

# Conservatism and the Information Content of Earnings

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# **Conservatism and the Information Content of Earnings**

## **Abstract**

This study finds that more conservative earnings have lower information content. In particular, we find that higher conditional conservatism decreases the speed with which equity investor disagreement and uncertainty resolve at earnings announcements as reflected in equity trading volume and volatility. We find that a firm-year measure of conditional conservatism that we develop is negatively related to the ratio of average daily volume (volatility) during the annual earnings announcement window to average daily volume (volatility) during the post-announcement window. We also find that the reduced information content of earnings associated with conditional conservatism manifests as higher expected equity cost of capital and higher dispersion of analysts' forecasts following earnings announcements. Findings from additional analyses using an alternative firm-year measure of conditional conservatism from prior research reveal that although the alternative measure has a significant negative relation with our earnings information content measures, the relation is not significant when control variables are included. In addition, our conditional conservatism measure is significantly negatively related to the earnings information content measures incremental to the alternative conservatism measure and the controls. We find positive stock returns subsequent to the earnings announcement for firms with higher conditional conservatism, particularly firms with positive returns during the earnings announcement window, which is consistent with investors fixating on negatively biased earnings and higher costs of information processing.

# Conservatism and the Information Content of Earnings

## 1. Introduction

This study examines whether earnings that are more conservative have lower information content. In particular, we examine whether higher conditional conservatism decreases the speed with which equity investor disagreement and uncertainty resolve at earnings announcements. Although prior studies find evidence of benefits to equityholders from conditional conservatism, there is less evidence relating to costs to equityholders. One potential cost is lower information content of earnings, which impedes equityholders' ability to discern the valuation implications of earnings when they are announced. We find evidence of such costs, in that higher conditional conservatism decreases the speed with which equity investor disagreement and uncertainty resolve at earnings announcements. We also find that the reduced information content of earnings associated with conditional conservatism manifests in economic costs as reflected in higher expected equity cost of capital and higher dispersion of analysts' forecasts following earnings announcements.

One of the most widely documented empirical regularities in the accounting literature is conditional conservatism, which is evidenced by a larger response coefficient for negative return than for positive return in an earnings-return regression. The benefits of conservative accounting practices have been widely discussed in the literature. For example, prior literature finds that conservatism helps to minimize contracting costs between debtholders and the firm, and to reduce managers' incentives and ability to manipulate accounting amounts. Thus, conservatism benefits both debtholders and equityholders. However, the literature also provides evidence that conservatism varies by industry and over time, suggesting that there are potentially costs to conservative accounting that offset benefits.

We address our research question by developing a firm-year measure of conditional conservatism and testing whether the measure has a significantly negative relation with two measures of information content of earnings at earnings announcements that we develop. Finding a negative relation implies that investor disagreement and uncertainty resolve more slowly with the announcement of annual earnings the greater is conditional conservatism. Our measure of conditional conservatism is based on the Basu (1997) asymmetric timeliness coefficient, and uses a two-step estimation approach adapted from Barth, Konchitchki, and Landsman (2013). Our two information content measures are based on earnings announcement equity trading volume and stock return volatility, which are two commonly employed measures of information content. Specifically, our measures are the ratios of average daily volume and volatility during the four-day annual earnings announcement window to average daily volume and volatility during the 18-day window beginning the third day after the earnings announcement. We test our predictions by estimating a relation between our earnings information content measures and our conservatism measure, including controls for known determinants of trading volume and equity volatility, including size, the equity book-to-market ratio, and leverage. Findings from our primary tests are based 55,403 annual earnings announcements from 1995 to 2012.

The findings are consistent with our prediction that conditional conservatism is significantly negatively related to both earnings information content measures. These findings indicate that conservatism is associated with a delay in the time it takes for resolution of investor disagreement as reflected in trading volume, and a delay in time it takes for average investor beliefs to change fully as reflected in equity volatility.

We supplement our primary tests by implementing a path analysis to assess whether the reduced information content of earnings associated with conditional conservatism manifests in economic costs as reflected in higher expected equity cost of capital and dispersion of analysts' forecasts following earnings announcements. Consistent with predictions, findings from the path analysis reveal that lower information content of earnings associated with conditional conservatism is positively related to both of these economic costs.

We conduct additional analyses using the Khan and Watts (2009) firm-year measure of conditional conservatism, which is based on size, the equity book-to-market ratio, and leverage. Findings from these analyses reveal that although the Khan and Watts (2009) measure has the predicted significantly negative relation with our earnings information content measures when control variables are excluded, the relation is not significant when the controls are included, most notably leverage. Findings from these analyses also reveal that our conditional conservatism measure is significantly negatively related to the earnings information content measures in specifications that include the Khan and Watts (2009) measure and the controls.

Because higher conditional conservatism requires investors to spend more time interpreting the information in earnings announcements, and information processing is costly, we expect the price adjustments to announcements of conservative earnings also to be delayed. If earnings are conservative and investors are unable to adjust fully for the negative bias in earnings resulting from conservatism, then stock returns subsequent to the announcement will be more positive for firms more conservative earnings. Thus, we test whether there are positive stock returns subsequent to the earnings announcement for firms with higher levels of conditional conservatism. We find that there are, particularly for firms with positive returns during the earnings announcement window.

We contribute to the conservatism literature as it relates to equity markets by examining the extent to which conservatism affects the information content of earning announcements. In particular, we find that higher conservatism decreases the speed with which investor disagreement and uncertainty resolve at earnings announcements. We also find that higher conservatism associated with diminished information content of earnings announcements increases expected equity cost of capital and dispersion of analysts' forecasts following earnings announcements.

The remainder of this paper is organized as follows. Section 2 discusses the basis of our predictions and related research. Section 3 develops the research design, and section 4 describes the sample. Section 5 presents our results, and section 6 presents findings from additional analyses. Section 7 concludes the study.

## **2. Basis for Predictions and Related Research**

Conditional conservatism is a property of accounting earnings that recognizes bad news on a more timely basis than good news. Basu (1997) and subsequent studies (Ball, Kothari, and Robin, 2000; Qiang, 2007; Beaver, Landsman, and Owens, 2012) find evidence of conditional conservatism for US firms. In addition, Ball, Kothari, and Robin (2000) and Ball, Robin, and Wu (2003), among others, find evidence of conservatism for firms in several other countries, where the extent of conservatism depends on a variety of institutional factors. Taken together, these studies show that conservatism is generally higher for US firms, which is interpreted as indirect evidence that conservatism is beneficial because the US is generally viewed as having the most efficient capital market in the world. Other studies find that conditional conservatism has increased in the US in the past few decades (Watts, 2003; Beaver, Landsman, and Owens, 2012), which suggests that the demand for conservative accounting continues to increase.

Several studies identify benefits to equityholders from conservative accounting. Watts (2003) explains that conservative accounting helps minimize conflicts between debtholders and equityholders, thereby enabling more efficient contracting, which results in benefits to equityholders in the form of lower debt costs. LaFond and Watts (2008) posits that conservatism reduces a manager's incentives and ability to manipulate accounting amounts, thereby reducing information asymmetry between firm insiders and outside equity investors. This results in higher equity values. LaFond and Watts (2008) finds support for this supposition by providing evidence that information asymmetry is significantly positively related to conservatism after controlling for other demands for conservatism.

