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Disclosure and Cost of Equity Capital: An Analysis at the Market Level

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Abstract

This study examines whether disclosure reduces the market cost of capital. A stock's implied cost of capital is defined as the expected return that equates its current price to the present value of its expected future free cash flows. We compute implied costs of capital for each firm and use their average as a measure of the market cost of capital. Using a sample of management forecasts issued between 1994 and 2010, we find that an increase in disclosure at the aggregate level results in a lower market cost of capital. This result is robust to alternative measures of disclosure and implied cost of capital, and controls for book-to-market, momentum, conditional volatility, and other determinants of cost of capital. Overall, our findings are consistent with disclosure increasing overall information precision, resulting in a decrease in the cost of capital at the market level.

1. Introduction

The relation between disclosure and the cost of capital is an issue of fundamental interest to many accounting and finance academics. Early theories on this issue generally provide support for the role of disclosure in reducing the cost of equity capital in single-firm settings (see Verrecchia (2001) for a survey).[1] In this study, we empirically examine whether an increase in disclosure in the economy also reduces the market cost of equity capital.

Despite the large body of research on the cross-sectional relation between disclosure and the cost of capital, our motivations for reinvestigating disclosure and the cost of equity capital at the market level are twofold. First, an important concern to examining the impact of disclosure on the cost of equity capital is the endogenous feature of disclosure, where each manager will choose to disclose based on whether disclosure reduces her firm-level cost of capital. An advantage to examining this issue at the market level is that this approach is less likely to be susceptible to endogeneity concerns since one particular firm’s disclosure is unlikely to have a significant effect on the cost of capital for the entire market. Second, there is substantial empirical evidence going back to as far as Brown and Ball (1967), suggesting that the earnings of a firm can be useful in predicting the future cash flows of an industry or the market as a whole. Therefore, we expect the impact of disclosure to also survive at the aggregate level. Although existing theories on the relation between disclosure and cost of capital are largely cast in firm-level settings, some recent studies have begun to examine whether the effect of disclosure still

[1] The first strand of literature argues that greater disclosure enhances stock market liquidity, thereby reducing cost of equity capital either through reduced transactions costs or increased demand for a firm's securities (e.g., Demsetz 1968; Copeland and Galai 1983; Glosten and Milgrom 1985; Amihud and Mendelson 1986; Diamond and Verrecchia 1991). The second stream of research suggests that greater disclosure reduces estimation risk arising from investors' estimates of the parameters of an asset's return or payoff distribution (e.g., Klein and Bawa 1976; Barry and Brown 1985; Coles and Loewenstein 1988; Handa and Linn 1993; Coles, Loewenstein, and Suay 1995; Clarkson, Guedes, and Thompson 1996).

exists in the presence of diversification. For example, a recent study by Lambert, Leuz, and Verrecchia (2007, LLV henceforth) extends the single-firm analysis to a Capital Asset Pricing Model (CAPM) world that explicitly allows for multiple securities whose cash flows are correlated. They show that because disclosure can directly affect the assessed covariance matrix of a firm's cash flow with other firms' cash flows, which is nondiversifiable, higher quality disclosure can reduce a firm's cost of capital. This suggests that, as more firms in the economy disclose, the effect of each firm's disclosure on reducing estimation risk is likely to be manifested, increasing overall information precision in the economy, and leading to an overall decrease in the market cost of capital. While LLV show theoretically that disclosure risk is not diversifiable in a market with multiple securities, we are unaware of any studies that provide direct evidence on the relation between disclosure and cost of equity capital at the market level. Theory aside, the economic magnitude of the effects remains an important empirical issue. Moreover, it is not obvious that the negative association between disclosure and the cost of equity capital documented in prior studies will automatically carry over to an aggregate setting. For example, recent studies suggest that the stock market's reaction to macro earnings news and management forecast news does not follow the same pattern as firm-level price behavior (Kothari, Lewellen, and Warner 2006; Anilowski, Feng, and Skinner 2007). Therefore, establishing whether disclosure also reduces market cost of capital should help theorists refine models of disclosure and market risk.[2]

Prior studies that examine the cross-sectional link between disclosure and expected cost of equity capital typically rely on the implied cost of capital (ICC) as a measure of cost of capital (e.g., Botosan (1997); Botosan and Plumlee (2002); Ashbaugh-Skaife, Collins, Kinney, and

[2] Related theory work by Hughes, Liu, and Liu (2007) also show that, for large economies, private information about systematic factors affects market-level risk premiums in a noisy rational expectations framework.

LaFond (2009)). However, there have been ongoing debates about firm-level ICC and the empirical relation between ICC and risk is mixed.[3] Market cost of capital, calculated as the average of the firm-level ICC, on the other hand, is less noisy and has been shown to be a more reliable risk measure in several recent studies (Claus and Thomas 2001; Pastor, Sinha, and Swaminathan 2008; Li, Ng, and Swaminathan 2011). Following this prior research, we define a stock's implied cost of capital as the expected return that equates its current price to the present value of its expected future free cash flows. We compute implied costs of capital for each firm in the economy and then use their average as a measure of the market cost of capital. Our empirical construction of firm-level ICC closely follows the approach of Gebhardt, Lee, and Swaminathan (2001), and we also examine the robustness of our results to alternative implied cost of capital models.[4]

Using a sample of quarterly management earnings forecasts issued between 1994 and 2010 reported on the First Call Company Issued Guidance (CIG) database, we find a robust negative relation between disclosure and cost of equity capital at the market level. We focus on management forecasts as they are timely voluntary disclosures that not only provide information about firm-specific value but are, in aggregate, also informative about market-wide earnings trends (Anilowski et al. 2007).[5] Consistent with prior research on management forecasts, we find

[3] Some studies find a positive relation between ICC and market beta (e.g., Kaplan and Ruback (1995); Botosan (1997); Gode and Mohanram (2003); Easton and Monahan (2005)), while others find this relation to be mostly insignificant (e.g., Gebhardt et al. (2001); Lee, Ng, and Swaminathan (2009)). The ICC seems to be more closely related to stock return volatility than to beta (e.g., Friend, Westerfield, and Granito (1978); Hail and Leuz (2006)). Botosan and Plumlee (2005) report that some ICC estimates are significantly related to firm risk while others are not. Lee, So, and Wang (2010) compare different ICC estimates.

[4] We discuss results using models proposed by Easton (2004), Claus and Thomas (2001) and Ohlson and Juettner-Nauroth (2005) in Section 5.

[5] Following prior research, we define management forecasts to include all management EPS estimates issued prior to the earnings announcement date (e.g., Ajinkya, Bhojraj, and Sengupta (2005); Rogers and Stocken (2005); Rogers, Skinner, and Van Buskirk (2009)).

that both the number of firms that forecast and the proportion of firms that forecast regularly have increased over time. We also find that the specificity of forecasts issued has remained relatively stable over time.

