that, as increased audit scrutiny may decrease a firm's accounting flexibility, firms audited by Big N are likely to resort to the more costly real earnings management. Similarly, Cohen and Zarowin (2010) find that both auditor tenure and the presence of Big N auditors are associated with greater probability of using real earnings management. As for institutional investors, Roychowdhury (2006) provides initial evidence on the role of institutional investors in deterring real earning management, especially for the firms who narrowly beat earnings targets (i.e. the suspect firms).

2.3. The role of analysts in corporate governance

There are reasons for and against analysts' potential role as external monitors to managers. On the one hand, like institutional investors, analysts who track firms on a regular basis have the

opportunity, resources, and ability to monitor and discipline managers. For example, analysts may question corporate executives during conference calls and may express their concerns regarding the perspectives of the covered firms through various channels, both of which are likely to make management hesitate to engage in earnings manipulation. In addition, Dyck et al. (2010) show that analyst is one of the most important detectors of corporate fraud.

On the other hand, analysts may increase the pressure on managers to manage earnings. It is known that one of the most important goals for managers is to achieve analyst expectations, and that the capital market rewards (punishes) firms who meet or beat (miss) analyst expectations (e.g. Bartov et al., 2002). Analysts' conflict of interest may also weaken their role as external monitors to managers. For example, analysts working for investment banks are usually responsible for generating investment banking business, which is likely to affect their career outcomes, so they may need to maintain good relationships with managers.

To sum up, the original study is mainly testing two competing hypotheses: the monitoring effect hypothesis versus the pressure effect hypothesis. If analysts serve as external monitors to managers, there could be a negative association between analyst coverage and earnings management. On the contrary, if analysts generate excessive pressure on managers, there could be a positive association between analyst coverage and earnings management. While Yu (2008) focuses on accrual-based earnings management only, I extend my analysis to include proxies for real earnings management to help assess the overall impact of analyst coverage on firms' earnings management behavior.

3. **Sample selection and measurement of earnings management**

3.1. Sample selection

The sample consists of firms in the Institutional Brokers Estimate System (I/B/E/S) database from 1988 to 2002 with accounting information from Compustat. Following the original study, I delete firm-year observations that have missing values of sales (*SALE*), total assets (*AT*), net income before extraordinary items (*IB*), or cash flow from operations (*OANCF*). I also delete foreign firms, firms in financial industry (SIC 6000-6999), and firms with market value less than 10 million. As a result, my final sample consists of 26,593 firm-year observations, which is smaller than the sample of the original study.

A possible explanation for the smaller sample is that Yu defines the financial industry differently, but it is unclear in the original study how he defines the financial industry. Another possible explanation is that some significant changes have been made to the historical I/B/E/S database since 2004, the time when the research was conducted; as a result, some uncovered firms in Panel C of Table 1 may actually be covered. In fact, compared to the original study, my sample has less covered firms and more uncovered firms for almost every year, except for 2002. It may also be that firms not covered by I/B/E/S analysts are covered by Zacks, First Call, or buy-side analysts. As such, my sample should be considered as a subset of covered firms.

In addition to controlling for firm characteristics associated with earnings management, Yu also controls for institutional ownership in all tests, as Cornett et al. (2008) have shown that institutional

investors can also constrain accruals management. Therefore, I retrieve the institutional ownership data from Thomson Reuters Institutional 13(f) filings, and use the average holdings of the four fiscal quarters to measure the annual institutional holdings.

Panel A of Table 1 presents the summary statistics at the firm level. Compared to the original study, the median firm in my sample has more absolute discretionary accruals (5.47% vs. 4.91%) and signed discretionary accruals (1.23% vs. 0.54%), and has smaller market value (0.27 billion vs. 0.31 billion) and institutional holdings (36.48% vs. 41.68%), while other firm characteristics and the number of following analysts are similar; the average firm in my sample has more absolute discretionary accruals (9.66% vs. 9.30%), analyst coverage (10.52 vs. 9.44), and higher growth rate of assets (37% vs. 24%), and has smaller market value (2.07 billion vs. 2.44 billion) and institutional holdings (39.77% vs. 41.81%). Panel B of Table 1 reports the summary statistics by analyst level.

Table 2 presents the Pearson correlation matrix of the key variables. Both the number of following analysts and institutional ownership are significantly negatively correlated with absolute discretionary accruals at the 1% level (statistical significance not tabulated). Overall, the correlation matrix of my sample is qualitatively similar compared to that of the original study, except that for my sample the signed discretionary accruals exhibits a significantly negative correlation with absolute discretionary accruals, market-to-book ratio, growth rate of assets, and external financing activities.

Table 3 presents the summary statistics of accruals by size of analyst coverage. The first two

rows provide a comparison between covered and uncovered firms, showing that covered firms have higher market capitalization, better past performance, and less absolute discretionary accruals. The next four rows suggest that firms covered by more analysts have higher market value, better past performance, and less absolute accruals. The results from Table 3 provide the preliminary evidence on analysts' role as external monitors to managers. An interesting phenomenon here is that discretionary accruals (both signed and unsigned) appears to decrease with the level of analyst coverage, while nondiscretionary accruals does not.

3.2. Measurement of accrual-based earnings management

Consistent with the original study, I use the modified Jones model (i.e. Dechow et al., 1995) to estimate absolute discretionary accruals as the main proxy for accrual-based earnings management (hereafter, earnings management). Specifically, I estimate the following regression for each industry-year[23]:

$$\frac{TA_{it}}{Assets_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \alpha_3 \frac{PPE_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (1)$$

where *TA* is total accruals measured by income before extraordinary items minus cash flow from operations, and *PPE* is gross property, plant, and equipment (*PPEGT*). As Kothari et al. (2005)

[2] As in Yu (2008), I require at least 15 observations for each 2-digit SIC industry grouping to estimate the regression.
[3] While Yu appears to estimate the modified Jones model for each calendar year, I choose to estimate the model for each fiscal year, which is more consistent with prior literature in accounting.

suggest that the intercept term be included in the modified Jones model to reduce the model misspecification, I choose to include the intercept term when estimating the model. The predicted values of nondiscretionary and discretionary accruals are then estimated by equations (2) and (3), respectively[4]:

$$NDA_{it} = \widehat{\alpha_0} + \widehat{\alpha_1}\frac{1}{Assets_{i,t-1}} + \widehat{\alpha_2}\left(\frac{\Delta Sales_{it} - \Delta AR_{it}}{Assets_{i,t-1}}\right) + \widehat{\alpha_3}\frac{PPE_{it}}{Assets_{i,t-1}} \quad (2)$$

$$|DA_{it}| = |\widehat{\varepsilon_{it}}| = \left|\frac{TA_{it}}{Assets_{i,t-1}} - NDA_{it}\right| \quad (3)$$

where *NDA* and *DA* are the predicted values of non-discretionary and discretionary accruals, respectively, and *AR* is account receivables (*RECT*). Since Yu is interested in both income-increasing and income-decreasing earnings manipulations, he uses the absolute level of discretionary accruals to measure the magnitude of earnings management. Moreover, to reduce the influence of outliers, Yu winsorizes the value of discretionary accruals at the tail of 0.5% and 99.5%, and I follow the same procedure.

While Yu appears to use net income (*NI*) to measure total accruals[5], I use income before extraordinary items to measure total accruals, which is more common in the prior literature. In fact, when estimating modified Jones model with net income, I find stronger statistical significance in the main tests, yet I choose to report the results based on income before extraordinary items.

[4] According to Dechow et al. (1995), the change in sales revenues is adjusted for the change in receivables because the modified Jones model implicitly assumes that all changes in credit sales in the year result from earnings management.
[5] See the Appendix of Yu (2008).

4. **Model specifications and main results**

4.1. Residual coverage

Prior literature indicates that analyst coverage is associated with certain firm characteristics (e.g. Bhushan, 1989), some of which could also affect firms' earnings management behavior. Therefore, to control for these factors, Yu estimates the residual coverage by the following OLS regression:

$$Analyst\ Coverage_{it} =$$

$$\alpha_0 + \alpha_1\ firm\ size + \alpha_2\ past\ performance + \alpha_3\ growth +$$

$$\alpha_4\ external\ financing\ activities + \alpha_5\ cash\ flow\ volatility + year\ dummies + \varepsilon_{it} \qquad (4)$$

where analyst coverage is the number of analysts following firm *i* during fiscal year *t*, firm size is measured by market value, past performance is measured by lagged return on assets, growth is measured by growth rate of assets, external financing activities is measured by net cash flow from financing activities scaled by lagged assets, and cash flow volatility is measured by standard deviation of net cash flows, scaled by lagged assets, of a firm in the entire sample period.