Kim et al. (2013) builds on LaFond and Watts (2008) by predicting that accounting conservatism reduces financing costs in seasoned equity offerings (SEO) because conservatism mitigates the negative impact of information asymmetry. New investors engage in less price protection when new shares are issued and therefore are willing to pay higher prices for the shares. Consistent with predictions, Kim et al. (2013) finds that issuers with higher conservatism experience less negative equity returns at SEO announcements. Louis, Sun, and Urcan (2012) finds that conservatism benefits equityholders by providing incentives for more efficient real investment decisions by managers. This occurs because conservatism provides better monitoring of managers' investment decisions, and therefore mitigates the value destruction associated with cash holdings. Using various proxies for conservatism, Louis, Sun, and Urcan (2012) finds that the equity market values an additional dollar of cash holdings more for firms with greater accounting conservatism, suggesting that conservatism is associated with a more efficient use of cash. Francis, Hasan, and Wu (2013) finds that firms with more conservative accounting had less significant losses in equity values during the 2009 Financial Crisis. Watts and Zuo (2012)

finds a similar result, and concludes that accounting conservatism improved borrowing capacity, reduced underinvestment, constrained managerial opportunism, and enhanced firm value. Finally, García Lara, García Osma, and Penalva (2011) provides evidence that higher conditional conservatism is associated with lower implied cost of capital.

Other research suggests that conservatism imposes costs on equityholders arising from lower earnings transparency associated with the use of conservative accounting practices. Mensah et al. (2004) finds evidence that analysts' earnings forecast errors and dispersion of analysts' forecasts are positively associated with the Penman and Zhang (2002) measure of accounting conservatism. These findings suggest that conservative accounting makes it more difficult for analysts to forecast earnings. However, Mensah et al. (2004) does not address whether this difficulty results in a loss of information content of earnings, or whether asymmetric timeliness of earnings affects investors' or analysts' reactions to earnings announcements.

We contribute to the conservatism literature as it relates to equity markets by examining the extent to which conservatism affects the information content of earning announcements. In particular, we predict that higher conservatism decreases the speed with which investor disagreement and uncertainty resolve at earnings announcements. We also predict that higher conservatism associated with diminished information content of earnings announcements increases expected equity cost of capital and dispersion of analysts' forecasts following earnings announcements.

### **3. Research Design**

#### *3.1 Firm-year Measure of Asymmetric Earnings Timeliness*

Most conditional conservatism studies base their measure of conservatism on Basu (1997). The Basu (1997) measure is the incremental coefficient on negative annual equity

returns from a regression, as specified by equation (1), of annual earnings on equity returns that permits the coefficient to differ for positive and negative returns.

$$X_{i,t} = \beta_0 + \beta_1 DR_{i,t} + \beta_2 R_{i,t} + \beta_3 DR_{i,t} * R_{i,t} + v_{i,t}, \quad (1)$$

where  $X_{i,t}$  is earnings deflated by beginning of year price,  $R_{i,t}$  is annual stock return, and  $DR_{i,t}$  is an indicator variable that equals one if  $R_{i,t}$  is negative and zero otherwise, and  $i$  and  $t$  refer to firm and year. Basu (1997) refers to positive and negative equity returns as “good” and “bad” news, and concludes that bad news is incorporated into earnings on a more timely basis by finding that the incremental coefficient for negative returns is significantly positive. The incremental coefficient on negative returns,  $\beta_3$ , is referred to as the asymmetric timeliness coefficient.

Typically the asymmetric timeliness coefficient is based on a cross-sectional regression for a group of firms, which assumes that all firms in the group have the same coefficients at a point in time if the regression is estimated annually and across time if a panel of data is used. Thus, to test whether higher conservatism decreases the speed with which investor disagreement and uncertainty resolve at earnings announcements, we need to modify the Basu (1997) measure to obtain a firm-year measure of conditional conservatism.<sup>1</sup> Our firm-year measure of conditional conservatism, *ATC*, is based on the Basu (1997) asymmetric timeliness coefficient, and uses the two-step estimation approach of Barth, Konchitchki, and Landsman (2013).

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<sup>1</sup> Khan and Watts (2009) develops a firm-year measure of conservatism, *CSCORE*, by expressing the asymmetric earnings timeliness coefficient as a linear function of firm size, the equity market-to-book ratio, and leverage. Although *CSCORE* is a firm-year measure, size, the market-to-book ratio, and leverage are often viewed as pricing risk factors as well as variables correlated with conservatism. Nonetheless, in section 6, we conduct our tests using an estimate of *CSCORE* as an alternative conservatism measure.

Our measure for each firm-year is the sum of the asymmetric timeliness coefficients,  $\beta_3$ , from that firm-year's earnings-return relations given by equation (1) estimated in the two steps.<sup>2</sup> The first  $\beta_3$  we use to construct *ATC* is that from annual estimations of equation (1) by industry. By construction, this component of *ATC* is the same for all firms for a given industry-year. There is a strong industry component to the earnings-return relation as a result of accounting practices likely being similar within industries (Barth et al., 1999; 2005). However, as Barth, Konchitchki, and Landsman (2013) notes, estimating the earnings-return relation by industry is not likely to capture fully differences across firms in the earnings-return relation (Barth et al., 2005). The second  $\beta_3$  we use to construct *ATC* is that from the annual estimations of equation (1) by portfolio, where portfolio membership is based on the residuals from the industry regressions. Following Barth, Konchitchki, and Landsman (2013), we use four portfolios for each year, where, for example, the first portfolio is comprised of the quartile of observations from each annual industry regression with the most negative residuals. Thus, the portfolio regressions capture cross-sectional differences in the earnings-return relation that are not captured fully by industry estimation. Also, the portfolios are industry-neutral because each portfolio has the same industry composition. Thus, differences in  $\beta_3$  from the portfolio regressions cannot be attributed to differences in industry membership.

Our asymmetric timeliness measure for firm  $i$  in year  $t$ ,  $ATC_{i,t}$ , is the sum of the  $\beta_3$ s from equation (1) pertaining to firm  $i$ 's industry and industry-neutral earnings-return regressions in year  $t$ , which we label *ATCI* and *ATCIN*. Thus,

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<sup>2</sup> Note that Barth, Konchitchki, and Landsman's (2013) research question relates to developing a firm-year measure of earnings transparency, which is based on the sum of model explanatory powers from two regressions. In contrast, because our focus is on developing a firm-year asymmetric timeliness coefficient, we base our measure on the sum of coefficients from two regressions.

$$ATC_{i,t} \equiv ATCI_{j,t} + ATCIN_{p,t}, \quad (2)$$

where  $j$  and  $p$  denote industry and portfolio.

### *3.2 Association between Conservatism and Earnings Announcement Volume and Volatility*

We base our tests for whether conservatism reduces the information content of earnings at earnings announcements on two commonly employed earnings announcement information content measures, equity trading volume and stock return volatility. Theoretical and empirical studies suggest that the greater the information content an earnings announcement has, the greater are volume and volatility (Beaver, 1968; Kim and Verrecchia, 1991; Landsman and Maydew, 2002). Based on this literature, we interpret equity trading volume as measuring the extent to which an announcement generates diversity in opinions across investors; the greater the information content of an announcement, the more likely investors will interpret the content dissimilarly and thus the more they will trade as a result of their dissimilar interpretations. Also based on this literature, we interpret stock return volatility as measuring the extent to which an announcement changes investors' beliefs on average; the greater the content, the more investors' beliefs are likely to change on average.