We employ two disclosure measures intended to capture the total amount of information available to the market. The first measure is the number of firms that provide forecasts relative to the global population of firms on IBES. We argue that as more firms issue forecasts, the total amount of information available to investors is likely to increase, which should reduce aggregate uncertainty and, consequently, the expected return for the market. We also examine whether disclosure form matters and adopt an alternative proxy of management forecast activity that more closely resembles that used in Francis, Nanda, and Olsson (2008). This second measure further captures the aggregate specificity (i.e., precision) of forecasts issued by summarizing the specificity of each firm's forecast. Prior research on management forecasts suggests that forecast specificity proxies for information uncertainty, and that more specific disclosures are preferred by capital market participants (Baginski, Conrad, and Hassell 1993). Therefore, we expect greater disclosure specificity at the aggregate level to lead to a reduction in the market cost of equity capital. Both measures are likely to capture the total amount and precision of information available to investors when pricing the market. In the simple regression of market cost of capital on disclosure, the estimated drop of the annual cost of capital is roughly 40 to 46 basis points over the interquartile range. Since the market cost of capital is likely to be driven by other factors potentially correlated with our disclosure measure, we further control for investor sentiment, conditional volatility, the industrial production growth rate, aggregate analyst forecast errors, as well as standard determinants of cost of capital such as momentum and the book-to-market ratio.

Controlling for these variables, we find that an increase in disclosure is still statistically associated with a lower market cost of capital.

We also control for the effects of changes in mandatory reporting requirements and find that the results are robust to controlling for the effect of Regulation Fair Disclosure (Reg FD), the Sarbanes-Oxley Act (SOX), and the size of 10Q filings. Consistent with our expectations, we find that the market cost of equity capital is lower post-Reg FD and post-SOX, and that the effect of management forecasts in decreasing the cost of capital is reduced in post-Reg FD periods, which is suggestive of a substitutive relation between private earnings guidance and publically available disclosures under Reg FD. In subsequent analyses, we also find that our results are robust to controlling for general time trends and lagged values of disclosure.

Prior research finds that the market reaction to analyst forecast revisions is delayed with the price drift being weaker for celebrity analysts and firms with more analyst coverage (Gleason and Lee 2003). To the extent that firms are more likely to provide guidance when prices do not fully reflect all of the information contained in analysts' forecasts, we may also observe a systematic relation between disclosure and the market implied cost of capital estimated using analysts' forecasts. Therefore, we explicitly control for aggregate analyst forecast revisions and also examine the effect of change in disclosure on market cost of capital. The results from this analysis suggest that there is also a negative association between changes in our disclosure measures and the level of implied cost of capital, which should alleviate the concern that the observed pattern is driven by firms' decisions to provide guidance when prices are inefficient.

Finally, we also conduct robustness tests using alternative ICC estimates and alternative disclosure measures. Following Rogers, Skinner, and Van Buskirk (2009), we separate between regular and sporadic forecasters and focus our analyses on the sample of firms that disclose on a routine basis, as theories on disclosure suggest that a firm's signal of disclosure commitment is likely to have a stronger effect on reducing information asymmetry (Leuz and Verrecchia 2000; Verrecchia 2001). The results using this measure are also consistent with our hypotheses. Overall, our results provide strong support for the link between disclosure and the expected return on the market as a whole.

Our paper is closely related to recent research in accounting and finance that examines the relation between aggregate earnings news, aggregate accruals, and market returns (Kothari et al. 2006; Anilowski et al. 2007; Ball, Sadka, and Sadka 2009; Hirshleifer, Hou, and Teoh 2009). Our findings are consistent with management forecasts reflecting systematic macro factors that are not diversifiable, leading to a link between disclosure and market-level cost of capital. Moreover, while Anilowski et al. (2007) study whether management forecasts affect market-level returns through earnings news, we are interested in whether an increase in disclosure level results in a lower market cost of capital, through the channel of reducing estimation risk and increasing overall information precision, as suggested by LLV. [6, 7]

Our paper is also closely related to prior studies that examine the link between individual firms' disclosures and/or information quality, and the cost of equity capital (e.g., Botosan (1997); Botosan and Plumlee (2002); Francis, LaFond, Olsson, and Schipper (2004); Francis et al. (2008); Ashbaugh-Skaife et al. (2009); Kothari, Li, and Short 2009). We extend this literature by showing that the association also exists at the market level. Moreover, our setting also alleviates

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[6] Anilowski et al. (2007) find that while earnings guidance is associated with analyst- and time-series based earnings news, it is modestly associated with realized market returns, which are notoriously noisy measures of expected returns (Elton 1999).

[7] LLV prove this claim holds under the condition that measurement errors in the information across firms are conditionally uncorrelated in a corollary to Proposition 2 in the appendix of their paper.

the concern that the cost of capital benefit is attributable to underlying individual firm characteristics that also determine a firm's cost of capital (Cohen 2008).

Finally, our paper is also related to cross-country studies that exploit cross-sectional variation in disclosure across countries to examine the relation between disclosure and the cost of capital (Bhattacharya, Daouk, and Welker 2003; Hail and Leuz 2006; Hail and Leuz 2009). These studies attribute the cross-sectional relation between disclosure and cost of equity capital to differences across information opacity, enforcement, and legal systems among countries. We differ from these studies by exploiting time-series variation to demonstrate that an increase in disclosure also leads to a lower cost of equity capital at the market level.

The paper proceeds as follows. Section two describes the data and the methodology for constructing the disclosure level variables and the market cost of capital. Section three presents the empirical results. Sections four and five discuss the additional analyses and robustness tests. Section six concludes the paper.

2. Data and Research Design

2.1 Sample Selection and Disclosure Proxy

We employ two main proxies for disclosure based on the proportion of firms in the economy that provide earnings forecasts and the total specificity of their forecasts. We select management forecasts as our main disclosure variable for several reasons. In addition to being timely and providing information about market-wide earnings trends, management forecasts are more homogenous than other forms of disclosures such as conference calls or investor meetings. The precision of the management forecast signal can also be measured by distinguishing between the different forms of forecasts provided. There have also been several changes in firms' forecasting policies over the period examined with more firms providing public guidance in the post-Reg FD period and some firms discontinuing guidance in recent years, which provides more time-series variation for us to test our hypotheses.[8]

We begin with a sample of 62,594 quarterly management EPS forecasts from the First Call Company Issued Guidelines (CIG) file from 1994-2010. We remove forecasts not in USD denominations and forecasts made from 1990 to 1993 because CIG coverage is sparse for these years. We also drop observations without CUSIP identifiers and analyst forecast data. To aggregate forecasts by calendar month and quarter, we remove observations that do not have March, June, September, and December fiscal year-ends. To ensure that the forecast is issued within a reasonable time window, we remove forecasts issued more than 90 days prior to the fiscal-quarter-end. For fiscal periods with multiple forecast revisions, we retain the last forecast issued for the fiscal period. These procedures result in a sample of 38,643 quarterly management forecasts.[9]

In each month, we calculate the proportion of firms that issue forecasts relative to the total number of firms on IBES, and adopt this measure as our main proxy of disclosure in the economy (DISC1).[10] Our second disclosure measure is intended to capture aggregate information precision in these forecasts and is similar to that used in Francis et al. (2008). Following the guidelines provided in Anilowski et al. (2007), we first categorize forecasts as point, range,

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[8] We acknowledge that a limitation of our study is that we focus on one particular type of disclosure and cannot measure firms' total disclosure. However, to the extent that management forecasts and audited financial reports are complements, as suggested by Ball, Jayaraman, and Shivakumar (2012), our main disclosure variable is a reasonable proxy for firms' overall disclosure policies.

[10] If a firm issues multiple forecasts on one day, we use the average forecast specificity of all forecasts issued on that day.