Although Yu proxies analyst coverage by the residuals from regression equation (4) and then investigates its effect on firms' earnings management behavior, he points out that the main results are qualitatively similar when the raw number of analyst coverage is used in the tests[6]. However, I

[6] This can be expected since the multicollinearity problem between analyst coverage and other firm characteristics appears not severe, according to the correlation matrix of Table 2.

notice that analyst coverage is highly positively correlated with institutional ownership, as both Bhushan (1989) and Ljungqvist et al. (2007) indicate that analysts tend to follow firms with more institutional holdings. When institutional ownership is included in the residual coverage regression, I find less significant results from the main tests (not tabulated), but the main inferences do not change.

Table 4 reports the results from regression equation (4). I find that analyst coverage is positively associated with firm size and past performance, and is negatively associated with external financing activities and cash flow volatility. Compared to the original paper, the results are qualitatively similar except that I do not find any significant association between analyst coverage and growth.

4.2. The effect of analyst coverage on earnings management (ordinary least squares)

After obtaining the measure for analyst coverage, the following OLS regression is estimated to formally investigate the research question:

$$|Discretionary\ Accrual_{it}| = \alpha_0 + \alpha_1 ResidualCoverage_{it} + \beta Controls_{it} + \varepsilon_{it} \qquad (5)$$

where absolute discretionary accruals as the dependent variable is estimated by the cross-sectional modified Jones model as described in Section 3, residual coverage is the residuals from regression

equation (4), and control variables include market-to-book ratio, return on assets, growth rate of assets, cash flow volatility, external financing activities, firm size, and institutional ownership. Year fixed effect and industry fixed effect are controlled in all tests, and standard errors in the regressions are clustered at the firm level to adjust for heteroskedasticity[7].

Table 5 reports the results from regression equation (5). Whether or not institutional ownership is included in the controls, I find significantly negative association between residual coverage and absolute discretionary accruals for all firms, suggesting that a higher level of analyst coverage is associated with a lower level of earnings management. In other words, the results are consistent with the monitoring effect hypothesis. However, while my results for all firms are comparable to those of the original study, it appears that the firms with positive discretionary accruals (DA) are driving my results; that is, for my sample more analyst coverage is associated with less income-increasing accruals, but not with less income-decreasing accruals. In addition, I find significantly negative association between institutional ownership and absolute discretionary accruals for all firms, but the monitoring effect of institutional investors is also limited to the firms with positive DA[8].

Although my results for firms with negative DA are different from those reported in the original study, my results are more consistent across tests, as in the original study the sign of residual

[7] I control for year fixed effect and industry fixed effect and adjust standard errors for firm-level clustering in all the following tests.

[8] According to Yu, as buy-side analysts usually work for institutional investors, the institutional ownership control may capture the effect of buy-side analysts on earnings management.

coverage flips after including the institutional ownership control. Specifically, Yu finds significantly negative (positive) association between residual coverage and income-decreasing discretionary accruals before (after) adding the institutional ownership control, making the effect of analyst coverage on downward earnings management inconclusive.

4.3. The effect of analyst coverage on earnings management (two-stage least squares)

The results from subsection 4.2 generally support the monitoring effect hypothesis, but the results could be driven by analysts' self-selection. In other words, analysts may choose to follow firms with less discretionary accruals (i.e. better accruals quality). For robustness, I estimate the following two-stage least squares regression, using the S&P 500 index dummy as an instrument variable to capture the exogenous variation in analyst coverage:

$$ResidualCoverage_{it} = \varphi_0 + \varphi_1 SP500\ Dummy_{it} + \varphi Controls_{it} + \epsilon_{it}$$

and

$$|Discretionary\ Accrual_{it}| = \alpha_0 + \alpha_1 ResidualCoverage_{it} + \beta Controls_{it} + \varepsilon_{it} \quad (6)$$

where *SP500 dummy* is equal to one if firm *i* is included in the S&P500 index during the fiscal year *t* and zero otherwise.

Table 6 reports the results from the 2SLS regressions. The results from the first-stage suggest

that the S&P 500 firms and firms with higher institutional ownership tend to have more analysts following, and the results from the second-stage indicate a significantly negative association between residual coverage and absolute discretionary accruals as the proxy for earnings management. The results are stronger than those reported in Table 5, as I am able to find a significantly negative association between residual coverage and earnings management even for firms with negative DA. However, the effect of institutional ownership on earnings management goes away for all firms, since the effects of institutional ownership on the firms with positive DA and on the firms with negative DA cancel each other out. Nevertheless, the results from the above analysis generally support the monitoring effect hypothesis.

Yu recognizes that the S&P 500 index dummy may not be a clean instrument variable, and points out that a firm's inclusion in the S&P 500 could change certain firm characteristics associated with earnings management. For example, a firm's inclusion in the S&P 500 index may increase both analyst coverage and institutional ownership, and it may be institutional ownership that actually affects earnings management. Of course institutional ownership is controlled in the tests, but other firm characteristics that could affect earnings management cannot be fully controlled.

4.4. The effect of analyst coverage conditional on meeting or beating earnings target

In the original study Yu separates the sample into firms with positive DA and firms with negative DA, and investigates the effect of analyst coverage on earnings management for the two

subsamples. I further investigate the effect of analyst coverage both on the firms who narrowly meet or beat earnings targets with positive DA (i.e. the direction of discretionary accruals coincides with reporting incentives) and on the firms who narrowly meet or beat with negative DA. To be consistent with the original study, I define a firm as narrowly meeting or beating earnings target when its actual earnings-per-share (EPS) exceeds analysts' average last forecasts by no more than four cents, and then estimate the following OLS regression:

$$|Discretionary\ Accrual_{it}| =$$

$$\alpha_0 + \alpha_1 ResidualCoverage_{it} + \alpha_2 MBE_{it} + \alpha_3 MBE_{it} * ResidualCoverage_{it} + \beta Controls_{it} + \varepsilon_{it} \quad (7)$$

where MBE_{it} is equal to one if a firm narrowly meets or beats analysts' last consensus and zero otherwise, and $MBE_{it} * ResidualCoverage_{it}$ is the interaction term between the *MBE* dummy and residual coverage. I also include the interaction term between the *MBE* dummy and institutional ownership to investigate whether the monitoring effect of institutional investors is different for firms who narrowly achieve earnings target.

Table 7 reports the results from regressions (7). I find that the *MBE* dummy is significantly positive for all firms, suggesting that the MBE firms engage in more earnings management, and it appears that analysts' monitoring effect concentrates in the MBE firms. When separating firms based on the sign of discretionary accruals, again I find that more analyst coverage is associated with

less earnings management for firms with positive DA, and such negative association is even stronger for the MBE firms with positive DA; however, analyst coverage seems to affect neither firms with negative DA nor the MBE firms with negative DA. Finally, the monitoring effect of institutional investors seems not to be conditional on the MBE firms, as the interaction term between the MBE dummy and institutional ownership is only marginally significant for all firms.

An alternative explanation for the results of Table 7 is that firms narrowly meet or beat earnings targets with positive DA (i.e. upward earnings management) tend to engage in more expectations management (i.e. downward expectations management) when there are more analysts following, which could be why I find the interaction term between the MBE dummy and residual coverage to be significantly negative. In other words, it may not be that analysts are more effective in monitoring the MBE firms' earnings management behavior but that the MBE firms use more expectations management to achieve earnings targets. The results from Table 10, which will be discussed later, are also consistent with the alternative explanation, where I find that the residual coverage does not affect a firm's propensity to narrowly meet or beat earnings target while expectations management measured by the change in analyst consensus does.

4.5. The effect of the change in analyst coverage

I also reexamine the effect of the change in analyst coverage on the change in absolute discretionary accruals. Following the original study, I estimate the change over every three years,

and then run the following OLS regression:

$$\Delta|Discretionary\ Accrual_{it}| = \alpha_0 + \alpha_1 \Delta ResidualCoverage_{it} + \beta Controls_{it} + \varepsilon_{it} \quad (8)$$

Table 8 reports the results from regression equation (8). I find that the effect of the change in residual coverage is marginally significant only for firms with positive DA. In addition, I find that the change in institutional ownership has no effects on the change in absolute discretionary accruals, which is consistent with the original study.