If an earnings announcement is informative in terms of resolving diversity of investor opinions regarding the information in the announcement, then there will be a spike in trading volume in the days immediately surrounding the announcement. However, if a firm's earnings are not fully transparent, then trading volume might remain high for an extended period of time until investors resolve their disagreement regarding the information content of the announcement. Accordingly, we calculate our first information content measure,  $EA\_VOLM$ , as the ratio of average daily trading volume during the four-day window surrounding the earnings announcement,  $(-1, +2)$ , to the average daily trading volume beginning the third trading day

after the earnings announcement and extending to 20 trading days after the announcement, (+3,+20):

$$EA\_VOLM_{i,t} = \overline{VOLM}(-1,+2)_{i,t} / \overline{VOLM}(+3,+20)_{i,t}. \quad (3)$$

$\overline{VOLM}$  is the average daily trading volume over the relevant window relative to earnings announcement day zero.

To test whether conservatism has a negative effect on information content as reflected by trading volume, we estimate the following cross-sectional regression:

$$EA\_VOLM_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \varepsilon_{i,t}. \quad (4)$$

We predict the *ATC* coefficient,  $\alpha_1$ , is negative if conservatism causes a delay in the time it takes for resolution of investor disagreement. We include as controls firm size, equity market value, *Size*; the equity book-to-market ratio, *BM*; and financial leverage, the ratio of debt to total assets, *Lev*.

To the extent that larger firms provide more disclosure, larger firms' earnings announcements are expected to provide less new information than those of smaller firms (Atiase, 1985; Freeman, 1987). To the extent that larger firms have richer information environments than smaller firms, larger firms' earnings announcements are likely to convey less news, which leads to the prediction that the *Size* coefficient,  $\alpha_2$ , is negative. Peress (2008) suggests that the equity market-to-book ratio is a proxy for investor attention, where a higher ratio indicates the firm has more visibility. Thus, a higher equity book-to-market ratio would suggest a slower investor reaction when earnings are announced, which leads to the prediction that the *BM* coefficient,  $\alpha_3$ , is negative. Finally, because prior literature shows that leverage is positively associated with conservatism (Watts, 2003; Khan and Watts, 2009), we include leverage to test whether *ATC* has explanatory power incremental to leverage.

Similarly, if an earnings announcement is informative in terms of changing average investor beliefs regarding the information in the announcement, then there will be a spike in equity volatility in the days immediately surrounding the announcement. If a firm's earnings are not fully transparent, then volatility might remain high for an extended period of time until average investor beliefs regarding the information content of the announcement change fully. Accordingly, as with  $EA\_VOLM$ , we calculate our second information content measure,  $EA\_VOLA$ , as the ratio of average daily equity volatility during the four-day window surrounding the earnings announcement,  $(-1, +2)$ , to average daily volatility beginning the third trading day after the earnings announcement and extending to 20 trading days after the announcement,  $(+3,+20)$ :

$$EA\_VOLA_{i,t} = \overline{VOLA}(-1,+2)_{i,t} / \overline{VOLA}(+3,+20)_{i,t}. \quad (5)$$

$\overline{VOLA}$  is the average daily volatility over the relevant window relative to earnings announcement day zero. Following prior literature (Beaver, 1968; Landsman and Maydew, 2002), we compute  $VOLA$  on any given trading day as the square of residual equity return for that day. We calculate the daily residual return as the difference between realized return and expected return based on the CAPM, using betas and risk-free asset returns obtained from CRSP.<sup>3</sup>

To test whether conditional conservatism has a negative effect on information content as reflected by equity volatility we estimate the following cross-sectional regression:<sup>4</sup>

$$EA\_VOLA_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \varepsilon_{i,t}. \quad (6)$$

<sup>3</sup> We also calculate the daily residual return as the difference between realized return and expected return based on the Fama and French (1993) three-factor model supplemented with the momentum factor, time-varying factor loadings, risk-free interest rates, and risk premiums. Untabulated findings reveal inferences identical to those based on tabulated findings.

<sup>4</sup> For ease of exposition, we use the same notation for coefficients and error terms in equations (4) and (6), as well as in equations (7) and (8). In all likelihood they differ.

We predict the *ATC* coefficient,  $\alpha_1$ , is negative if conservatism causes a delay in the time it takes for average investor beliefs to change fully. Equation (6) uses the same controls as those in equation (4). For both equations (4) and (6), we include year fixed effects and cluster standard errors by firm and year.<sup>5</sup>

We also estimate versions of equations (4) and (6) that include additional control variables, given by equations (7) and (8).

$$EA\_VOLM_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 MOM_{i,t} + \varepsilon_{i,t} \quad (7)$$

$$EA\_VOLA_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 ASQRET_{i,t} + \varepsilon_{i,t} \quad (8)$$

Analyst dispersion *DISP*, and forecast error, *FE*, are indications of uncertainty in advance of the earnings announcement (Barron et al., 1998; Barron and Stuerke, 1998; Zhang, 2006). We define *DISP* as the standard deviation of analyst earnings forecasts of the current year's earnings immediately preceding the earnings announcement. To construct *DISP*, we require at least three forecasts. We define *FE* as the absolute value of the difference between the mean analyst forecast of the current year's earnings and actual earnings divided by beginning-of-year stock price. When constructing *DISP* and *FE*, we exclude forecasts made more than 120 days before the earnings announcement. If the earnings announcement removes pre-announcement uncertainty, then the investor response may be heightened just after the earnings announcement. If the uncertainty persists, investor response may be dampened. Thus we have no sign predictions for the *DISP* and *FE* coefficients,  $\alpha_5$  and  $\alpha_6$ .

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<sup>5</sup> Throughout we use a five percent significance level under a one-sided alternative when we have a signed prediction and under a two-sided alternative otherwise.

*ATURN* is the average daily turnover during the pre-announcement period, which equals the average of a firm's monthly shares traded scaled by thousands of shares outstanding in the first ten months of the current year. *ASQRET* is average squared daily return during the pre-announcement period beginning 60 days before and ending 3 days before the earnings announcement. *MOM* is pre-announcement period price momentum, which equals the firm's equity return for the first ten months of the current year. We include *ATURN* and *ASQRET* in equations (7) and (8), respectively, as controls for pre-announcement trading volume and return volatility. We also include *ATURN* in equation (8) because prior research establishes a positive relation between volume and volatility (Admati and Pfleiderer, 1988; Kim and Verrecchia, 1991b; Jones, Kaul, and Lipson, 1994). We include *MOM* in equation (7) because prior research establishes a relation between momentum and trading volume (Lee and Swaminathan, 2000). Based on prior research, we predict  $\alpha_7$  is positive in both equations, and  $\alpha_8$  is positive in equation (7). Because *EA\_VOLA* is defined with post-announcement period volatility in the denominator, we predict  $\alpha_8$  is negative in equation (8).

### *3.3 Path Analysis Linking Conservatism to Economic Outcomes*

The design described in the prior section is aimed at testing whether *ATC* has a predicted negative relation with *EA\_VOLM* and *EA\_VOLA*. Even though *EA\_VOLM* and *EA\_VOLA* are based on two commonly employed measures of information content of earnings, volume and volatility, the extent to which *ATC* has an association with economic outcomes through its association with *EA\_VOLM* and *EA\_VOLA* is an open question. To understand more fully the mechanisms, we employ a path analysis research design. In path (or mediation) analysis, there is a hypothesized chain of relations in which a source variable affects a mediating variable, which in turn affects an outcome variable (MacKinnon, Fairchild, and Fritz, 2007). In our case, the

source variable is *ATC* and the outcome variables we consider are expected equity cost of capital and analyst forecast dispersion. We test whether *EA\_VOLM* and *EA\_VOLA* act as mediating variables.