[10] We conduct our analyses at the monthly level to maximize the power of our tests. In untabulated analyses, we also find that our results are robust at the quarterly level.

upper/lower bound, or qualitative based on the CIG code. If a firm provides a qualitative forecast, we assign a value of one. For upper/lower bound forecasts, we assign a value of two. For range and point forecasts, we assign a value of three and four, respectively. The sum of the specificity score across all firms is then the aggregate management forecast specificity (DISC2) for each period. Following prior research on management forecasts (Rogers et al. 2009), we also distinguish between firms that provide forecasts on a routine basis and those that forecast occasionally.[11] In each month, we calculate the total number of firms that issue forecasts at least three out of the last four quarters. For example, if a firm forecasts in at least two out of three quarters from January to September and also provides a forecast in November, then it would be considered a regular guider in the month of November.[12]

Panel A of Table 1 provides the distributional properties of the management forecast data. We report the number of firms providing forecasts, the average specificity of forecasts, the number of firms on IBES, the percentage of firms providing forecasts (DISC1), total specificity of forecasts (DISC2), and the number of firms providing regular forecasts.

Consistent with prior research, we find a steady increase in the total number of firms issuing forecasts during the earlier years of our sample period. This is likely due to the passage of the PSLR Act (Johnson, Kasznik, and Nelson 2001), which strengthened the safe-harbor provision by restricting management's liability to forecasts not made in good faith. We also observe a sudden increase in both the number of firms that provide forecasts and the number of

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[11] Rogers et al. (2009) examine the effect of earnings guidance on market volatility and find that earnings forecasts increase short-run market volatility with the effects mainly attributable to bad news forecasts issued by firms that forecast sporadically. Similarly, we find in untabulated analyses that an aggregate sporadic forecasts lead to a higher cost of capital. While this finding is contrary to disclosure theory, it is consistent with the effects of sporadic forecasts on the cost of equity capital through market volatility.

[12] As robustness checks, we also discuss results using alternative definitions of disclosure in Section 5.

regular forecasters in 2001, which is likely due to the effect of Reg FD. We also observe a decrease in the total number of firms providing forecasts in more recent years, which is likely due to firms switching to providing annual forecasts (Chen, Matsumoto, and Rajgopal 2011). On the other hand, the specificity of forecasts issued remains relatively stable over time.[13]

[Insert Table 1]

2.2 Market Cost of Capital

Prior studies examining the cross-sectional link between disclosure and expected cost of equity capital typically rely on the implied cost of capital (ICC) as a measure of cost of capital (e.g. Botosan (1997); Botosan and Plumlee (2002); Ashbaugh-Skaife et al. (2009) to cite a few). A stock's implied cost of capital is defined as the expected return that equates its current price to the present value of its expected future free cash flows. Following the literature, we construct the market cost of capital, ICC_{GLS}, as the average firm-level cost of capital using the method proposed in Gebhardt et al. (2001). For robustness, we also estimate an alternative measure of market cost of capital, ICC_{MPEG}, based on firm-level estimates proposed by Easton (2004).

A detailed description of the construction of our market cost of capital measures (ICC_{GLS} and ICC_{MPEG}) is provided in the Appendix. To construct these measures, we obtain return data from CRSP, accounting data from COMPUSTAT, and analyst forecasts from I/B/E/S. Monthly data on market capitalization are obtained from CRSP. We require the availability of the following data items: common dividend, net income, book value of common equity, and fiscal year end date. To ensure we only use publicly available information, we obtain these items from the most recent fiscal year ending at least 3 months prior to the month in which the implied cost

[13] The numbers also steadily increase until 1998 reflecting more comprehensive coverage by First Call. The results (untabulated) suggest that our findings are robust to beginning our sample period in 1998.

of capital is computed. Data on nominal GDP growth rates are obtained from the Bureau of Economic Analysis. Each year, we compute the steady-state GDP growth rate as the historical average of the GDP growth rates using annual data up to that year.[14]

As discussed in the introduction, the market cost of capital is a more reliable measure of expected returns than the firm level cost of capital. However, given the on-going debate in the implied cost of capital literature (e.g., Easton and Monahan (2005); Guay, Kothari, and Shu (2011); McInnis (2010)), we further check the robustness of our results to using alternative market cost of capital measures. We discuss these issues in detail in section five.

We plot the twelve-month average of ICC_{GLS}, DISC1, and DISC2 over the 17 years extending from January 1994 to December 2010 in Figure 1. Consistent with burst of the internet bubble in 2000, we find that the market cost of capital gradually decreases from the beginning of our sample period up to 2000 and continues to increase until 2002. The market cost of capital also increases from 2007 to 2009 around the more recent financial crisis.

[Insert Figure 1]

2.3 Macro-level Control Variables

To isolate the effect of managers' voluntary disclosure on the market cost of capital, we control for a variety of variables that correlate with aggregate disclosure and could potentially affect the market cost of capital. We control for book-to-market (BTM) and momentum (MOM), which have been identified as determinants of firm-level cost of capital in the literature (e.g., Fama and French (1992); Fama and French (1993); Carhart (1997)). BTM is obtained as the average of book-to-market ratios for the global sample of firms on IBES. MOM is defined as the

[14] We choose to focus on S&P 500 firms to construct our market cost of capital measure because the sample of firms that issue forecasts in the CIG database are generally larger than the average COMPUSTAT firm. In an earlier version of the paper, we also find that our results are robust to using the entire sample of firms with data available on CRSP, COMPUSTAT, and IBES.

monthly S&P 500 return. Based on prior empirical studies on the cross-sectional determinants of returns, we expect MOM to be negatively associated with market cost of capital and BTM to be positively associated with market cost of capital.

We also control for macroeconomic conditions by including market sentiment (SENT), the industrial production growth rate (IPGR), and market volatility (VOL). Bergman and Roychowdhury (2007) find that investor sentiment is negatively associated with disclosures suggesting that managers are more likely to remain silent when markets are overvalued while Seybert and Yang (2012) show that hard-to-value firms are more likely to provide disclosures when sentiment is high, consistent with managers using forecasts to avoid missing market expectations (Matsumoto 2002). We control for market sentiment (SENT) using the Baker and Wurgler (2006) sentiment index.[15] Since the market cost of capital is affected by aggregate economic conditions, we control for the industrial production growth rate obtained from the website of Federal Reserve Bank of St. Louis.[16] Pastor et al. (2008) document a positive relation between conditional volatility and market cost of capital. Following Pastor et al. (2008), we compute the aggregate volatility as the monthly variance of daily value-weighted market returns with dividends from WRDS.[17] In untabulated analyses, we also control for GDP growth rates and aggregate leverage, which are available only at the quarterly level, and find similar results. It is possible that managers issue earnings guidance when they anticipate better earnings in the future; therefore, to minimize the effect of earnings news on the cost of capital, we control for aggregate earnings surprises proxied by aggregate analyst forecast errors (AFE). To obtain AFE, we first calculate the firm-level analyst forecast error as the ratio of the difference between the consensus

[15] Available at http://pages.stern.nyu.edu/~jwurgler/.

[16] Available at http://research.stlouisfed.org/fred2/series/INDPRO?cid=3.

[17] In untabulated results, we also calculate the aggregate volatility as the monthly standard deviation of daily value-weighted market returns with dividends from WRDS. We also entertain alternative measures of market returns, such as the S&P 500 index returns. Our results remain robust.