4.6. Covered vs. uncovered firms

Recall that Table 3 shows that firms covered by I/B/E/S analysts have less absolute discretionary accruals compared to those who are not covered. In this subsection I formally test whether the covered firms engage in less earnings management under the multivariate framework. Both covered and uncovered firms are included in the analysis as long as I am able to estimate discretionary accruals for them. Specifically, I estimate the following OLS regression:

$$|Discretionary\ Accrual_{it}| = \alpha_0 + \alpha_1 Dummy\ of\ Coverage_{it} + \beta Controls_{it} + \varepsilon_{it} \quad (9)$$

Table 9 reports the results from regression equation (9). I find that covered firms on average

engage in less earnings management, which is consistent with the original study. However, while Yu finds that covered firms engage in less earnings management in both directions, I find that covered firms tend to have less income-increasing discretionary accruals, but not less income-decreasing discretionary accruals. In addition, the monitoring effect of institutional ownership on earnings management for my sample is again limited to firms with positive DA. The results are consistent with the monitoring effect hypothesis, but they could still be driven by other omitted firm characteristics that are associated with earnings management.

4.7. The effect of analyst coverage on probability of meeting or beating earnings target

To further testing the two competing hypotheses, Yu investigates whether the level of analyst coverage could affect a firm's propensity to meet or beat earnings target, measured by the average of last earnings forecasts from all analysts following a given firm. Specifically, he focuses on firms who narrowly meet or beat earnings targets ($0.4 \geq earnings\ surprise \geq 0$) and firms who narrowly miss the target ($0 > earnings\ surprise \geq -0.08$), and estimates the following regression:

$$MBE_{it} = \alpha_0 + \alpha_1 ResidualCoverage_{it} + \alpha_2 |\Delta Consensus_{it}| + \beta Controls_{it} + \varepsilon_{it} \qquad (10)$$

where MBE_{it} is equal to one hundred if a firm meets or beats analysts' last consensus by zero to four cents and zero otherwise, and $|\Delta Consensus_{it}|$ as a proxy for expectations management is

measured by the absolute difference between the average of first forecasts and the average of last forecasts from all analysts following the firm.

Table 10 reports the results from regression equation (10). While Yu finds that residual coverage is significantly negatively associated with a firm's probability of narrowly meeting or beating earnings target, I do not find any significant association between the two for my sample, unless I narrow down my sample to firms with earnings surprise within [-0.01, 0.01]. On the other hand, I find that the change in analyst consensus as a proxy for expectations management is significantly positively associated with the probability of narrowly meeting or beating earnings targets when I narrow down the sample to firms with earnings surprise within [-0.04, 0.04].

Table 10, together with Table 7, suggests that while analysts' monitoring effect against earnings management is stronger for the MBE firms, such effect is not strong enough to prevent them from achieving earnings targets. To further investigate the interaction effect between analyst coverage and expectations management, I interact residual coverage with the signed change in analyst consensus, and estimate the following OLS regressions for firms with earnings surprise within [-0.04, 0.04]:

$$MBE_{it} = \alpha_0 + \alpha_1 ResidualCoverage_{it} + \alpha_2 \Delta Consensus_{it} + \alpha_3 ResidualCoverage_{it} * \Delta Consensus_{it} + \beta Controls_{it} + \varepsilon_{it} \quad (11)$$

where $\Delta Consensus_{it}$ is measured by the signed difference between the average of first forecasts and the average of last forecasts from all following analysts so that a negative value indicates downward expectations management.

Column 1 of Table 12 presents the results from regression equation (11). I find that the interaction term between analyst coverage and expectations management is significantly negatively associated with a firm's probability of narrowly meeting or beating. That is, the effect of downward expectations management is increasing with the level of analyst coverage, consistent with the alternative explanation documented in subsection 4.4 that the MBE firms may engage in more expectations management when followed by more analysts, thus reducing the use of accruals management to achieve earnings targets.

4.8. Analyst experience and earnings management

As an additional test, Yu investigates the effect of analyst experience on firms' earnings management behavior. Following the original study, I investigate the effects of both analysts' general experience and firm-specific experience on earnings management by estimating the following OLS regression:

$$|Discretionary\ Accrual_{it}| =$$

$$\alpha_0 + \alpha_1 Analyst\ Coverage_{it} + \alpha_2 Analyst\ Experience_{it} + \beta Controls_{it} + \varepsilon_{it} \quad (12)$$

where general experience is measured by the average number of years that all following analysts have worked as analyst, and firm-specific experience is measured by the average number of years that all analysts have followed a given firm.

Table 11 reports the results from regression equation (12). Given the level of analyst coverage, I find that firms' earnings management behavior decreases with the average experience of analysts following the firm. That is, more experienced analysts seem to be better monitors. In addition, I find that analysts' firm-specific experience has stronger effect on earnings management than does analysts' general experience. Specifically, analysts' firm-specific experience is significantly negatively associated with earnings management in either direction, while analysts' general experience is significantly negatively associated only with income-increasing earnings management. These results are generally consistent with the original study and prior literature (e.g. Clement, 1999), but are still subject to analysts' self-selection problem.

An alternative explanation could be that managers have better relationships with more experienced analysts, therefore allowing them to manage expectations about earnings without resorting to accruals management. To further investigate the interaction effect between analyst experience and expectations management, I interact analyst experience with the signed change in analyst consensus, and estimate the following OLS regressions for firms with earnings surprise within [-0.04, 0.04]:

$$MBE_{it} = \alpha_0 + \alpha_1 Analyst\ Experience_{it} + \alpha_2 \Delta Consensus_{it} + \alpha_3 Analyst\ Experience_{it} * \Delta Consensus_{it} + \beta Controls_{it} + \varepsilon_{it} \quad (13)$$

where MBE_{it} is equal to one hundred if a firm meets or beats analysts' last consensus by zero to four cents and zero otherwise, and $\Delta Consensus_{it}$ is measured by the signed difference between the average of first forecasts and the average of last forecasts from all analysts following the firm so that a negative value indicates downward expectations management.

Column 2 and 3 of Table 12 present the results from regression equation (13). I find that analysts' firm-specific experience is significant negatively associated with a firm's probability to narrowly meet or beat, consistent with the monitoring effect hypothesis. However, I also find that the effect of downward expectations management on the probability of narrowly meeting or beating is increasing with both analysts' general and firm-specific experience, consistent with the alternative explanation.

5. **Analyst coverage and real earnings management**

A question remained unanswered in the original study is whether analysts can also constrain real earnings management as another way to manipulate reported earnings. If the monitoring effect hypothesis is true, firms followed by more analysts could engage in less real earnings management, which is irreversible and may reduce firm value due to its potential negative effects on future cash

flows. Therefore, in this section I investigate the impact of analyst coverage on real earnings management, seeking to provide further evidence on the potential role of analysts in corporate governance.

5.1. The effect of analyst coverage on real earnings management

Following Roychowdhury (2006), I consider three real activities manipulation methods: sales manipulation, overproduction, and reduction of discretionary expenditures. Specifically, sales manipulation is to accelerate the timing of sales and generate additional unsustainable sales through temporary price discounts or looser credit terms, and overproduction is to increase production to lower the per-unit cost of goods sold. All of these real activities manipulations are likely to affect a firm's cash flow from operations, and I estimate the normal level of cash flow from operations by the following cross-sectional regression for each industry-year[9]:

$$\frac{CFO_{it}}{Assets_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{Sales_{it}}{Assets_{i,t-1}} + \alpha_3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (14)$$

where *CFO* is cash flow from operations, *Sales* is annual sales revenues, and *Assets* is total assets. Abnormal cash flow from operations (*R_CFO*) is then measured by the residuals from regression equation (14). Similarly, I measure abnormal production costs (*R_PROD*) and abnormal

[9] To be consistent with Roychowdhury (2006) and Yu (2008), I require at least 15 observations for each 2-digit SIC industry grouping to estimate the regressions.

discretionary expenses (*R_DISEXP*) by the residuals from regression equations (15) and (16), respectively:

$$\frac{PROD_{it}}{Assets_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{Sales_{it}}{Assets_{i,t-1}} + \alpha_3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \alpha_4 \frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (15)$$

$$\frac{DISEXP_{it}}{Assets_{i,t-1}} = \alpha_0 + \alpha_1 \frac{1}{Assets_{i,t-1}} + \alpha_2 \frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (16)$$

where *PROD* is production costs defined as the sum of cost of goods sold (*COGS*) and change in inventory during the year (*INVT*), and *DISEXP* is discretionary expenses defined as the sum of advertising expenses (*XAD*), R&D expenses (*XRD*), and SG&A expenses (*XSGA*). Instead of using these three measures directly, I construct two overall real earnings management measures, suggested by Cohen et al. (2008) and Cohen and Zarowin (2010):

$$RM1 = R\_PROD - R\_DISEXP \quad (17)$$

$$RM2 = -R\_CFO - R\_DISEXP \quad (18)$$

where *R_CFO* and *R_DISEXP* change sign so that higher level of these overall real earnings management measures represents greater real earnings management. Finally, I estimate the following OLS regression to examine the effect of analyst coverage on real earnings management, controlling for absolute discretionary accruals as a proxy for accrual-based earnings management:

$$RM\_Proxy_{it} = \alpha_0 + \alpha_1 ResidualCoverage_{it} + \beta Controls_{it} + \varepsilon_{it} \quad (19)$$

Table 13 reports the results from regression equation (19). I do not find support for the monitoring effect hypothesis, as the effects of analyst coverage on both *RM1* and *RM2* are insignificant; the monitoring effect of institutional investors against real earnings management is also insignificant. The significantly negative association between accrual-based earnings management and real earnings management suggests that there is a tradeoff between the two types of earnings management, which is consistent with Cohen and Zarowin (2010). In an additional test (not tabulated), I investigate the effect of analysts' general and firm-specific experience on real earnings management, but again do not find any support for the monitoring hypothesis.