We construct our proxy for expected equity cost of capital, *ECC*, based on the Fama and French (1993) three-factor model supplemented with the Carhart (1997) momentum factor. We calculate *ECC* following Barth, Konchitchki, and Landsman (2013) by first estimating factor betas for each firm using the most recent 60 months of returns, and then using these estimated betas, along with expected factor returns based on historical averages, to estimate *ECC*. We calculate post-announcement analyst forecast dispersion, *DISP\_Post*, as the standard deviation of analyst earnings forecasts of the next year's earnings outstanding in the calendar month following the current year's earnings announcement. As with *DISP*, we require at least three forecasts when constructing *DISP\_Post*.

We predict that *EA\_VOLM* and *EA\_VOLA* have negative relations with the three economic outcome variables because *EA\_VOLM* and *EA\_VOLA* reflect the speed with which investor disagreement and uncertainty resolve at earnings announcements. Thus, we expect the indirect effect of *ATC* on *ECC* and *DISP\_Post*, e.g., the effect of *ATC* on *ECC* through *EA\_VOLM*, is positive because the indirect effect is the product of the two negative path effects. Also, because we posit that *ATC* reduces the information content of earnings, we predict a positive direct relation between *ATC* and *ECC* and *DISP\_Post*. Figure 1 presents the basic path diagram of the posited direct and indirect, i.e., mediated, paths.

We test our hypotheses using a structural equation model (SEM) in which all of the paths described above are embedded and the disturbance terms of the equations are allowed to be correlated. In the SEM, the direct paths of *ATC* affecting *EA\_VOLM* and *EA\_VOLA*, as well as

the direct paths of those variables on *ECC* and *DISP\_Post*, are modeled simultaneously. Moreover, the indirect effects of *ATC* on *ECC* and *DISP\_Post* are modeled simultaneously in the SEM. The equations include all control variables in equations (7) and (8), except for *MOM* and *ASQRET*, which are excluded from the equations in which *ECC* and *DISP\_Post* are the dependent variables.

#### **4. Sample and Descriptive Statistics**

Findings from our primary tests are based on 55,403 annual earnings announcements from 1995 to 2012. To be included in our primary sample, an earnings announcement must relate to a firm with complete data necessary to construct the variables in equations (4) and (6). We obtain data from CRSP, Compustat, and I/B/E/S and trim observations at the 1 and 99 percentile of each variable. Requiring non-missing data for the additional control variables used to estimate equations (7) and (8) results in a sample of 18,837 annual earnings announcements for those estimations.

Table 1 presents descriptive statistics for the variables used in our estimating equations. Most notably, Table 1 reveals that mean (median) *ATC* is 0.32 (0.31), which is approximately twice the OLS estimate of the asymmetric timeliness coefficient in Beaver, Landsman, and Owens (2012), 0.152, which uses a sample period that overlaps with ours. Thus, the two-step approach that sums the asymmetric timeliness coefficients from two regressions yields a mean firm-year estimate that is about double a benchmark value. Means (medians) for *EA\_VOLM* and *EA\_VOLA* are 1.62 (1.37) and 3.89 (1.68), which indicates that for both measures the average daily market reaction during the four-day announcement window is substantially larger than that during the 18-day post-announcement window.

Table 2 presents sample Pearson (Spearman) correlations above (below) the diagonal. Most notably, Table 2 reveals that *ATC* is significantly negatively correlated with *EA\_VOLM* and *EA\_VOLA*—the Pearson (Spearman) correlations between *ATC* and *EA\_VOLM* and *EA\_VOLA* are  $-0.03$  ( $-0.04$ ) and  $-0.03$  ( $-0.03$ ). In addition, many of the control variables are significantly correlated with *ATC*, *EA\_VOLM*, and *EA\_VOLA*.

## 5. Results

### 5.1 Regressions of *EA\_VOLM* and *EA\_VOLA* with *ATC*

Table 3, panel A, presents regression summary statistics for the *EA\_VOLM* and *EA\_VOLA* estimating equations (4) and (6). The key finding is that, consistent with predictions, the *ATC* coefficient is significantly negative for both equations. In particular, panel A reveals that the *ATC* coefficients (t-statistics) are  $-0.34$  and  $-2.26$  ( $-3.47$  and  $-5.45$ ) in the *EA\_VOLM* and *EA\_VOLA* equations. These findings are consistent with conservatism being associated with a delay in the time it takes for resolution of investor disagreement as reflected in trading volume, and a delay in time it takes for average investor beliefs to change fully as reflected in equity volatility. In addition, findings relating to *Size* and *BM* are consistent with predictions, except for *Size* in the *EA\_VOLA* equation. In particular, for the *EA\_VOLM* equation, the *Size*, *BM*, and *Lev* coefficients are significantly negative (coefficients =  $-0.05$ ,  $-0.01$ , and  $-0.39$ ; t-statistics =  $-6.87$ ,  $-6.91$ , and  $-12.53$ ). For the *EA\_VOLA* equation, the *BM* and *Lev* coefficients are significantly negative (coefficients =  $-0.04$  and  $-1.86$ ; t-statistics =  $-6.55$  and  $-5.32$ ); contrary to predictions, the *Size* coefficient is significantly positive (coefficient =  $0.19$ ; t-statistic =  $4.17$ ).

Table 3, panel B, presents regression summary statistics for the *EA\_VOLM* and *EA\_VOLA* estimating equations (7) and (8) that include additional control variables. As in panel A, panel B reveals that the *ATC* coefficient is significantly negative for both equations. The *ATC*

coefficients (t-statistics) are  $-0.26$  and  $-2.82$  ( $-2.95$  and  $-4.87$ ) in the *EA\_VOLM* and *EA\_VOLA* equations. Thus, *ATC*'s incremental associations with *EA\_VOLM* and *EA\_VOLA* are essentially unchanged by inclusion of the additional control variables. In addition, inclusion of the additional control variables eliminates the anomalous finding for *Size* in the *EA\_VOLA* equation in that the coefficient on *Size* is significantly negative in both equations.<sup>6</sup>

Regarding the additional control variables, although we have no prediction for sign of the *DISP* coefficient, it is significantly negative in both the *EA\_VOLM* and *EA\_VOLA* estimations (coefficients =  $-0.19$  and  $-1.60$ ; t-statistics =  $-5.93$  and  $-5.47$ ). This is consistent with heightened pre-announcement uncertainty muting investor response to the earnings announcement. Also, consistent with predictions, the coefficients on *FE* and *ATURN* are significantly positive in both estimations (*FE* coefficients =  $3.08$  and  $23.41$ ; *FE* t-statistics =  $2.73$  and  $2.70$ ; *ATURN* coefficients =  $0.88$  and  $2.83$ ; *ATURN* t-statistics =  $11.71$  and  $6.18$ ). In addition, the *MOM* coefficient in the *EA\_VOLM* estimation is significantly positive (coefficient =  $0.04$ ; t-statistic =  $1.81$ ), and that on *ASQRET* in the *EA\_VOLA* estimation is significantly negative (coefficient =  $-2.62$ ; t-statistic =  $-3.50$ ).