1-year-ahead analyst forecast of earnings per share (EPS) on IBES and the corresponding actual EPS to the 1-year-ahead forecast. We then average the firm-level forecast errors by year and month to estimate the aggregate analyst forecast error. Controlling for AFE also allows us to obtain cleaner results since our market cost of capital estimates are based on analyst forecasts, and biases in analyst forecasts are likely to mechanically affect our cost of capital estimates. Similarly, prior research finds that the market does not fully incorporate information in analysts' forecast revisions (Gleason and Lee 2003). Therefore, we also control for aggregate analyst forecast revisions (REV) in our analyses. For each firm, we calculate the analyst forecast revision as the difference between analysts' forecasted EPS at month t and their forecasted EPS at month t-1 scaled by its stock price at month t-1. The aggregate analyst forecast revision is the average firm-level forecast revisions.

Our main disclosure measure is based on management forecasts, which are voluntary; but there are other disclosure channels that can potentially affect the market cost of capital. To mitigate omitted variable biases, we also control for changes in mandatory disclosures over time. First, we control for the length of firms' 10Qs (LENGTH) using the average size of 10Qs filed, as reported on WRDS SEC Analytics.[18] The length of firms' 10Qs is likely to increase with the amount of information disclosed and is likely to be negatively associated with the cost of capital. In addition to mandatory reporting, changes in disclosure regulations during our sample period are also likely to affect the market cost of capital. Regulation FD and SOX introduced new disclosure requirements that are also likely to affect the cost of capital for a broad cross-section of firms in our sample. Therefore, we also control for their effects in our analyses.

[18] Leuz and Schrand (2009) use the length of firms' 10K filings as a proxy for information disclosed in response to the Enron Shock.

Panel B of Table 1 reports descriptive statistics for the variables used in our analyses. We report the distribution for the main sample period 1994 to 2010. The average market cost of capital using the GLS (2002) approach (ICC_{GLS}) is 10.1% and the average market cost of capital estimated using the Easton (2004) approach is similar with an average of 10%. The average DISC1 is 7.2%, suggesting that approximately seven percent of all firms on IBES provide at least one forecast during our sample period. The average DISC2 is 548.23, which translates into an average specificity score of 2.99 at the firm level. The average investor sentiment is 15.1 and the average industrial growth rate is 0.2%.

Panel C reports Pearson correlations for the variables used in our analyses. Consistent with our expectations, we find that DISC1 and DISC2 are negatively correlated with ICC_{GLS} and ICC_{MPEG} at the 1% significance level. As expected, BTM is positively correlated with both ICC_{GLS} and ICC_{MPEG} while SENT is negatively correlated with market cost of capital. Moreover, DISC and LENGTH are significantly positively correlated, suggesting a complementary relation between voluntary and mandatory disclosures. The correlation between ICC_{GLS} and ICC_{MPEG} is significantly positive and similar to that in Hail and Leuz (2006). Consistent with prior research, we also find that disclosure is significantly correlated with investor sentiment.

2.4 Econometric Models

To examine the relation between disclosure and the market cost of capital, we examine several regression specifications.

In our univariate regression, we use the following specification:

$$\mathrm{ICC}_{\mathrm{GLS,t}} = \beta_0 + \beta_1 \times \mathrm{DISC}_{\mathrm{t-1}} + \varepsilon_{\mathrm{t}}. \qquad \textbf{(1)}$$

$ICC_{GLS,t}$ is the main measure of market cost of capital at month t and $DISC_{t-1}$ is either DISC1 or

DISC2 measured in month t-1. If aggregate earnings guidance indeed reduces the market cost of capital, then we expect a negative sign for β_1.

To control for other factors that could potentially affect the cost of capital, we estimate the following bivariate regressions:

$$\text{ICC}_{\text{GLS,t}} = \beta_0 + \beta_1 \times \text{DISC}_{\text{t-1}} + \beta_2 \times \text{X}_{\text{t-1}} + \varepsilon_{\text{t}}. \quad \textbf{(2)}$$

X_{t-1} indicates the control variables measured at month t-1. As discussed in the previous section, we control for variables that are widely used in the literature as determinants of firm-level cost of equity capital (e.g., Fama and French (1992); Fama and French (1993); Carhart (1997)) and variables that capture macroeconomic factors that can potentially drive both firms' disclosure decisions and the market cost of capital. If the theory holds, then we expect a negative sign for β_1 even after controlling for X_{t-1}. To avoid multicollinearity issues, we choose to report the bivariate results rather than multivariate results for model (2).[19]

To control for the effects of mandatory disclosure, we estimate model (2) controlling for LENGTH. To control for changes in regulatory requirements and other information shocks, we estimate the following regressions:

$$\text{ICC}_{\text{GLS,t}} = \beta_0 + \beta_1 \times \text{DISC}_{\text{t-1}} + \beta_2 \times \text{X}_{\text{t-1}} + \beta_3 \times \text{DISC}_{\text{t-1}} \times \text{X}_{\text{t-1}} + \varepsilon_{\text{t}}. \quad \textbf{(3)}$$

We identify three significant events that are likely to have affected the overall information environment for the economy during our sample period: Regulation FD (REGFD), SOX, and the collapse of Lehman Brothers (LEHMAN). X_{t-1} is an indicator variable equal to one for periods after August 2000, April 2002, and September 2008 for REGFD, SOX, and LEHMAN, respectively. Note that we include an interaction term of DISC with X_{t-1} because we

[19] Our inferences remain when we use a multivariate specification for model (2).

are interested in knowing whether the effect of disclosure on market cost of capital changes after these significant events. Consistent with Regulation FD reducing selective disclosure, Chen, Dhaliwal, and Xie (2010) find that firm-level cost of capital declined in the post-Reg FD period relative to the pre-Reg FD period, which suggests a negative coefficient on REGFD. Ogneva, Subramanyam, and Raghunandan (2007) examine the effect of Section 404 disclosures on the cost of capital for firms that disclosed an internal control weakness.[20] They find that the higher cost of capital associated with internal control weakness disclosures disappears when firm characteristics and analyst forecast errors are controlled for. On the other hand, if SOX improved financial reporting quality for all firms in the economy, then it should lead to a decrease in the market cost of capital. Therefore, we do not have any predictions on the coefficient on SOX. The third event we examine is the collapse of Lehman Brothers in September 2008, which is likely to introduce an information shock to the economy. We predict a positive coefficient on LEHMAN, which would suggest a higher market cost of capital during the recession periods. In all of the specifications, we also interact the indicator variables with DISC to examine the incremental effect of disclosure on the market cost of capital in the post-event periods.[21]

3. Empirical Results

3.1 Disclosure and Market Cost of Capital

Table 2 presents results of estimating specifications (1) and (2) that employ different combinations of the disclosure measure and control variables. Panel A presents results for the entire sample period (1994 to 2010) while Panel B (C) presents results for the sub-sample period

[20] Section 404 of SOX requires managers to report on the adequacy of the company's internal control on financial reporting including an auditor-attested assessment of the effectiveness of the firm's internal controls.
[21] Since Regulation FD was adopted on August 15, 2000, we also indentify REGFD as equal to one for periods after July 2000 and find similar results.

1994 to 2000 (2001 to 2010). We adopt Newey-West standard errors which take into account the issues of heteroskedasticity and autocorrelation in all of our regressions. We also divide DISC2 by 10^4 for expositional purposes.