5.2. The effect of analyst coverage on the use of real earnings management

In addition to the magnitude of real earnings management, I also investigate whether analysts can constrain a firm's use of real earnings management. That is, if the monitoring effect hypothesis is true, there could be a significantly negative association between analyst coverage and the occurrence of real earnings management. Following Cohen and Zarowin (2010) and Shih (2011), I create a dummy variable *REM* to proxy for a firm's use of real earnings management, and set *REM* equal to one hundred if either of the firm's overall real earnings management measures (i.e. *RM1* or *RM2*) is above the industry median, and zero otherwise. Similarly, for comparison purpose I create

another dummy variable *AEM* to proxy for a firm's use of accrual-based earnings management, and set *AEM* equal to one hundred if the firm's absolute discretionary accruals is above the industry median, and zero otherwise. Then I estimate the following OLS regressions:

$$REM_{it} = \alpha_0 + \alpha_1 ResidualCoverage_{it} + \theta Controls_{it} + \varepsilon_{it} \quad (20)$$

$$AEM_{it} = \beta_0 + \beta_1 ResidualCoverage_{it} + \gamma Controls_{it} + \varepsilon_{it} \quad (21)$$

Table 14 reports the results from regression equations (20) and (21). While I find that analysts and institutional investors can deter the use of accrual-based earnings management, neither of them are able to constrain the use of real earnings management, as the effects of residual coverage and institutional ownership on the *REM* dummy are insignificant. Nevertheless, further analysis (not tabulated) suggests that institutional investors can deter the use of real earnings management by firms who narrowly meet or beat earnings targets, consistent with the finding of Roychowdhury (2006).

Such insignificant results may not be surprising, since real earnings management is part of a firm's business decisions and may be more difficult to detect than accruals management. In addition, as media and researchers primarily focus on accrual-based earnings management, there may be lack of incentives for analysts to monitor real earnings management. Analysts' self-selection may also explain the results; that is, if accruals management is more predictable than real earnings

management, analysts may choose to follow firms with better accrual quality but may not be able to foresee firms' engagement in real earnings management. Finally, it may also be that real earnings management concentrates only on certain firms because it is more costly than accrual management, which could be another reason why I am unable to find any statistically significant results within such a large sample. Overall, the evidence on real earnings management does not support the monitoring effect hypothesis.

6. **Conclusion**

In this study I examine the effect of analyst coverage on both accrual-based and real earnings management. Regarding accruals management, the results from the ordinary least squares regression suggest that firms followed by more analysts engage in less accruals management, consistent with the monitoring effect hypothesis of the original study. However, I notice that firms with positive discretionary accruals (DA) are driving the results; that is, for my sample more analyst coverage is associated with less income-increasing accruals, but not with less income-decreasing accruals. In addition, the results suggest that more experienced analysts seem to be better monitors to managers.

To address the potential endogeneity problem, I estimate a two-stage least squares regression, using the S&P index dummy as an instrument variable to capture the exogenous variation in analyst coverage, and the results also suggest that firms followed by more analysts engage in less accruals

management. However, Yu recognizes that the S&P index dummy as an instrument may be noisy, as other firm characteristics associated with earnings management may change when a firm is included in the S&P 500 index. As a result, analysts' self-selection remains a significant challenge to the conclusion of the original study.

When the effect of analyst coverage is conditional on a firm's narrowly meeting or beating earnings target, I find that analysts' monitoring effect concentrates in the MBE firms for the entire sample. When separating firms based on the sign of discretionary accruals, again I find that more analyst coverage is associated with less accruals management for firms with positive DA, and such negative association is even stronger for the MBE firms with positive DA. The results seem to support the monitoring effect hypothesis, but the effect of analyst coverage is not strong enough to affect a firm's propensity to narrowly meet or beat earnings target. Therefore, I propose an alternative explanation that the MBE firms with positive DA (i.e. upward earnings management) tend to engage in more expectations management (i.e. downward expectations management) when there are more analysts following. In other words, it may not be that analysts monitor firms' earnings management but that firms use more expectations management to achieve earnings targets. In my further analysis, I find that the effect of expectations management on the probability of narrowly meeting or beating earnings targets is increasing with both analyst coverage and analyst experiences, consistent with the alternative explanation.

Finally, the results from real earnings management do not support the monitoring effect

hypothesis, as I do not find any statistically significant association between analyst coverage and the real earnings management proxies. Analysts' experience also has no effects on firms' real earnings management behavior. Such insignificant results could be due to the difficulty to measure the magnitude and occurrence of real earnings management, the difficulty for analysts to detect real earnings management, or analysts' lack of incentives to monitor real earnings management. While existing literature has found very little support for the effectiveness of governance mechanisms on real earnings management, how to monitor a firm's real earnings management behavior may be an important issue for future research.

References

Bartov, E., D. Givoly, and C. Hayn. 2002. The rewards to meeting or beating earnings expectations. *Journal of Accounting and Economics* 33, 173-204.

Bergstresser, D., and T. Philippon. 2006. CEO incentives and earnings management. *Journal of Financial Economics* 80, 511-529.

Bhushan, R. 1989. Firm characteristics and analyst following. *Journal of Accounting and Economics* 11, 255-274.

Chi, W., L. Lisic, and M. Pevzner. 2011. Is Enhanced Audit Quality Associated with Greater Real Earnings Management? *Accounting Horizons* 25 (2), 315-335.

Clement, M. 1999. Analyst forecast accuracy: do ability, resources, and portfolio complexity matter? *Journal of Accounting and Economics* 27, 285-303.

Cohen, D., A. Dey, and T. Lys. 2008. Real and accrual-based earnings management in the pre- and post-Sarbanes-Oxley periods. *The Accounting Review* 83 (3), 757-787.

Cohen, D., S. Pandit, C. Wasley, and T. Zach. 2011. Measureing real activity management. Working paper, University of Texas at Dallas

Cohen, D., and P. Zarowin. 2010. Accrual-based and real earnings management activities around seasoned equity offering. *Journal of Accounting and Economics* 50, 2-19.

Cornett, M., A. Marcus, and H. Tehranian. 2008. Corporate governance and pay-for-performance: The impact of earnings management. *Journal of Financial Economics* 87, 357-373.

Dechow, P., A. Hutton, J.H. Kim, and R. Sloan. 2010. Detecting earnings management: A new approach. Working paper, University of California, Berkeley.

Dechow, P., R. Sloan, and A. Sweeney. 1995. Detecting earnings management. *The Accounting Review* 70 (2), 193-225.

Drymiotes, G. 2007. The monitoring role of insiders. *Journal of Accounting and Economics* 44, 359-377.

Dyck, A., A. Morse, and L. Zinales. 2010. Who blows the whistle on corporate fraud? *Journal of Finance* 65 (6), 2213-2253.

Fang, L., and A. Yasuda. 2009. The effectiveness of reputation as a disciplinary mechanism in sell-side research. *The Review of Financial Studies* 22 (8), 3735-3777.

Garven, S. 2009. The Effect of Board and Audit Committee Characteristics on Real Earnings Management: Do Boards and Audit Committees Play a Role in its Constraint? Working paper, University of Alabama.

Healy, P., and K. Palepu. 2001. Information asymmetry, corporate disclosure, and the capital markets: a review of the empirical disclosure literature. *Journal of Accounting and Economics* 31, 405-440.

Jensen, M., and W. Meckling. 1976. Theory of the firm: managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics* 3, 305-360.

Kaznik, R. 1999. On the association between voluntary disclosure and earnings management. *Journal of Accounting Research* 37, 57-81.

Kim, J.B., R. Chung, and M. Firth. 2003. Auditor conservatism, asymmetric monitoring, and earnings management. *Contemporary Accounting Research* 20 (2), 323-359.