## 5.2 Path Analysis

The results of the path analysis are presented in Figure 1 and Table 4. The figure shows that the standardized direct path coefficients of *ATC* on *ECC* and *DISP\_Post* are  $-0.003$  and  $0.051$ , and both are significantly different from zero (t-statistics =  $-4.22$  and  $4.68$ ). The direct path coefficients of the mediating variables *EA\_VOLM* and *EA\_VOLA* are generally consistent with our prediction of a negative relation: of the four coefficients, three are negative (two

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<sup>6</sup> Data requirements for the additional control variables reduce the number of observation by more than half. Nonetheless, untabulated findings from estimating equations (4) and (6) on the smaller sample reveal the same inferences for the *ATC* and three control variable coefficients as revealed in Table 3, panel A, except that the coefficient on *Size* in the *EA\_VOLA* estimation is negative, as predicted, but not significantly so.

significantly so) and the positive coefficient is insignificantly different from zero. The significantly negative coefficients are those relating *EA\_VOLM* to *ECC* and *EA\_VOLA* to *DISP\_Post*.

Table 4 presents the standardized indirect path coefficients of *ATC* on *ECC* and *DISP\_Post* through the mediating variables, *EA\_VOLM* and *EA\_VOLA*. Panel A (B) reports the indirect path coefficients for *ATC* through *EA\_VOLM* and *EA\_VOLA* on *ECC* (*DISP\_Post*). The indirect path coefficients are the product of the direct path coefficients leading to and from the mediating variables. In Table 4, the indirect path coefficient is the product of rows I and II in each panel. We test the significance of the total indirect path effect using the delta method (Sobel, 1987).

Panel A reveals that the indirect effect of *ATC* on *ECC* through *EA\_VOLM* is 0.0001 and that through *EA\_VOLA* is essentially zero. The total indirect effect of *ATC* on *ECC*, i.e., the sum of the two indirect effects, 0.0001, is significantly positive (t-statistic = 2.50). Thus, consistent with predictions, lower information content of earnings associated with conditional conservatism is positively related to expected equity cost of capital. Panel B reveals that the indirect effect of *ATC* on *DISP\_Post* through *EA\_VOLM* is -0.0006 and that through *EA\_VOLA* is 0.0021. The total indirect effect of *ATC* on *DISP\_Post*, 0.0016, is significantly positive (t-statistic = 2.93). Thus, consistent with predictions, lower information content of earnings associated with conditional conservatism is positively related to analyst forecast dispersion after the earnings announcement.

## 6. Additional Analyses

### 6.1 Khan and Watts (2009) Measure of Conditional Conservatism

Khan and Watts (2009) develops a firm-year measure of conditional conservatism, *CSCORE*, that is based on size, the equity book-to-market ratio, and leverage. In this section we present results from estimating equations (4) and (6) replacing *ATC* with our constructed *CSCORE* measure, *C\_score*. Because *C\_score* reflects conditional conservatism, we expect it to have a significantly negative association with *EA\_VOLM* and *EA\_VOLA*. Following Khan and Watts (2009), we compute *C\_score* as a linear combination of *Size*, *BM*, and *Lev*, i.e.,

$$C\_score_{i,t} \equiv \lambda_0 + \lambda_1 Size_{i,t} + \lambda_2 BM_{i,t} + \lambda_3 Lev_{i,t}, \quad (9)$$

where the  $\lambda_{kt}$ s are coefficients from annual estimations of a version of equation (1) that permits the asymmetric timeliness coefficient,  $\beta_3$  in equation (1), to vary with *Size*, *BM*, and *Lev*. See Khan and Watts (2009) equation (4) for the complete specification.

Table 5, panel A, presents findings from estimating equations (4) and (6) with *C\_score* in lieu of *ATC* as the measure of conditional conservatism. The findings indicate that *C\_score* fails to have explanatory power for *EA\_VOLM* and *EA\_VOLA* incremental to the three control variables, *Size*, *BM*, and *Lev*. In particular, in the *EA\_VOLM* and *EA\_VOLA* equations, the *C\_score* coefficients are  $-0.04$  and  $-0.62$ , with t-statistics of  $-0.72$  and  $-1.30$ . This is not altogether surprising because *C\_score* is constructed using a firm's *Size*, *BM*, and *Lev*.

Untabulated findings from additional regressions in which we include various combinations of each of the three variables, *Size*, *BM*, and *Lev*, as controls, and omitting them, indicates that the *Lev* is the key variable that affects the *C\_score* explanatory power. In particular, although, as expected, *C\_score* has significantly negative relations with *EA\_VOLM* and *EA\_VOLA* when the controls are omitted, the relation is not significant when *Lev* is included. These findings suggest

that although  $C\_score$  is a firm-year measure of conditional conservatism, it is difficult to distinguish it from a firm-year measure of leverage.

Additional untabulated findings from estimations that include the additional controls in equations (7) and (8) indicate that  $C\_score$  is not significantly related to either  $EA\_VOLM$  (coefficient =  $-0.03$ ; t-statistic =  $-0.52$ ) or  $EA\_VOLA$  (coefficient =  $-0.43$ ; t-statistic =  $-0.90$ ). In contrast, the findings in Table 3 indicate that  $ATC$  has significant explanatory power  $EA\_VOLM$  and  $EA\_VOLA$  in the presence of all controls, including  $Lev$ , which indicates that  $ATC$  reflects dimensions of conditional conservatism not reflected by leverage.

We next estimate versions of equations (7) and (8) including both  $ATC$  and  $C\_score$  to assess whether  $ATC$  has incremental explanatory power in the presence of the  $C\_score$ . Table 5, panel B, presents the findings and reveals that  $ATC$  has incremental explanatory power for  $EA\_VOLM$  and  $EA\_VOLA$ , but  $C\_score$  does not. In particular, whereas the  $ATC$  coefficients (t-statistics) are  $-0.27$  ( $-2.92$ ) and  $-2.85$  ( $-4.76$ ) in the  $EA\_VOLM$  and  $EA\_VOLA$  equations, the  $C\_score$  coefficients (t-statistics) are  $-0.03$  ( $-0.59$ ) and  $-0.48$  ( $-0.99$ ).

## 6.2 Conservatism and Price Drift

Finding that conditional conservatism is associated with a delay in the time it takes for resolution of investor disagreement and for average investor beliefs to change fully can be interpreted as indicating that  $ATC$  creates a market friction at earnings announcements. That is, higher  $ATC$  requires investors to spend more time interpreting the information in earnings announcements. Because information processing is costly, we expect the price adjustments to announcements of conservative earnings also to be delayed. If investors exhibit the functional fixation bias documented in Hand (1990) and Sloan (1996), then stock returns following announcements of conservative earnings may be predictable. Specifically, if earnings are

conservative and investors are unable to adjust fully for the negative bias in earnings resulting from conservatism, then stock returns subsequent to the announcement will be more positive for firms with more conservative earnings. Because conservatism is more likely to mask the information content of earnings associated with good news, we expect the positive subsequent stock returns to be more pronounced for good news announcements.

To test whether this is the case, we partition sample observations into good and bad news subsamples based on the sign of the stock return during the four-day earnings announcement window. Then, for each subsample, we form five portfolios based on the magnitude of *ATC*. For each portfolio, we calculate the 45-day post-announcement buy-hold excess return. For good news announcements, we predict higher (lower) *ATC* portfolios earn the larger (smaller) post-announcement returns. Specifically, we test whether the mean post-announcement return for announcements in the top two quintile portfolios is greater than that in the bottom two quintile portfolios. We compute post-announcement returns as excess returns by subtracting the expected return based on the Fama and French (1993) three-factor model supplemented with the Carhart (1997) momentum factor from the raw post-announcement return.