[Insert Table 2]

In all of the specifications, the coefficient on DISC1 is negative and statistically significant, suggesting that an increase in disclosure tends to reduce the market cost of capital. The first column provides the univariate regression of (1), where we observe that a one-standard-deviation increase in DISC1 is associated with approximately a 28.99 basis point drop in the annual market cost of capital. When DISC1 shifts from the 25^{th} to 75^{th} percentile (0.022 to 0.109), the effect on the market cost of capital is 39.41 basis points. As a comparison, Hail and Leuz (2006) document that the effect of disclosure is about 60 basis points over the interquartile range for countries with integrated capital markets. After controlling for BTM, SENT, IPGR, AFE, REV, MOM, VOL, and LENGTH, respectively, the negative effect of disclosure on the cost of capital still exists and remains statistically significant. In the presence of DISC1, only BTM, SENT, and REV remain significant, and the signs are consistent with the cross-sectional findings; namely, value firms (high BTM) tend to have a higher cost of capital and firms with greater forecast revisions (perhaps more uncertainty) also have a higher cost of capital. The market cost of capital is also lower when investor sentiment is high. The result shows that even after controlling for these strong determinants of cost of capital, more disclosure still leads to a lower cost of capital, indicated by the significantly negative coefficient on DISC1. The results for DISC2 are also similar with a negative coefficient on DISC2 for all specifications. More specifically, a one-standard-deviation increase in DISC2 is associated with approximately a

33.99 basis point drop in the annual market cost of capital. When DISC2 shifts from the 25th to 75th percentile (186 to 817), the effect on the market cost of capital is 46.38 basis points.

Panel B of Table 2 presents significantly stronger results using a shorter sample period prior to Reg FD. The univariate regression yields a negative coefficient of -0.295 (-0.369) for DISC1 (DISC2), which is economically significant. This suggests that a one-standard-deviation increase in DISC results in an estimated reduction of 188.54 (170.49) basis points in the annual cost of capital. In addition, the effect of disclosure remains significant after controlling for macroeconomic variables such as sentiment, industrial production growth rates, and book-to-market. Panel C presents results for 2001 to 2010. The magnitudes of the effect of disclosure after Reg FD are much smaller and more comparable to those using the entire sample period.[22] This suggests that there is likely to be a time trend in the data. Therefore, we also examine the robustness of our results to examining disclosure changes and controlling for time trends in section four.

The sign of the coefficients on the control variables are consistent with the univariate correlations presented in Panel C of Table 1. Specifically, while book-to-market and momentum are standard determinants of firm-level cost of equity capital, we also find that they are significantly associated with market cost of capital. Similarly, sentiment and aggregate analyst forecast revisions are also strongly associated with ICC_{GLS} in the presence of disclosure.

3.2 Effects of Significant Events

[22] The economically significant valuation impact of management forecasts is consistent with a recent survey paper by Beyer, Cohen, Lys, and Walther (2010) which decomposes the quarterly stock return variance for a sample of firms from 1994 to 2007 and finds that 28% of the variance occurs on days when accounting disclosures are made, with management forecasts and earnings pre-announcements providing 66% of the accounting-based information.

Table 3 presents results controlling for the effects of significant events that occurred during our sample period. In columns one through three, we continue to find a negative and significant effect of DISC1 on ICC_{GLS}. Consistent with Chen et al. (2010) and Reg FD reducing the cost of capital through reducing selective disclosure, we find a negative coefficient on REGFD. Moreover, we find a significantly positively coefficient on DISC1×REGFD, which suggests that the incremental effect of earnings forecasts in reducing market cost of capital is significantly reduced in post-Reg FD periods. This is consistent with public forecasts playing a stronger role in providing information to the market when private earnings guidance was more common prior to Reg FD. As more firms begin to provide routine forecasts post-Reg FD, the effect of disclosure in reducing uncertainty also becomes smaller. In column two, we find weak evidence that the market cost of capital is lower in post-SOX periods. This is not surprising because the Section 404 disclosures required under SOX may increase the cost of capital for some firms, so the overall effect of SOX on market cost of capital is ambiguous. We also find a positive but and significant coefficient on LEHMAN, which is consistent with an overall increase in the riskiness of the market after the financial crisis. Similar to the prior result on Reg FD, we also find a positive coefficient on DISC1×SOX and DISC1×LEHMAN. Results using DISC2 are similar and presented in columns four through six.

Overall, we find strong evidence that greater levels of disclosure and information precision result in a lower market cost of capital. These results offer support for the theoretical prediction that disclosure affects the cost of capital at the market level despite the forces of diversification.

[Insert Table 3]

4. Additional Analyses

Thus far, our empirical results suggest that more disclosure is associated with a lower market cost of capital. In this section, we examine the robustness of our results to controlling for time trends in the data and focusing on changes in disclosure.

4.1 Controlling for Time Trends and Lagged Disclosure

A visual impression of Figure 1 is that the disclosure measure displays an upward trend in the first half of the sample and a downward trend in the second half of the sample. Similarly, the aggregate ICC exhibits a downward trend in the early part of the sample and an upward trend in the later part of the sample. Therefore, the potential time trends underlying these two time series might have generated a spurious (negative) correlation between ICC and disclosure.

In this subsection, we examine whether the results are robust to controlling for time trends in the data. As discussed before, we use Newey-West standard errors to alleviate the problem of serial correlation in our regressions. In this subsection, we further explicitly control for lagged disclosure in the specifications. Our regressions are conducted as follows:

$$\mathrm{ICC}_{\mathrm{GLS,t}} = \beta_0 + \beta_1 \times \mathrm{DISC}_{\mathrm{t-1}} + \beta_2 \times \mathrm{LAG\_DISC}_{\mathrm{t-1}} + \beta_3 \times \mathrm{TREND}_{\mathrm{t}} + \varepsilon_{\mathrm{t}}. \quad \textbf{(4)}$$

$$\mathrm{ICC}_{\mathrm{GLS,t}} = \beta_0 + \beta_1 \times \mathrm{DISC}_{\mathrm{t-1}} + \beta_2 \times \mathrm{LAG\_DISC}_{\mathrm{t-1}} + \beta_3 \times \mathrm{X}_{\mathrm{t-1}} + \beta_4 \times \mathrm{TREND}_{\mathrm{t}} + \varepsilon_{\mathrm{t}}. \quad \textbf{(5)}$$

LAG_DISC1 (LAG_DISC2) is the lagged value of DISC1 (DISC2). TREND is a trend variable that begins with one and increases by one unit for each month. Table 4 reports the results from estimating models (4) and (5). Consistent with our main analysis, we continue to find a negative and significant effect of DISC1 on $\mathrm{ICC}_{\mathrm{GLS}}$. Moreover, the effects are even stronger after controlling for lagged disclosure and a trend variable. The first column provides the univariate regression of (4), where we observe that a one-standard-deviation increase in DISC1 is associated with approximately a 37.18 basis point drop in the annual market cost of capital. When DISC1 shifts from the 25^{th} to 75^{th} percentile (0.022 to 0.109), the effect on the market cost of capital is 50.55 basis points. The magnitudes of the effect are similar even after controlling for each of the control variables. The results for DISC2 are also similar with a negative coefficient on DISC2 for all specifications. More specifically, a one-standard-deviation increase in DISC2 is associated with approximately a 45 basis point drop in the annual market cost of capital. When DISC2 shifts from the 25^{th} to 75^{th} percentile (186 to 817), the effect on the market cost of capital is 61.39 basis points.