Klein, A. 2002. Audit committee, board of director characteristics, and earnings management. *Journal of Accounting and Economics* 33, 375-400.

Kothari, S.P., A. Leone, and C. Wasley. 2005. Performance matched discretionary accruals measures. *Journal of Accounting and Economics* 39, 163-197.

Laux, C., and V. Laux. 2009. Board committees, CEO compensation, and earnings management. *The Accounting Review* 84 (3), 869-891.

Ljungqvist, A., F. Marston, L. Starks, K. Wei, and H. Yan. 2007. Conflicts of interest in sell-side research and the moderating role of institutional investors. *Journal of Financial Economics* 85, 420-456.

Peasnell, K., P. Pope, and S. Young. 2005. Board monitoring and earnings management: Do outside directors influence abnormal accruals? *Journal of Business Finance and Accounting* 32 (7) & (8), 1311-1346.

Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting Economics* 42, 335-370.

Shih, A. 2011. Analyst coverage attributes and benchmark beating strategies. Working paper, New York University.

Yu, F. 2008. Analyst coverage and earnings management. *Journal of Financial Economics* 88, 245-271.

Table 1
Summary Statistics

This table presents the summary statistics for the sample. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. Discretionary accruals are estimated by the cross-sectional modified Jones model, presented as percentage of lagged assets. Return on assets is calculated by net income divided by total assets. Standard & Poor's index dummy is equal to 1 if a firm is included in the S&P industry index and zero otherwise. Growth rate of assets is calculated by the change of assets scaled by lagged assets. Institutional ownership is measured by the percentage of common shares owned by institutional investors. External financing activities are measured by net cash flow from financing activities scaled by total assets. Experience with firm is defined as the average number of years that all analysts have followed a given firm. Experience as analyst is defined as the average number of years that all following analysts have worked as analyst.

Panel A Firm Level

Variable	Number of observations	Mean	Median	Standard deviation
Firm characteristics				
Absolute discretionary accruals	26,593	9.66	5.47	13.88
Discretionary Accruals	26,593	0.98	1.23	15.96
Market value (in billions)	26,593	2.07	0.27	7.23
Market-to-book ratio	26,593	3.20	2.12	4.94
ROA	26,593	-0.01	0.04	0.22
S&P index dummy	26,593	0.15	0.00	0.36
Growth rate of assets	26,593	0.37	0.10	1.18
Cash flow volatility	26,354	0.15	0.07	0.29
Institutional ownership	26,593	39.77	36.48	28.44
External financing activities	26,593	0.06	0.01	0.21
Analyst coverage				
Analysts	26,593	10.52	6.00	11.73
Experience with firm	26,398	2.85	2.38	1.76
Experience as analyst	26,420	6.62	6.33	2.87

Panel B Analyst level

Year	Number of analysts	Tenure with firm	Tenure as analyst	Average coverage
1988	1,995	2.60	4.04	6.24
1989	2,215	2.59	4.29	6.34
1990	2,011	2.70	4.79	6.01
1991	1,841	3.05	5.53	6.29
1992	1,728	3.45	6.27	6.80
1993	2,509	3.43	5.75	5.93
1994	3,814	3.27	4.99	4.91
1995	4,792	3.23	4.49	4.49
1996	5,243	3.01	4.69	4.43
1997	5,952	2.86	4.58	4.25
1998	6,260	2.88	4.69	4.16
1999	6,482	2.86	4.79	4.25
2000	6,533	2.87	4.92	4.25
2001	6,397	2.82	4.90	4.16
2002	6,301	2.66	4.83	4.22

Table 1 *(continued)*

Panel C Sample selection

Year	Uncovered firms	Covered firms
1988	2,440	1,027
1989	2,325	1,056
1990	2,066	1,091
1991	2,294	1,153
1992	2,548	1,312
1993	2,876	1,567
1994	2,878	1,771
1995	3,121	1,935
1996	3,325	2,269
1997	3,160	2,455
1998	2,749	2,470
1999	2,882	2,523
2000	2,418	2,500
2001	2,048	2,398
2002	1,652	2,351
Total	38,782	27,878
Percentage	58.18%	41.82%

Table 2
Pearson correlation matrix of key variables

This table presents the Pearson correlation matrix of key variables in the paper. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. Total accruals (TA) equals income before extraordinary items minus cash flow from operations. Discretionary accruals (DA) and nondiscretionary accruals(NDA) are estimated by the cross-sectional modified Jones model. Return on assets is calculated by net income divided by total assets. Growth rate of assets is calculated by the change of assets scaled by lagged assets. Cash flow volatility is estimated by the standard deviation of net cash flows of a firm in the entire sample period, scaled by lagged assets. Institutional ownership is measured by the percentage of common shares owned by institutional investors. External financing activities are measured by net cash flow from financing activities scaled by total assets.

Variable	Abs_DA	DA	Abs_NDA	NDA	Abs_TA	TA	Number of analysts	MTB	ROA	Growth rate of Assets	Cash flow volatility	Market value	IO	EFA
Absolute discretionary accruals (Abs_DA)	1.00													
Discretionary Accruals (DA)	-0.18	1.00												
Absolute nondiscretionary accruals (Abs_NDA)	0.45	0.10	1.00											
Nondiscretionary Accruals (NDA)	-0.32	-0.13	-0.82	1.00										
Absolute total accruals (Abs_TA)	0.80	-0.44	0.44	-0.30	1.00									
Total Accruals (TA)	-0.33	0.83	-0.34	0.41	-0.57	1.00								
Number of analysts	-0.10	-0.03	-0.03	-0.01	-0.07	-0.03	1.00							
Market-to-book ratio (MTB)	0.14	-0.03	0.11	-0.08	0.14	-0.07	0.06	1.00						
Return on assets (ROA)	-0.30	0.34	-0.21	0.22	-0.38	0.44	0.11	-0.03	1.00					
Growth rate of assets	0.51	-0.13	0.43	-0.30	0.57	-0.28	-0.07	0.18	-0.02	1.00				
Cash flow volatility	0.31	-0.10	0.25	-0.19	0.34	-0.19	-0.11	0.11	-0.38	0.28	1.00			
Market value	-0.04	0.00	0.02	-0.03	-0.03	-0.02	0.46	0.18	0.10	0.00	-0.07	1.00		
Institutional ownership (IO)	-0.12	0.00	-0.07	0.04	-0.12	0.02	0.33	-0.01	0.15	-0.11	-0.13	0.11	1.00	
External financing activities (EFA)	0.38	-0.02	0.31	-0.22	0.39	-0.14	-0.15	0.18	-0.36	0.61	0.31	-0.09	-0.16	1.00

Table 3
Firm characteristics by size of analyst coverage

This table presents the summary statistics for firm characteristics by size of analyst coverage. The sample consists of firms in I/B/E/S from 1988 to 2002 with accoutning information from Compustat. Total accruals (TA) equal net income minus cash flow from operations. Discretionary accruals (DA) and nondiscretionary accruals (NDA) are estimated by the cross-sectional modified Jones model, presented as percentage of lagged assets.

Coverage: number of analysts		Abs_DA	DA	Abs_NDA	NDA	Abs_TA	TA	Market value (in millions)	Last year return on assets	Number of observations
0	Median	6.80	0.99	6.94	-6.25	7.98	-5.40	69.47	0.02	35,688
	Mean	14.44	-0.08	11.74	-9.63	19.31	-10.76	681.70	-0.13	35,688
>0	Median	5.47	1.23	6.53	-6.07	6.98	-5.20	272.61	0.05	26,600
	Mean	9.94	0.86	9.00	-7.57	12.10	-6.95	1,873.06	-0.01	26,600
1	Median	6.60	1.72	6.99	-6.40	7.75	-5.10	54.89	0.03	3,054
	Mean	12.28	1.11	10.16	-8.35	15.05	-7.66	241.16	-0.07	3,054
2-5	Median	6.29	1.65	6.55	-5.95	7.37	-4.69	111.95	0.04	9,185
	Mean	11.31	1.57	9.18	-7.45	13.30	-6.03	327.26	-0.04	9,185
6-10	Median	5.54	1.09	6.46	-5.92	6.95	-5.10	338.70	0.05	5,601
	Mean	9.75	0.64	8.79	-7.25	11.74	-6.87	695.08	0.01	5,601
>10	Median	4.41	0.86	6.45	-6.16	6.39	-5.57	1,539.91	0.05	8,760
	Mean	7.79	0.18	8.55	-7.64	10.04	-7.73	4,815.78	0.03	8,760