Table 6 presents the results. Relating to good news, the findings reveal that, as predicted, the mean post-announcement return in the top two quintile portfolios, 0.0109, is greater than that in the bottom two quintile portfolios, 0.0044. The difference between the two, 0.0065, is significantly positive (t-statistic = 3.25). Relating to bad news, the findings also reveal that, as predicted, the mean post-announcement return in the top two quintile portfolios, 0.0041, is greater than that in the bottom two quintile portfolios, 0.0030, although the difference, 0.0011, is insignificant (t-statistic = 0.48). Also as predicted, the findings reveal that the positive subsequent stock returns are more pronounced for good news announcements (t-statistic = 2.71).

## 7. Conclusion

We find that higher conditional conservatism decreases the speed with which equity investor disagreement and uncertainty resolve at earnings announcements. We also find that the reduced information content of earnings associated with conditional conservatism manifests in economic costs as reflected in higher expected equity cost of capital and higher dispersion of analysts' forecasts following earnings announcements.

We first test whether there is a negative relation between a firm-year measure of conditional conservatism and two measures of information content of earnings at earnings announcements, all of which we develop. Our measure of conditional conservatism is based on the Basu (1997) asymmetric timeliness coefficient, and uses a two-step estimation approach. Our two information content measures are the ratios of average daily volume and volatility during the annual earnings announcement window to average daily volume and volatility during a post-announcement window. Volume and volatility are two commonly employed measures of information content. Our tests also include controls for known determinants of equity trading volume and equity return volatility, including size, the equity book-to-market ratio, and leverage.

We next implement a path analysis to test whether the reduced information content of earnings associated with conditional conservatism manifests in economic costs as reflected in higher expected equity cost of capital and dispersion of analysts' forecasts following earnings announcements. Consistent with predictions, the findings reveal that lower information content of earnings associated with conditional conservatism is positively related to both of these economic costs.

We conduct additional analyses using an alternative firm-year measure of conditional conservatism from prior research. Findings from these analyses reveal that although the

alternative measure has the predicted significantly negative relation with our earnings information content measures when control variables are excluded, the relation is not significant when the controls are included, most notably leverage. In addition, our conditional conservatism measure is significantly negatively related to the earnings information content measures incremental to the alternative conservatism measure and the controls. We also test an implication for stock prices of the delayed reactions to earnings announcements, namely whether there are positive stock returns subsequent to earnings announcements for firms with higher levels of conditional conservatism. We find that there are, particularly for firms with positive returns during the earnings announcement window.

Taken together, the findings in this study provide evidence that more conservative earnings have lower information content. Although firms can benefit from conservative accounting, the lower information content of earnings is a cost that reduces such benefits.

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**Table 1**  
**Descriptive statistics**

Variable	Mean	Std Dev	Median
<i>ATC</i>	0.32	0.12	0.31
<i>EA_VOLM</i>	1.62	1.11	1.37
<i>EA_VOLA</i>	3.89	6.36	1.68
<i>Size</i>	13.03	1.86	12.95
<i>BM</i>	1.74	6.38	0.53
<i>Lev</i>	0.21	0.19	0.18
<i>DISP</i>	0.20	0.33	0.09
<i>FE</i>	0.00	0.01	0.00
<i>ATURN</i>	0.20	0.16	0.15
<i>MOM</i>	0.11	0.39	0.07
<i>ASQRET</i>	0.08	0.10	0.05
<i>ECC</i>	0.12	0.11	0.10
<i>DISP_Post</i>	0.52	3.91	0.23

Table 1 presents descriptive statistics for the variables used in our estimating equations. *ATC* is the firm-year measure of conditional conservatism; *EA\_VOLM* (*EA\_VOLA*) is the ratio of average daily trading volume (return volatility) during the earnings announcement window to the average daily trading volume (return volatility) in the post-announcement window; *Size* is the log of the market value of equity; *BM* is the ratio of book equity to the market value of equity; *Lev* is the ratio of long-term debt to total assets; *DISP* is the standard deviation of analyst earnings forecasts of current earnings immediately preceding the earnings announcement; *FE* is the absolute value of the difference between the mean analyst forecast of the current year's earnings and actual earnings divided by beginning-of-year stock price; *ATURN* is the average daily turnover during the first ten months of the year; *MOM* is the firm's equity return for the first ten months of the year; *ASQRET* is average squared daily return for the period beginning 60 days before and ending two days before the earnings announcement; *ECC* is the expected equity cost of capital; *DISP\_Post* is the standard deviation of analyst earnings forecasts of the next year's earnings outstanding in the calendar month following the current year's earnings announcement. The statistics for *ATC*, *EA\_VOLM*, *EA\_VOLA*, *Size*, *BM*, and *Lev* are based on 55,403 observations, and the statistics for *DISP*, *FE*, *ATURN*, *MOM*, *ASQRET*, *ECC*, and *DISP\_Post* are based on 18,837 observations. All continuous variables are winsorized at the 1 and 99 percentiles, with the exception of *ECC*, which is winsorized to be between zero and 0.50. The sample comprises annual earnings announcements from 1995 to 2012.

**Table 2**  
**Correlation matrix**

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 <i>ATC</i>		-0.04	<b>-0.04</b>	<b>-0.03</b>	<b>0.02</b>	<b>0.03</b>	<b>0.07</b>	<b>0.07</b>	0.01	<b>-0.09</b>	<b>0.10</b>	<b>0.02</b>	<b>0.03</b>
2 <i>EA_VOLM</i>	<b>-0.05</b>		<b>0.50</b>	<b>-0.06</b>	<b>-0.06</b>	<b>-0.13</b>	<b>-0.05</b>	0.00	<b>0.18</b>	<b>0.03</b>	<b>0.02</b>	<b>-0.04</b>	0.00
3 <i>EA_VOLA</i>	<b>-0.05</b>	<b>0.56</b>		<b>0.04</b>	<b>-0.04</b>	<b>-0.10</b>	<b>-0.07</b>	<b>-0.02</b>	<b>0.11</b>	0.00	<b>-0.05</b>	<b>-0.07</b>	<b>-0.01</b>
4 <i>Size</i>	<b>-0.03</b>	0.01	<b>0.07</b>		<b>-0.14</b>	<b>0.09</b>	<b>-0.19</b>	<b>-0.17</b>	<b>0.09</b>	<b>0.12</b>	<b>-0.22</b>	<b>-0.15</b>	<b>-0.04</b>
5 <i>BM</i>	<b>0.03</b>	<b>-0.10</b>	<b>-0.07</b>	<b>-0.32</b>		<b>0.04</b>	<b>0.16</b>	<b>0.10</b>	<b>-0.01</b>	<b>-0.07</b>	0.00	<b>-0.01</b>	<b>0.02</b>
6 <i>Lev</i>	<b>0.02</b>	<b>-0.16</b>	<b>-0.12</b>	<b>0.13</b>	<b>0.17</b>		<b>0.13</b>	<b>0.10</b>	<b>-0.15</b>	<b>-0.08</b>	<b>-0.08</b>	<b>0.03</b>	<b>0.02</b>
7 <i>DISP</i>	<b>0.05</b>	<b>-0.08</b>	<b>-0.08</b>	<b>-0.23</b>	<b>0.36</b>	<b>0.16</b>		<b>0.53</b>	<b>0.07</b>	0.00	<b>0.11</b>	<b>0.04</b>	<b>0.19</b>
8 <i>FE</i>	<b>0.03</b>	0.01	0.01	<b>-0.24</b>	<b>0.28</b>	<b>0.09</b>	<b>0.58</b>		<b>0.06</b>	0.00	<b>0.11</b>	<b>0.03</b>	<b>0.19</b>
9 <i>ATURN</i>	<b>-0.02</b>	<b>0.28</b>	<b>0.20</b>	<b>0.13</b>	<b>-0.09</b>	<b>-0.20</b>	<b>0.03</b>	<b>0.05</b>		0.01	<b>0.29</b>	<b>-0.08</b>	<b>0.03</b>
10 <i>MOM</i>	<b>-0.09</b>	<b>0.02</b>	0.01	<b>0.16</b>	<b>-0.31</b>	<b>-0.05</b>	<b>-0.04</b>	<b>-0.02</b>	<b>-0.05</b>		<b>-0.10</b>	<b>0.10</b>	0.00
11 <i>ASQRET</i>	<b>0.10</b>	<b>0.05</b>	<b>-0.04</b>	<b>-0.36</b>	<b>0.05</b>	<b>-0.16</b>	<b>0.12</b>	<b>0.12</b>	<b>0.31</b>	<b>-0.17</b>		<b>0.05</b>	<b>0.05</b>
12 <i>ECC</i>	<b>0.02</b>	<b>-0.08</b>	<b>-0.10</b>	<b>-0.13</b>	<b>-0.02</b>	<b>0.05</b>	0.01	<b>-0.01</b>	<b>-0.17</b>	<b>0.10</b>	<b>0.05</b>		0.00
13 <i>DISP_Post</i>	<b>0.05</b>	<b>-0.03</b>	<b>-0.05</b>	<b>-0.21</b>	<b>0.33</b>	<b>0.09</b>	<b>0.70</b>	<b>0.52</b>	<b>0.16</b>	<b>-0.06</b>	<b>0.21</b>	<b>-0.04</b>	