[Insert Table 4]

4.2 Changes in Disclosure

The previous section shows that a deterministic time trend does not drive our results. Since disclosure and aggregate ICC are persistent variables, we may still obtain spurious results if the two time series display stochastic trends. In other words, if both disclosure and aggregate ICC contain a unit root, simply adding a time trend will not eliminate the issue of spurious regressions. Therefore, we further difference two time series and use a change specification in this section. Prior research finds that the market reaction to analyst forecast revisions is delayed with the price drift being weaker for celebrity analysts and firms with more analyst coverage (Gleason and Lee 2003). To the extent that firms are more likely to provide guidance when prices do not fully reflect all of the information contained in analysts' forecasts, we may also observe a systematic relation between disclosure and the market implied cost of capital estimated using analysts' forecasts. Therefore, we also examine the effect of change in disclosure on market cost of capital to alleviate the concern that the observed pattern is driven by firms' decisions to provide guidance when prices are inefficient. We use the following specifications for this analysis:

$$\text{ICC}_{\text{GLS,t}} = \beta_0 + \beta_1 \times \text{CHG\_DISC}_{\text{t-1}} + \varepsilon_{\text{t}}. \qquad \textbf{(6)}$$

$$\text{ICC}_{\text{GLS,t}} = \beta_0 + \beta_1 \times \text{CHG\_DISC}_{\text{t-1}} + \beta_2 \times \text{X}_{\text{t-1}} + \varepsilon_{\text{t}}. \qquad \textbf{(7)}$$

CHG_DISC is calculated as changes in DISC1 and DISC2 from the same month in the prior year. This changes specification can also address possible seasonality issues in the disclosure measure.

In Table 5, we present results from estimating equations (6) and (7) and show that there is still an incremental effect of disclosure on ICC after controlling for book-to-market, momentum, sentiment, industrial growth rates, analyst forecast errors, and 10Q filings. The coefficients on CHG_DISC1 and CHG_DISC2 are negative and significant in all of the specifications. The coefficients on the control variables are also consistent with the results using a level analysis. Overall, the results from this analysis are consistent with disclosure reducing the cost of capital at the market level.

[Insert Table 5]

5. Alternative Measures of Cost of Capital and Disclosure

5.1 Alternative Cost of Capital Measures

All of our results discussed above use the market cost of capital estimated by the Gebhardt et al. (2001) model. In this subsection, we conduct robustness checks of our main results using alternative measures of cost of capital.

5.1 Disclosure and ICC_{MPEG}

While our main results use ICC_{GLS} as the market cost of capital, we check the robustness of our results to an alternative measure of ICC: ICC_{MPEG}, which is computed as the average of firm-level implied cost of capital using the methods proposed in Easton (2004). Our computation of this measure follows closely the implementation in Hail and Leuz (2006).

Panel A of Table 6 presents results using ICC_{MPEG} as the market cost of capital controlling for time trends and lagged disclosure. We re-estimate models (4) and (5). Consistent with the results from our main analysis, we find that both DISC1 and DISC2 are negatively associated with ICC_{MPEG} after controlling for book-to-market, sentiment, momentum, industrial growth rates, analyst forecast errors, analyst forecast revisions, and the average size of 10Ks. The negative coefficient on SENT and the positive coefficients on BTM, REV, and VOL are also consistent with our predictions. Panel B of Table 6 provides results estimating models (7) and (8) using ICC_{MPEG}. The results, albeit weaker, are generally consistent with the analyses using ICC_{GLS}. Specifically, we find that CHG_DISC1 and CHG_DISC2 continue to be negatively associated with market cost of capital after controlling for book-to-market, the industrial growth rate, analysts forecast errors, analyst forecast revisions, momentum, and conditional volatility. In untabulated analyses, we also perform robustness tests using models proposed by Claus and Thomas (2001) and Ohlson and Juettner-Nauroth (2005) and find similar results.

[Insert Table 6]

5.2 Alternative Disclosure Estimates

We also perform two robustness tests using alternative estimates of the disclosure measure. For each month, we compute the number of firms that provide regular forecasts scaled by the total number of IBES firms (REGULAR). We consider a firm a regular forecaster if it provides forecasts for at least three out of the four recent quarters. We focus our analyses on the sample of firms that disclose on a routine basis, as theories on disclosure suggest that a firm's signal of disclosure commitment is likely to have a stronger effect on reducing information asymmetry (Leuz and Verrecchia 2000; Verrecchia 2001). We re-estimate models (4) through (7) and continue to find a negative association between disclosure and the market cost of capital using this measure. The results in Table 7, albeit weaker than those using our main disclosure measures, are still consistent with our main findings.

[Insert Table 7]

Second, we identify the first forecast a firm issues on the CIG database and compute the percentage of forecast initiations in each month. Since firms are often reluctant to initiate disclosures that they can't maintain, the initial forecast is likely a significant event that will affect the firm's information environment.[23] For each month, we aggregate the number of firms that initiate guidance and examine whether an increase in the number of firms initiating guidance also leads to a lower market cost of capital. Consistent with our main analyses, we also find a negative and significant association between ICC_{GLS} and aggregate guidance initiations. Overall,

[23] Since a firm's first forecast may not be properly recorded on First Call, we hand-collect the first forecast for the 3,570 firms in our sample to verify its accuracy. Following Chuk et al. (2012), we search in LexisNexis for company press releases issued via Business Wire or PR Newswire using the following search string: (forecast or guidance or outlook or expectation or expect or guide or anticipate or expected or anticipated) w/25 (earnings or profit or loss or income or EBITDA). A comparison of our hand-collected data with the CIG data suggests that for 3,244 out of the3,570 firms (90.8%), the guidance initiation dates in CIG are correct.

these results continue to support our hypotheses that aggregate disclosure reduces the market cost of capital.

6. Conclusion

The relation between disclosure and the cost of capital is of significant interest to researchers in finance and accounting. As Hughes at el. (2007) conclude in their study, "…more promising avenues for investigating the effects of information asymmetry would appear to be at the aggregate market level, rather than the firm level as in most existing empirical studies". We answer this call by providing time-series evidence on the relation between disclosure and market cost of capital using management forecast data in the U.S. After conducting extensive analyses, we find that, despite a variety of controls and alternative ICC measures, an increase in disclosure can help reduce the market cost of capital, and this effect is both statistically and economically significant. We further investigate how changes in disclosure affect the cost of capital and provide evidence consistent with existing theories. Overall our empirical findings provide strong evidence on the role of disclosure in reducing the market cost of equity capital.

We acknowledge several limitations to our analyses that should be kept in mind when interpreting our results. First, our disclosure measure is based on one particular disclosure type and, therefore, does not capture firms' total disclosure. While we continue to find a significant association between our measure and the market cost of capital after controlling for the effects of mandatory disclosures and changes in disclosure requirements, we cannot completely rule out other potentially correlated omitted disclosure channels. Second, our main measure of market cost of capital relies on implied cost of capital estimates. While recent studies suggest that the market cost of capital is more stable than firm-level implied cost of capital estimates, it may still be subject to some of the concerns prior cross-sectional studies have shown using this approach.

Finally, our analysis is conducted on a sample of U.S. firms and may not be generalizable to other countries with different disclosure norms and capital market regimes. However, to the extent that disclosure plays a more important role in markets with higher information opacity, one can also view the results presented in this study as a lower bound of the effects of disclosure in reducing a country's market cost of capital.

Appendix: Construction of Market Cost of Capital

Each month, our measure of market cost of capital is constructed as the value-weighted average of firm-level cost of capital for all firms in IBES. The literature has proposed alternative methods to construct the firm-level cost of capital (e.g., Gebhardt et al. (2001); Claus and Thomas (2001); Easton (2004); Ohlson and Juettner-Nauroth (2005); Hou et al. (2012); Nekrasov and Ogneva (2011)). Our main measure ICC_{GLS} is based on the GLS approach in Gebhardt et al. (2001), but we also consider an alternative measure ICC_{MPEG} based on the approach in Easton (2004). We now describe in detail how to obtain the firm-level ICC of r^{GLS} and r^{MPEG} using these two approaches, respectively.