Table 4
Regression that generates residual coverage

This table reports the results of the ordinary least squares regression that generates residual analyst coverage. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. Lagged return on assets is calculated by net income divided by total assets from previous year. Growth rate of assets is calculated by the change of assets scaled by lagged assets. External financing acticities are measured by net cash flow from financing activities scaled by total assets. Standard errors are adjusted for firm-level clustering. Statistical significance at the 10, 5, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable: number of covering analysts	Coefficient	Standard errors	t-value	p-value
Market value (in billions)	0.72	0.05	14.73	0.00
Lagged return on assets	2.05	0.40	5.16	0.00
Growth rate of assets	0.06	0.07	0.92	0.36
External financing activities	-4.31	0.47	-9.21	0.00
Cash flow volatility	-1.90	0.34	-5.64	0.00
Constant	11.35	0.35	32.18	0.00
Year dummies	Yes			
Number of observations	26,353			
R-squared	0.23			

Table 5
The effect of analyst coverage on earnings management: ordinary least squares regressions

This table reports the results of ordinary least squares regressions examining the effect of analyst coverage on earnings management. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. Residual coverage is the residuals from a regression of number of covering analysts on firm size, past performance, growth, external financing activities, and cash flow volatilities. Discretionary accruals are estimated by the cross-sectional modified Jones model. Return on assets is calculated by net income divided by total assets. Growth rate of assets is calculated by the change of assets scaled by lagged assets. Cash flow volatility is estimated by the standard deviations of net cash flows of a firm in the entire sample period, scaled by lagged assets. External financing activities are measured by net cash flow from financing activities scaled by total assets. Size is the market value of a firm. Institutional ownership is measured by the percentage of common shares owned by institutional investors. Standard errors, reported in parentheses, are adjusted for firm-level clustering. Statistical significance at the 10, 5, and 1% level is indicated by *, **, and ***, respectively.

	Dependent variable: absolute value of discretionary accruals (Abs_DA)								
Sample	All firms	Firms with positive DA	Firms with negative DA	All firms	Firms with positive DA	Firms with negative DA	All firms	Firms with positive DA	Firms with negative DA
Residual coverage	-0.02	-0.05	0.02	-0.03	-0.06	0.01	-0.01	-0.04	0.01
	(0.01)*	(0.01)***	(0.02)	(0.01)***	(0.01)***	(0.01)	(0.01)**	(0.01)***	(0.01)
Market-to-book ratio				0.10	0.05	0.14	0.10	0.05	0.14
				(0.03)***	(0.03)**	(0.04)***	(0.03)***	(0.03)**	(0.04)***
Return on assets				-17.25	12.31	-31.63	-17.01	12.75	-31.75
				(0.97)***	(1.25)***	(1.07)***	(0.97)***	(1.25)***	(1.09)***
Growth rate of assets				5.89	3.01	7.73	5.87	3.00	7.74
				(0.25)***	(0.34)***	(0.30)***	(0.25)***	(0.34)***	(0.29)***
Cash flow volatility				2.83	6.86	0.67	2.71	6.59	0.71
				(0.65)***	(0.94)***	(0.76)	(0.65)***	(0.92)***	(0.76)
External financing activities				-4.86	11.29	-15.34	-5.00	10.98	-15.30
				(1.00)***	(1.30)***	(1.29)***	(1.00)***	(1.29)***	(1.29)***
Size				-0.03	-0.06	-0.01	-0.03	-0.05	-0.01
				(0.01)***	(0.02)***	(0.02)	(0.01)**	(0.02)***	(0.02)
Institutional ownership							-0.02	-0.03	0.01
							(0.00)***	(0.00)***	(0.01)
Constant	7.41	7.37	7.53	6.43	5.00	6.16	6.97	6.01	5.92
	(0.26)***	(0.33)***	(0.43)***	(0.24)***	(0.30)***	(0.38)***	(0.28)***	(0.34)***	(0.43)***
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	26,353	15,014	11,339	26,353	15,014	11,339	26,353	15,014	11,339
Adjusted R-squared	0.10	0.11	0.10	0.38	0.31	0.54	0.38	0.31	0.54

Table 6

Exogenous variations from Standard & Poor's index inclusion: two-stage least squares regressions

This table reports the results of two-stage least squares (2SLS) regressions with S&P index dummy as instrument variable. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. S&P index dummy is equal to one if a firm is included in S&P industry index and zero otherwise. Standard errors, reported in parentheses, are adjusted for firm-level clustering. Statistical significance at the 10, 5, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable	Number of analyst	Absolute value of discretionary accruals		
	First stage	Second stage		
Sample	All firms	All firms	Firms with positive DA	Firms with negative DA
S&P index dummy	10.10			
	(0.61)***			
Residual coverage (instrumented)		-0.13	-0.09	-0.12
		(0.02)***	(0.02)***	(0.03)***
Institutional ownership	0.09	0.00	-0.02	0.02
	(0.01)***	(0.00)	(0.01)***	(0.01)***
Market-to-book ratio	0.04	0.11	0.05	0.15
	(0.02)**	(0.03)***	(0.03)**	(0.04)***
Return on assets	-1.14	-17.18	12.57	-31.93
	(0.50)**	(0.97)***	(1.25)***	(1.09)***
Growth rate of assets	0.07	5.89	3.02	7.75
	(0.07)	(0.25)***	(0.34)***	(0.29)***
Cash flow volatility	1.72	2.85	6.64	0.88
	(0.28)***	(0.64)***	(0.91)***	(0.76)
External financing activities	2.40	-4.88	10.98	-15.11
	(0.47)***	(0.99)***	(1.29)***	(1.29)***
Size	-0.28	-0.03	-0.05	-0.02
	(0.04)***	(0.01)***	(0.01)***	(0.02)
Constant	-5.52	6.49	5.81	5.35
	(0.30)***	(0.29)***	(0.35)***	(0.45)***
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Number of observations	26,353	26,353	15,014	11,339
Adjusted R-squared	0.21	0.38	0.31	0.55

Table 7
The effect of analyst coverage on earnings management conditional on meeting or beating earnings targets

This table reports the effect of analyst coverage on earnings management conditional on meeting or beating earnings targets. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. Residual coverage is the residuals from a regression of number of covering analysts on firm size, past performance, growth, external financing activities, and cash flow volatilities. Discretionary accruals are estimated by the cross-sectional modified Jones model. MBE is equal to one if a firm narrowly meets or beats earnings target by no more than $0.04 and zero otherwise. Return on assets is calculated by net income divided by total assets. Growth rate of assets is calculated by the change of assets scaled by lagged assets. Cash flow volatility is estimated by the standard deviation of net cash flows scaled by lagged assets of a firm in the entire sample period. External financing activities are measured by net cash flow from financing activities scaled by total assets. Size is the market value of a firm. Institutional ownership is measured by the percentage of common shares owned by institutional investors. Standard errors, reported in parentheses, are adjusted for firm-level clustering. Statistical significance at the 10, 5, and 1% level is indicated by *, **, and ***, respectively.

	Dependent variable: absolute value of discretionary accruals (Abs_DA)					
	OLS			2SLS (Standard & Poor's index inclusion as IV)		
Sample	All firms	Firms with positive DA	Firms with negative DA	All firms	Firms with positive DA	Firms with negative DA
Residual coverage	-0.01	-0.03	0.01	0.00	-0.03	0.03
	(0.01)	(0.01)***	(0.01)	(0.01)	(0.01)***	(0.01)**
MBE	0.84	0.14	0.64	0.80	0.03	0.69
	(0.43)**	(0.53)	(0.62)	(0.43)*	(0.53)	(0.62)
MBE_Residual coverage	-0.04	-0.03	-0.03	-0.05	-0.06	-0.02
	(0.02)**	(0.02)*	(0.02)	(0.01)***	(0.02)***	(0.02)
Institutional ownership	-0.01	-0.03	0.01	-0.02	-0.03	0.01
	(0.00)***	(0.00)***	(0.01)	(0.00)***	(0.00)***	(0.01)
MBE_Institutional ownership	-0.01	-0.01	0.00	-0.01	-0.01	0.00
	(0.01)*	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Market-to-book ratio	0.10	0.05	0.14	0.10	0.05	0.14
	(0.03)***	(0.03)**	(0.04)***	(0.03)***	(0.03)**	(0.04)***
Return on assets	-17.10	12.83	-31.90	-17.09	12.87	-31.91
	(0.98)***	(1.25)***	(1.10)***	(0.98)***	(1.25)***	(1.09)***
Growth rate of assets	5.87	3.00	7.74	5.87	2.99	7.74
	(0.25)***	(0.34)***	(0.29)***	(0.25)***	(0.34)***	(0.29)***
Cash flow volatility	2.71	6.59	0.71	2.70	6.56	0.73
	(0.65)***	(0.92)***	(0.76)	(0.64)***	(0.92)***	(0.76)
External financing activities	-5.05	11.01	-15.35	-5.06	10.99	-15.34
	(1.00)***	(1.29)***	(1.29)***	(1.00)***	(1.29)***	(1.29)***
Size	-0.03	-0.05	-0.02	-0.03	-0.05	-0.02
	(0.01)**	(0.02)***	(0.02)	(0.01)**	(0.02)***	(0.02)
Constant	6.87	6.00	5.85	6.90	6.14	5.79
	(0.29)***	(0.35)***	(0.44)***	(0.28)***	(0.34)***	(0.44)***
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	26,353	15,014	11,339	26,353	15,014	11,339
Adjusted *R*-squared	0.38	0.31	0.55	0.38	0.31	0.55

Table 8
The effect of change in coverage on change of earnings management over every three-year span

This table reports the results of regressions examining the effect of change in analyst coverage on the change in absolute discretionary accruals over every three-year span. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. Discretionary accruals are estimated by the cross-sectional modified jones model. Standard errors, reported in parentheses, are adjusted for firm-level clustering. Statistical significance at the 10, 5, and 1% level is indicated by *, **, and ***, respectively.