Table 2 presents sample Pearson (Spearman) correlations above (below) the diagonal. Correlations that are significantly different from zero at the  $p < 0.05$  level are in bold. Variables are as defined in Table 1. The correlations are reported for 18,837 observations. The sample comprises annual earnings announcements from 1995 to 2012.

**Table 3**  
**Information content of earnings and conditional conservatism**

Panel A:  $EA\_VOLM_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \varepsilon_{i,t}$  (4)

$EA\_VOLA_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \varepsilon_{i,t}$  (6)

		(1)	(2)
	<i>Prediction</i>	<i>EA_VOLM</i>	<i>EA_VOLA</i>
<i>ATC</i>	–	–0.34*** (–3.47)	–2.26*** (–5.45)
<i>Size</i>	–	–0.05*** (–6.87)	0.19*** (4.17)
<i>BM</i>	–	–0.01*** (–6.91)	–0.04*** (–6.55)
<i>Lev</i>	?	–0.39*** (–12.53)	–1.86*** (–5.32)
Observations		55,403	55,403
Adjusted R-squared		0.02	0.05

**Table 3 (continued)**  
**Information content of earnings and conditional conservatism**

Panel B:

$$EA\_VOLM_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 MOM_{i,t} + \varepsilon_{i,t} \quad (7)$$

$$EA\_VOLA_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 ASQRET_{i,t} + \varepsilon_{i,t} \quad (8)$$

		(1)	(2)
	<i>Prediction</i>	<i>EA_VOLM</i>	<i>EA_VOLA</i>
<i>ATC</i>	–	–0.264*** (–2.95)	–2.823*** (–4.87)
<i>Size</i>	–	–0.062*** (–9.05)	–0.131*** (–3.58)
<i>BM</i>	–	–0.025*** (–6.69)	–0.116*** (–4.76)
<i>Lev</i>	?	–0.381*** (–7.15)	–2.554*** (–4.82)
<i>DISP</i>	?	–0.192*** (–5.93)	–1.596*** (–5.47)
<i>FE</i>	?	3.077*** (2.73)	23.411*** (2.70)
<i>ATURN</i>	+	0.877*** (11.71)	2.831*** (6.18)
<i>MOM</i>	+	0.038* (1.81)	
<i>ASQRET</i>	–		–2.623*** (–3.50)
Observations		18,837	18,837
Adjusted R-squared		0.07	0.07

Table 3, panel A, presents regression summary statistics for the *EA\_VOLM* and *EA\_VOLA* estimating equations (4) and (6), and panel B presents regression summary statistics for the *EA\_VOLM* and *EA\_VOLA* estimating equations (7) and (8). All variables are defined in Table 1. The t-statistics based on standard errors clustered by firm and year are in parentheses. All regressions include year fixed effects. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels. The sample comprises annual earnings announcements from 1995 to 2012.

**Table 4**  
**Path analysis of effects of conditional conservatism on expected equity cost of capital and analyst forecast dispersion**

	<i>PATH = EA_VOLM</i>		<i>PATH = EA_VOLM</i>		Total indirect effect	
	<i>Coef.</i>	<i>t-stat</i>	<i>Coef.</i>	<i>t-stat</i>	<i>Coef.</i>	<i>t-stat</i>
Panel A: Expected equity cost of capital						
Direct path						
p[ <i>ATC, ECC</i> ]	-0.003***	(-4.22)	-0.003***	(-4.22)		
Indirect path						
I. p[ <i>ATC, PATH</i> ]	-0.028***	(-4.96)	-0.052***	(-5.90)		
II. p[ <i>PATH, ECC</i> ]	-0.003***	(-2.61)	-0.000	(-0.42)		
Indirect effect (I x II)	0.0001		0.0000		0.0001***	2.50
Panel B: Analyst forecast dispersion						
Direct path						
p[ <i>ATC, DISP_Post</i> ]	0.051***	(4.68)	0.051***	(4.68)		
Indirect path						
I. p[ <i>ATC, PATH</i> ]	-0.028***	(-4.96)	-0.052***	(-5.90)		
II. p[ <i>PATH, DISP_Post</i> ]	0.020	(0.59)	-0.041*	(-1.71)		
Indirect effect (I x II)	-0.0006		0.0022		0.0016***	2.93

Table 4 presents the standardized indirect path coefficients of *ATC* on *ECC* and *DISP\_Post* through the mediating variables, *EA\_VOLM* and *EA\_VOLA*. We estimate a structural equation model (SEM) in which all of the paths are embedded and the disturbance terms of these equations are allowed to be correlated. The following equations are included in the SEM:

$$EA\_VOLA_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 ASQRET_{i,t} + \varepsilon_{i,t}$$

$$EA\_VOLM_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 MOM_{i,t} + \varepsilon_{i,t}$$

$$ECC_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 EA\_ATURN_{i,t} + \alpha_8 EA\_VOLM_{i,t} + \alpha_9 EA\_VOLA_{i,t} + \varepsilon_{i,t}$$

$$DISP\_Post_{i,t} = \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 EA\_ATURN_{i,t} + \alpha_8 EA\_VOLM_{i,t} + \alpha_9 EA\_VOLA_{i,t} + \varepsilon_{i,t}$$

All estimations include year fixed effects and standard errors are clustered by firm. The sample comprises 18,837 observations. Significance of total indirect effects is evaluated using the delta method (Sobel, 1987). \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels. The sample comprises annual earnings announcements from 1995 to 2012.