In general, the firm-level implied cost of capital is the value of r^e that solves:

$$P_t = \sum_{k=1}^{\infty} \frac{E_t(D_{t+k})}{\left(1+r^e\right)^k}.$$

where P_t is the firm's stock price at time t and D_t is the firm's dividend at time t. To obtain r^{GLS}, we explicitly forecast free cash flows for a finite horizon. More specifically, we forecast earnings up to year $t+T$, FE_{t+k}, in three stages: i) We explicitly forecast earnings (in dollars) for years $t+1$ and $t+2$. IBES analysts supply a one-year ahead FE_1 and a two-year-ahead FE_2 earnings per share (EPS) forecast for each firm in the IBES database. ii) We then use the growth rate implicit in the forecasts in years $t+1$ and $t+2$ to forecast earnings in year $t+3$; that is, $g_3 = FE_2 / FE_1 - 1$, and the three-year-ahead earnings forecast is given by $FE_3 = FE_2\left(1+g_3\right)$. Firms with growth rates above 100% (below 2%) are given values of 100% (2%). iii) We forecast earnings from year $t+4$ to year $t+T+1$ implicitly by assuming that the year $t+3$ earnings growth rate g_3 reverts to steady-state values by year $t+T+2$. We assume the steady-state growth rate starting in year $t+T+2$ is equal to the long-run nominal GDP growth rate, g, computed as the sum of the long-run real GDP growth rate (a rolling average of annual real GDP growth) and the long-run average rate of inflation based on the implicit GDP deflator. Specifically, earnings growth rates and earnings forecasts using the exponential decline are computed as follows for years $t+4$ to $t+T+1$ ($k=4,...,T+1$):

$$g_{t+k} = g_{t+k-1} \times \exp[\log(g / g_3)/(T-1)] \text{ and}$$
$$FE_{t+k} = FE_{t+k-1} \times (1+g_{t+k}).$$

We forecast plowback rates b_{t+k} using a two-stage approach: i) we explicitly forecast plowback rates for years $t+1$ and $t+2$. For each firm, the plowback rate is computed as one minus that firm's dividend payout ratio. We estimate the dividend payout ratio by dividing actual dividends from the most recent fiscal year by earnings over the same time period.[24] We exclude share repurchases due to the practical problems associated with determining the likelihood of their recurrence in future periods. Payout ratios of less than zero (greater than one) are assigned a value of zero (one). ii) we assume that the plowback rate in year $t+2$, b_2 reverts linearly to a steady-state value by year $t+T+1$ computed from the sustainable growth rate formula. This formula assumes that, in the steady state, the product of the return on new investments and the plowback rate $ROE * b$ is equal to the growth rate in earnings g. We further impose the condition that, in the steady state, ROE equals r^{GLS} for new investments, because competition will drive returns on these investments down to the cost of equity.

[24]If the earnings number is missing, we obtain the payout ratio by dividing dividends by the earnings forecast from I/B/E/S as of December of the previous year. For the remaining firms where even this ratio is missing, the plowback rate is computed as the median ratio across all firms in the corresponding industry-size portfolio. The industry-size portfolios are formed each year by first sorting firms into 49 industries based on the Fama-French classification and then forming three equal-number-of-firms portfolios based on market cap within each industry.

Substituting ROE with cost of equity r^{GLS} in the sustainable growth rate formula and solving for plowback rate b provides the steady-state value for the plowback rate, which equals the steady-state growth rate divided by cost of equity g / r^{GLS}. The intermediate plowback rates from $t+3$ to $t+T$ ($k=3,...,T$) are computed as follows:

$$b_{t+k} = b_{t+k-1} - \frac{b_2 - b}{T-1}.$$

The terminal value TV_{t+T+1} is computed as the present value of perpetuity equal to the ratio of the year $t+T+1$ earnings forecast divided by the cost of equity:

$$TV_{t+T+1} = \frac{FE_{t+T+1}}{r^{GLS}},$$

where FE_{t+T+1} is the earnings forecast for year $t+T+1$. Note that the use of the no-growth perpetuity formula does not imply that earnings or cash flows do not grow after period $t+T$. Rather, it simply means that any new investments after year t+T earn zero economic profits. In other words, any growth in earnings or cash flows after year T is value-irrelevant.

Every month for each firm, we compute the firm-level ICC as the internal rate of return, r^{GLS}, backed out from the following equation:

$$P_t = \sum_{k=1}^{T} \frac{FE_{t+k} \times (1 - b_{t+k})}{(1 + r^{GLS})^k} + \frac{TV_{t+T+1}}{(1 + r^{GLS})^T}. \qquad \textbf{(A1)}$$

where P_t is the stock price at month t, FE_{t+k} is the free cash flow available to shareholders at year t+k, and b_{t+k} is the plowback rate, and TV_{t+T+1} is the terminal value of cash flows at year t+T+1.

In this paper, following Pastor et al. (2008), we use a 15-year horizon $(T=15)$ to implement the model in (A1) to compute r^{GLS}. The resulting r^{GLS} is the firm-level ICC measure.

To obtain the firm-level ICC using the method in Easton (2004), we solve the internal rate of return r^{MPEG} from the following model:

$$P_t = \frac{\left(FE_{t+2} + r^{MPEG} d_{t+1} - FE_{t+1}\right)}{\left(r^{MPEG}\right)^2}.$$

d_{t+1} is the dividend that is computed as a constant fraction of forecast earnings using the current payout ratio of the firm.

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Figure 1

The figure plots the twelve-month average of ICC_{GLS}, DISC1, and DISC2 over the 17 years extending from January 1994 to December 2010. ICC_{GLS} is the market cost of capital estimated using the Gebhardt, Lee, and Swaminathan (2001) approach for all IBES firms in month t. DISC1 is the number of firms providing forecasts scaled by the total number of IBES firms in month t-1. DISC2 is the sum of the specificity of forecasts in month t-1. All variables are standardized at the mean.