	Dependent variable: change in absolute discretionary acrruals		
	Ordinary least squares regressions		
Sample	All firms	Firms with positive DA	Firms with negative DA
Change in residual coverage	-0.02	-0.06	0.04
	(0.02)	(0.03)*	(0.03)
Change in institutional ownership	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)
Change in market-to-book ratio	0.27	0.29	0.25
	(0.06)***	(0.07)***	(0.05)***
Change in return on assets	-7.81	-1.52	-16.77
	(2.83)***	(4.02)	(1.56)***
Three-year growth rate of assets	8.23	1.26	13.02
	(7.29)	(2.79)	(11.20)
Cash flow volatility	-14.37	-18.27	-10.45
	(2.34)***	(3.03)***	(1.28)***
Change in financing activities	17.28	16.40	16.77
	(1.39)***	(1.96)***	(1.20)***
Change in size	0.10	-0.02	0.26
	(0.05)*	(0.07)	(0.07)***
Constant	-2.23	-1.96	-3.07
	(1.67)	(2.05)	(1.84)*
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Number of observations	5,834	3,015	2,821
Adjusted R-squared	0.19	0.23	0.17

Table 9
Uncovered versus covered firms

This table reports the results of regressions examing the difference of earnings management between uncovered firms and covered firms. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. Dummy of coverage is equal to one if a firm has one or more analysts and zero otherwise. Standard errors, reported in parentheses, are adjusted for firm-level clustering. Statisitcal significance at the 10, 5, and 1% level is indicated by *, **, and ***, respectively.

	Ordinary least squares regressions		
Sample	All firms	Firms with positive DA	Firms with negative DA
Dummy of coverage	-0.60	-1.21	-0.36
	(0.20)***	(0.22)***	(0.31)
Institutional ownership	-0.02	-0.03	0.00
	(0.00)***	(0.00)***	(0.01)
Market-to-book ratio	0.04	0.06	0.02
	(0.02)**	(0.02)***	(0.02)
Return on assets	-17.66	6.04	-27.95
	(0.76)***	(1.13)***	(0.89)***
Growth rate of assets	4.80	2.87	6.00
	(0.16)***	(0.24)***	(0.21)***
Cash flow volatility	1.42	5.04	-0.90
	(0.41)***	(0.63)***	(0.59)
External financing activities	0.78	15.45	-8.10
	(0.80)	(1.05)***	(1.11)***
Size	-0.05	-0.10	0.00
	(0.02)***	(0.02)***	(0.02)
Constant	7.86	7.05	7.25
	(0.21)***	(0.25)***	(0.36)***
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Number of observations	60,951	33,942	27,009
Adjusted R-squared	0.40	0.33	0.50

Table 10

Probability of meeting earnings targets

This table reports the effect of analyst coverage on a firm's propensity of meeting earnings expectations. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat that either narrowly meet/beat earnings targets or narrowly miss earnings targets. The dependent variable is the dummy to narrowly meet or beat earnings target, which is one hundred if a firm's reported earnings are equal to analysts' last consensus or exceed analysts' last consensus, and zero otherwise. Change in analyst consensus is measured by the absolute difference between the average of first forecasts and the average of last forecasts from all analysts following a given firm. Standard errors, reported in parentheses, are adjusted for firm-clustering. Statistical significance at the 10, 5, 1% level is indicated by *, **, and ***, respectively.

	OLS (controlled for change of consensus)			2SLS (Standard & Poor's index inclusion as IV)		
Dependent variables	Dummy of narrowly meeting or beating target			Dummy of narrowly meeting or beating target		
Earnings surprise	[-0.08, 0.04]	[-0.04, 0.04]	[-0.01, 0.01]	[-0.08, 0.04]	[-0.04, 0.04]	[-0.01, 0.01]
Residual coverage	-0.12	-0.10	-0.24	-0.10	-0.08	-0.23
	(0.07)	(0.08)	(0.14)*	(0.08)	(0.09)	(0.15)
Change in analyst consensus	0.28	0.34	0.33	0.28	0.34	0.33
	(0.24)	(0.08)***	(0.05)***	(0.24)	(0.08)***	(0.05)***
Institutional ownership	0.03	0.00	-0.10	0.01	-0.01	-0.13
	(0.03)	(0.03)	(0.05)**	(0.02)	(0.03)	(0.04)***
Market-to-book ratio	0.73	0.48	0.48	0.72	0.48	0.47
	(0.13)***	(0.13)***	(0.22)**	(0.13)***	(0.13)***	(0.22)**
Return on assets	45.48	39.48	27.06	45.74	39.77	27.80
	(4.33)***	(5.31)***	(9.81)***	(4.33)***	(5.30)***	(9.80)***
Growth rate of assets	-0.11	-0.57	-0.94	-0.12	-0.59	-1.00
	(0.71)	(0.78)	(1.41)	(0.71)	(0.78)	(1.41)
Cash flow volatility	2.42	3.41	4.56	2.29	3.29	4.37
	(2.85)	(3.24)	(7.96)	(2.85)	(3.24)	(7.97)
External financing activities	17.97	14.78	11.86	17.87	14.73	11.96
	(4.03)***	(4.42)***	(7.54)	(4.02)***	(4.43)***	(7.53)
Size	-0.02	-0.11	-0.22	-0.01	-0.10	-0.19
	(0.07)	(0.07)	(0.12)*	(0.07)	(0.07)	(0.11)*
Constant	40.86	42.22	48.57	41.36	42.63	49.52
	(2.92)***	(3.07)***	(4.97)***	(2.91)***	(3.07)***	(4.95)***
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	9,173	7,378	2,620	9,173	7,378	2,620
Adjusted R-squared	0.03	0.02	0.02	0.03	0.02	0.02

Table 11
The effect of analyst characteristics on earnings management

This table reports the results of regressions examing the effects of analyst characteristics on earnings management. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. Experience with firm is defined as the average number of years that all analysts have followed a given firm. Experience as analyst is defined as the average number of years that all analysts have worked as analyst. Standard errors, reported in parentheses, are adjusted for firm-clustering. Statistical significance at the 10, 5, and 1% level is indicated by *, **, and ***, respectively.