**Table 5**  
**Informational content of earnings and alternative measure of conditional conservatism**

Panel A:  $EA\_VOLM_{i,t} = \alpha_0 + \alpha_1 C\_score_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \varepsilon_{i,t}$   
 $EA\_VOLA_{i,t} = \alpha_0 + \alpha_1 C\_score_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \varepsilon_{i,t}$

	<i>Prediction</i>	(1) <i>EA_VOLM</i>	(2) <i>EA_VOLA</i>
<i>C_score</i>	–	–0.04 (–0.72)	–0.62 (–1.30)
<i>Size</i>	–	–0.05*** (–6.55)	–0.04 (–1.00)
<i>BM</i>	–	–0.03*** (–6.10)	–0.11*** (–3.12)
<i>Lev</i>	?	–0.53*** (–9.62)	–2.88*** (–5.51)
Observations		18,837	18,837
Adjusted R-squared		0.05	0.06

**Table 5 (continued)**  
**Informational content of earnings and alternative measure of conditional conservatism**

Panel B:

$$EA\_VOLA_{i,t} = \alpha_0 + \alpha_1 C\_score_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 ASQRET_{i,t} + \alpha_9 ATC_{i,t} + \varepsilon_{i,t}$$

$$EA\_VOLM_{i,t} = \alpha_0 + \alpha_1 C\_score_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 MOM_{i,t} + \alpha_9 ATC_{i,t} + \varepsilon_{i,t}$$

	<i>Prediction</i>	(1) <i>EA_VOLM</i>	(2) <i>EA_VOLA</i>
<i>C_score</i>	–	–0.03 (–0.59)	–0.48 (–0.99)
<i>Size</i>	–	–0.06*** (–8.69)	–0.13*** (–3.43)
<i>BM</i>	–	–0.02*** (–5.69)	–0.09*** (–2.80)
<i>Lev</i>	?	–0.37*** (–7.01)	–2.32*** (–4.51)
<i>DISP</i>	?	–0.19*** (–5.94)	–1.57*** (–5.24)
<i>FE</i>	?	3.10*** (2.72)	23.73*** (2.76)
<i>ATURN</i>	+	0.88*** (11.71)	2.83*** (6.13)
<i>MOM</i>	+	0.04* (1.78)	
<i>ASQRET</i>	?		–2.60*** (–3.49)
<i>ATC</i>		–0.27*** (–2.92)	–2.85*** (–4.76)
Observations		18,837	18,837
Adjusted R-squared		0.05	0.06

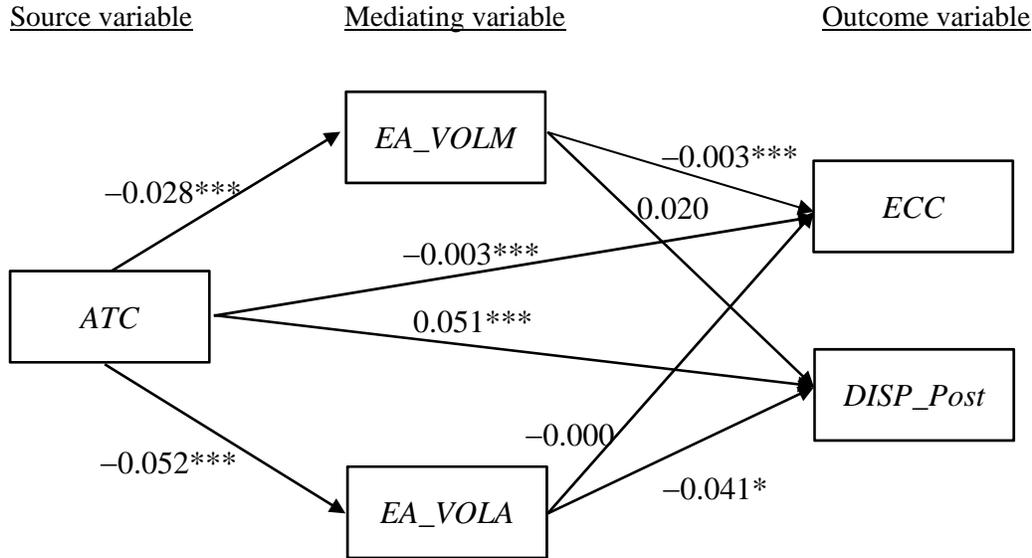
Table 5, panel A, presents results from estimating equations (4) and (6) replacing *ATC* with *C\_score*. Panel B presents results of estimating versions of equations (7) and (8) including *ATC* and *C\_score*. *C\_score* is computed following Khan and Watts (2009) as a linear combination of *Size*, *BM*, and *Lev*. All other variables are defined in Table 1. The t-statistics based on standard errors clustered by firm and year are in parentheses. All regressions include year fixed effects. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels. The sample comprises annual earnings announcements from 1995 to 2012.

**Table 6**  
**Post-announcement returns for ATC portfolios**

<b>Good news</b>				
	<i>N</i>	<i>ABRET_Post</i>	<i>t-stat</i>	
q1 + q2	3,919	0.0044	3.52	***
q3	1,936	0.0104	5.06	***
q4 + q5	3,900	0.0109	7.08	***
difference (top – bottom)		0.0065	3.25	***
<b>Bad news</b>				
	<i>N</i>	<i>ABRET_Post</i>	<i>t-stat</i>	
q1 + q2	3,606	0.0030	2.04	**
q3	1,835	0.0037	1.70	*
q4 + q5	3,641	0.0041	2.42	**
difference (top – bottom)		0.0011	0.48	

Table 6 presents mean post-earnings announcement period returns for portfolios based on the quintile rank of *ATC*, and separated into good and bad news subsamples based on the sign of the stock return during the four-day earnings announcement window. Observations in the first and second quintile, q1 + q2, comprise the first portfolio, observations in the third quintile, q3, comprise the second portfolio, and the observations in the fourth and fifth quintiles, q4 + q5, comprise the third portfolio. Observations with positive (negative) excess returns during the four-day announcement period comprise the good (bad) news subsample. *ABRET\_Post* is excess return compounded over the period starting three days after the earnings announcement and ending 45 days after the earnings announcement. We compute excess returns by subtracting the expected return based on the Fama and French (1993) three-factor model supplemented with the momentum factor from the raw post-announcement return. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels. The sample comprises annual earnings announcements from 1995 to 2012.

**Figure 1**  
**Path analysis of effects of conditional conservatism on expected equity cost of capital and analyst forecast dispersion**



This figure provides the standardized coefficients from the path analysis of the relations among *ATC*, *EA\_VOLM*, *EA\_VOLA*, *ECC*, and *DISP\_Post*. We estimate a structural equation model (SEM) in which all of the paths are embedded and the disturbance terms of the equations are allowed to be correlated. The following equations comprise the SEM:

$$\begin{aligned}
 EA\_VOLM_{i,t} &= \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} \\
 &\quad + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 ASQRET_{i,t} + \varepsilon_{i,t} \\
 EA\_VOLM_{i,t} &= \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} \\
 &\quad + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} + \alpha_7 ATURN_{i,t} + \alpha_8 MOM_{i,t} + \varepsilon_{i,t} \\
 ECC_{i,t} &= \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} \\
 &\quad + \alpha_7 EA\_ATURN_{i,t} + \alpha_8 EA\_VOLM_{i,t} + \alpha_9 EA\_VOLA_{i,t} + \varepsilon_{i,t} \\
 DISP\_Post_{i,t} &= \alpha_0 + \alpha_1 ATC_{i,t} + \alpha_2 Size_{i,t} + \alpha_3 BM_{i,t} + \alpha_4 Lev_{i,t} + \alpha_5 DISP_{i,t} + \alpha_6 FE_{i,t} \\
 &\quad + \alpha_7 EA\_ATURN_{i,t} + \alpha_8 EA\_VOLM_{i,t} + \alpha_9 EA\_VOLA_{i,t} + \varepsilon_{i,t}
 \end{aligned}$$

Variables are defined in Table 1. All estimations include year fixed effects, and standard errors are clustered by firm. The sample comprises 18,837 observations. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels. The sample comprises annual earnings announcements from 1995 to 2012.