	Dependent variable: absolute value of discretionary accruals					
	All firms	Firms with positive DA	Firms with negative DA	All firms	Firms with positive DA	Firms with negative DA
Experience as analyst	-0.07	-0.10	-0.03			
	(0.03)**	(0.03)***	(0.05)			
Experience with firm				-0.28	-0.23	-0.24
				(0.04)***	(0.05)***	(0.06)***
Number of analysts	-0.02	-0.04	0.01	-0.01	-0.04	0.01
	(0.01)**	(0.01)***	(0.01)	(0.01)*	(0.01)***	(0.01)
Institutional ownership	-0.01	-0.03	0.01	-0.01	-0.03	0.01
	(0.00)***	(0.00)***	(0.01)	(0.00)***	(0.00)***	(0.01)*
Market-to-book ratio	0.10	0.05	0.14	0.10	0.04	0.14
	(0.03)***	(0.03)*	(0.04)***	(0.03)***	(0.03)*	(0.04)***
Return on assets	-17.01	12.82	-31.75	-17.07	12.74	-31.78
	(0.98)***	(1.25)***	(1.09)***	(0.98)***	(1.26)***	(1.09)***
Growth rate of assets	5.84	2.94	7.74	5.83	2.93	7.74
	(0.25)***	(0.34)***	(0.30)***	(0.26)***	(0.34)***	(0.30)***
Cash flow volatility	2.57	6.41	0.66	2.50	6.37	0.57
	(0.64)***	(0.92)***	(0.76)	(0.64)***	(0.92)***	(0.76)
External financing activities	-4.99	10.87	-15.23	-5.35	10.59	-15.54
	(1.00)***	(1.29)***	(1.30)***	(1.01)***	(1.30)***	(1.31)
Size	-0.01	-0.02	-0.02	0.00	-0.01	-0.01
	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
Constant	7.40	6.82	5.94	7.65	6.96	6.30
	(0.31)***	(0.37)***	(0.49)***	(0.29)***	(0.37)***	(0.46)***
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	26,187	14,925	11,262	26,166	14,911	11,255
Adjusted R-squared	0.37	0.31	0.54	0.37	0.31	0.54

Table 12
The effect of expectations management on probability of meeting earnings target

This table reports further evidence on the effect of expectations management on a firm's propensity of meeting earnings expectations. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat that either narrowly meet/beat earnings targets by no more than four cents or narrowly miss earnings targets by no more than four cents. The dependent variable is the dummy to narrowly meet or beat earnings target, which is one hundred if a firm's reported earnings are equal to analysts' last consensus or exceeds analysts' last consensus, and zero otherwise. Experience with firm is defined as the average number of years that all analysts have followed a given firm. Experience as analyst is defined as the average number of years that all analysts have worked as analyst. Change in consensus is measured by the signed difference between average first forecasts and average last forecasts from all the analysts following a given firm. Standard errors, reported in parentheses, are adjusted for firm-clustering. Statistical significance at the 10, 5, 1% level is indicated by *, **, and ***, respectively.

Dependent variables	Dummy of narrowly meeting or beating target		
	(1)	(2)	(3)
Residual coverage	-0.10		
	(0.08)		
Residual coverage_Change in analyst consensus	-2.15		
	(0.91)**		
Experience as analyst		0.11	
		(0.24)	
Experience as analyst_Change in analyst consensus		-9.24	
		(2.62)***	
Experience with firm			-1.26
			(0.42)***
Experience with firm_Change in analyst consensus			-17.13
			(8.06)**
Change in analyst consensus	-17.51	18.04	25.17
	(7.21)**	(5.24)***	(12.10)**
Number of analysts		-0.09	-0.08
		(0.08)	(0.08)
Institutional ownership	0.00	0.00	0.02
	(0.03)	(0.03)	(0.03)
Market-to-book ratio	0.47	0.49	0.48
	(0.13)***	(0.13)***	(0.12)***
Return on assets	39.38	37.94	38.34
	(5.40)***	(5.26)***	(5.24)***
Growth rate of assets	-0.24	-0.17	-0.65
	(0.81)	(0.79)	(0.75)
Cash flow volatility	2.83	2.86	2.70
	(3.28)	(3.19)	(3.16)
External financing activities	13.64	12.38	12.09
	(4.50)***	(4.43)***	(4.38)***
Size	-0.11	-0.03	0.02
	(0.07)	(0.08)	(0.08)
Constant	42.26	52.69	46.02
	(3.06)***	(3.34)***	(3.19)***
Year fixed effect	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes
Number of observations	7,377	7,630	7,634
Adjusted R-squared	0.03	0.03	0.03

Table 13

The effect of analyst coverage on real earnings management: ordinary least squares regressions

This table reports the results of ordinary least squares regressions examining the effect of analyst coverage on real earnings management. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. Residual coverage is the residuals from a regression of number of covering analysts on firm size, past performance, growth, external financing activities, and cash flow volatilities. RM1 is measured by abnormal production cost plus abnormal discretionary expenses, and RM2 is measured by abnormal cash flow from operations plus abnormal discretionary accruals. Discretionary accruals are estimated by the cross-sectional modified Jones model. Return on assets is calculated by net income divided by total assets. Growth rate of assets is calculated by the change of assets scaled by lagged assets. Cash flow volatility is estimated by the standard deviation of net cash flows of a firm in the entire sample period, scaled by lagged assets. External financing activities are measured by net cash flow from financing activities scaled by total assets. Size is the market value of a firm. Institutional ownership is measured by the percentage of common shares owned by institutional investors. Standard errors, reported in parentheses, are adjusted for firm-level clustering. Statistical significance at the 10, 5, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable	RM1 = R_PROD - R_SGA	RM2 = - R_CFO - R_SGA
Sample	All firms	All firms
Residual coverage	0.04	0.00
	(0.06)	(0.04)
Abs. Discretionary accruals	-0.26	-0.16
	(0.06)***	(0.05)***
Institutional ownership	0.00	-0.01
	(0.02)	(0.02)
Market-to-book ratio	-1.36	-1.06
	(0.14)***	(0.10)***
Return on assets	-4.61	-7.01
	(3.46)	(2.30)***
Growth rate of assets	-13.07	-13.81
	(1.20)***	(0.75)***
Cash flow volatility	-14.59	-6.22
	(3.50)***	(2.35)***
External financing activities	-2.07	7.92
	(4.57)	(2.89)***
Size	-0.09	-0.08
	(0.09)	(0.05)
Constant	7.27	5.29
	(1.80)***	(1.17)***
Year fixed effect	Yes	Yes
Industry fixed effect	Yes	Yes
Number of observations	24,981	26,348
Adjusted *R*-squared	0.11	0.21

Table 14

The effect of analyst coverage on the use of accruals management versus real earnings management: OLS

This table reports the results of ordinary least squares regressions examining the effect of analyst coverage on the use of accruals and real earnings management. The sample consists of firms in I/B/E/S from 1988 to 2002 with accounting information from Compustat. AEM is equal to one hundred if a firm's absolute disretionary accruals is above the industry median, and zero otherwise. REM is equal to one hundred if a firm's real earnings management measure (either RM1 or RM2) is above the industry median, and zero otherwise. Residual coverage is the residuals from a regression of number of covering analysts on firm size, past performance, growth, external financing activities, and cash flow volatilities. Return on assets is calculated by net income divided by total assets. Growth rate of assets is calculated by the change of assets scaled by lagged assets. Cash flow volatility is estimated by the standard deviation of net cash flows of a firm in the entire sample period, scaled by lagged assets. External financing activities are measured by net cash flow from financing activities scaled by total assets. Size is the market value of a firm. Institutional ownership is measured by the percentage of common shares owned by institutional investors. Standard errors, reported in parentheses, are adjusted for firm-level clustering. Statistical significance at the 10, 5, and 1% level is indicated by *, **, and ***, respectively.

Dependent variable	AEM Dummy			REM Dummy		
Sample	All firms	Firms with positive DA	Firms with negative DA	All firms	Firms with positive DA	Firms with negative DA
Residual coverage	-0.17	-0.19	-0.18	-0.06	-0.05	-0.05
	(0.04)***	(0.05)***	(0.05)***	(0.06)	(0.06)	(0.07)
Institutional ownership	-0.08	-0.11	-0.02	-0.01	0.00	-0.01
	(0.01)***	(0.02)***	(0.02)	(0.02)	(0.02)	(0.03)
Market-to-book ratio	0.26	0.25	0.26	-0.89	-0.97	-0.74
	(0.07)***	(0.10)**	(0.10)***	(0.09)***	(0.12)***	(0.11)***
Return on assets	-14.68	48.82	-46.31	-16.62	-35.99	-18.90
	(1.78)***	(3.57)***	(2.22)***	(2.14)***	(4.10)***	(2.44)***
Growth rate of assets	3.84	0.27	6.08	-3.57	-3.38	-2.49
	(0.34)***	(0.53)	(0.48)***	(0.34)***	(0.53)***	(0.45)***
Cash flow volatility	2.71	9.69	0.49	-6.20	-10.77	-3.28
	(1.35)**	(2.02)***	(1.78)	(1.67)***	(2.11)***	(1.98)*
External financing activities	15.04	51.86	-13.10	-2.15	-7.19	-8.89
	(2.15)***	(3.23)***	(3.03)***	(2.46)	(3.30)**	(3.21)***
Size	-0.26	-0.34	-0.18	-0.19	-0.22	-0.12
	(0.05)***	(0.07)***	(0.09)*	(0.09)**	(0.09)**	(0.13)
Constant	45.71	42.66	43.68	55.84	63.27	47.12
	(1.76)***	(2.30)***	(2.66)***	(1.78)***	(2.32)***	(2.68)***
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	26,348	15,014	11,334	26,348	15,014	11,334
Adjusted R-squared	0.05	0.07	0.07	0.04	0.06	0.04