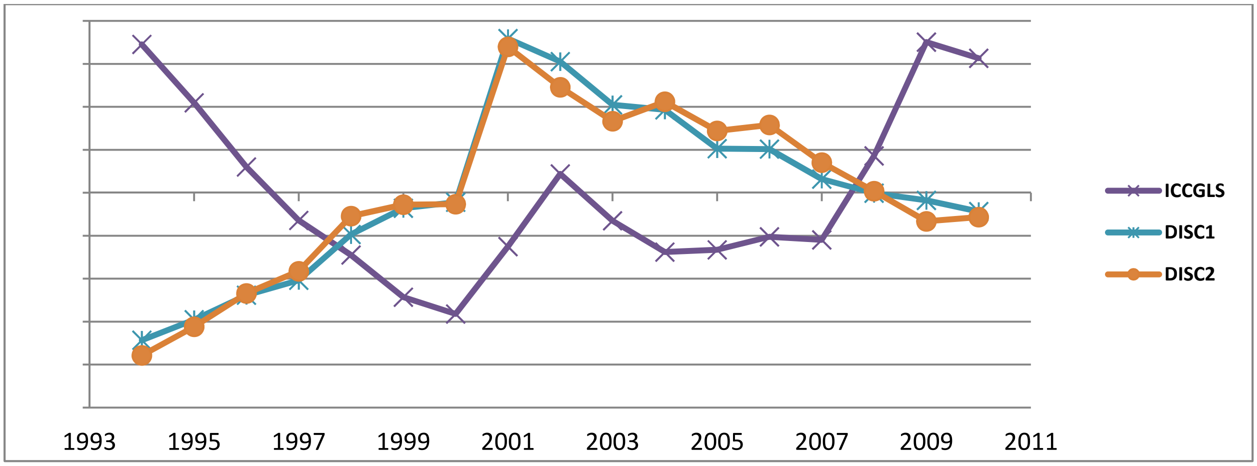

Table 1: Descriptive Statistics

This table provides descriptive statistics for the main sample period (1994-2010). Panel A reports the monthly average of the number of firms providing forecasts, the average specificity of forecasts, the number of IBES firms, the percentage of firms providing forecasts, the total specificity of forecasts, and the number of firms providing regular forecasts by year. Panel B reports the distribution of the variables used in the analysis and Panel C reports their Pearson correlations. ICC_{GLS} is the market cost of capital estimated using the Gebhardt, Lee, and Swaminathan (2001) approach for all IBES firms. DISC1 is the number of firms providing forecasts scaled by the total number of IBES firms. DISC2 is the sum of the specificity of forecasts. BTM is the average book-to-market ratio for all IBES firms. SENT is the Baker and Wurgler (2006) monthly sentiment index. IPGR is the industrial production growth rate. AFE is the average analyst forecast error for all IBES firms. REV is the average analyst forecast revision of one-year-ahead earnings for all IBES firms. MOM is the monthly value-weighted S&P 500 return with dividends. VOL is the aggregate volatility of value-weighted daily returns. LENGTH is the average size of 10-Qs filed.

Panel A: Forecast Sample by Year

Year	Number of Firms Providing Forecasts	Average Specificity of Forecasts	Number of IBES firms	Percentage of Firms Providing Forecasts (DISC1)	Total Specificity of Forecasts (DISC2)	Number of Firms Providing Regular Forecasts
1994	12.833	3.115	2608.167	0.005	39.833	0.167
1995	44.500	3.209	2832.417	0.016	141.833	0.667
1996	77.417	2.964	3076.917	0.025	231.000	4.250
1997	109.250	2.939	3276.833	0.033	318.083	7.083
1998	176.167	2.766	3243.500	0.055	479.417	20.000
1999	196.250	2.505	3063.250	0.064	499.500	36.083
2000	203.250	2.720	2813.333	0.073	548.583	33.500
2001	328.333	2.948	2371.667	0.137	966.750	116.667
2002	285.833	3.030	2194.750	0.130	871.000	137.667
2003	248.833	3.020	2276.583	0.110	756.333	134.500
2004	267.750	3.034	2486.750	0.108	824.500	156.667
2005	237.500	3.108	2595.250	0.092	738.250	156.417
2006	241.583	3.125	2662.417	0.091	751.750	161.750
2007	203.000	3.137	2609.917	0.077	635.917	145.833
2008	176.417	3.104	2452.583	0.071	548.750	134.167
2009	146.833	3.066	2161.750	0.068	454.583	111.917
2010	151.333	3.104	2382.917	0.063	471.833	112.417

Panel B: Summary Statistics (N=203)

	Mean	Median	25th Percentile	75th Percentile	Std Dev
ICC_{GLS}	0.101	0.096	0.091	0.109	0.013
ICC_{MPEG}	0.100	0.097	0.092	0.108	0.012
DISC1	0.072	0.056	0.022	0.109	0.064
DISC2	548.236	412.000	186.000	817.000	462.535
BTM	0.569	0.554	0.462	0.628	0.132
SENT	0.151	0.021	-0.142	0.275	0.565
IPGR	0.002	0.002	-0.002	0.006	0.007
AFE	0.277	0.239	0.159	0.334	0.195
REV	0.004	-0.001	-0.002	0.003	0.045
MOM	0.006	0.012	-0.020	0.036	0.045
VOL	0.003	0.002	0.001	0.003	0.006
LENGTH	12.341	12.341	11.751	13.084	0.960

Panel C: Pearson Correlations (N=203)

	ICC$_{GLS}$	**ICC$_{MPEG}$**	**DISC1**	**DISC2**	**BTM**	**SENT**	**IGPR**	**AFE**	**REV**	**MOM**	**VOL**	**LENGTH**
ICC$_{GLS}$	1.000	0.977	-0.218	-0.256	0.251	-0.292	0.017	0.041	0.221	-0.089	0.101	0.117
		<.0001	*0.002*	*0.000*	*0.000*	*<.0001*	*0.811*	*0.565*	*0.002*	*0.207*	*0.152*	*0.096*
ICC$_{MPEG}$		1.000	-0.210	-0.242	0.221	-0.314	-0.048	0.062	0.214	-0.125	0.150	0.214
			0.003	*0.001*	*0.002*	*<.0001*	*0.500*	*0.382*	*0.002*	*0.076*	*0.033*	*0.002*
DISC1			1.000	0.991	0.046	0.175	-0.120	-0.042	0.107	-0.054	0.135	0.215
				<.0001	*0.518*	*0.013*	*0.089*	*0.555*	*0.130*	*0.447*	*0.054*	*0.002*
DISC2				1.000	-0.006	0.172	-0.103	-0.034	0.089	-0.040	0.113	0.220
					0.937	*0.014*	*0.143*	*0.630*	*0.208*	*0.575*	*0.109*	*0.002*
BTM					1.000	0.181	-0.404	0.340	0.364	-0.253	0.579	-0.054
						0.010	*<.0001*	*<.0001*	*<.0001*	*0.000*	*<.0001*	*0.440*
SENT						1.000	-0.149	0.244	-0.036	-0.176	0.041	-0.275
							0.034	*0.001*	*0.610*	*0.012*	*0.560*	*<.0001*
IPGR							1.000	-0.392	-0.128	0.174	-0.354	-0.224
								<.0001	*0.069*	*0.013*	*<.0001*	*0.001*
AFE								1.000	0.042	-0.175	0.400	0.029
									0.552	*0.012*	*<.0001*	*0.683*
REV									1.000	-0.168	0.036	0.065
										0.017	*0.607*	*0.356*
MOM										1.000	-0.366	-0.031
											<.0001	*0.665*
VOL											1.000	0.121
												0.086
LENGTH												1.000

Table 2: Disclosure and Market Cost of Capital

This table presents results from regressions of ICC_{GLS} on disclosure. ICC_{GLS} is the market cost of capital estimated using the Gebhardt, Lee, and Swaminathan (2001) approach for all IBES firms in month t. Panel A reports results for the main sample period 1994-2010. Panel B (C) reports results for the sample period 1994-2000 (2001-2010). DISC1 is the number of firms providing forecasts in month t-1 scaled by the total number of IBES firms in month t-1. DISC2 is the sum of the specificity of forecasts in month t-1. BTM is the average book-to-market ratio for all IBES firms in month t-1. SENT is the Baker and Wurgler (2006) monthly sentiment index in month t-1. IPGR is the industrial production growth rate in month t-1. AFE is the average analyst forecast error for all IBES firms in month t-1. REV is the average analyst forecast revision of one-year-ahead earnings for all IBES firms in month t-1. MOM is the monthly value-weighted S&P 500 return with dividends in month t-1. VOL is the aggregate volatility of value-weighted daily returns in month t-1. LENGTH is the average size of 10-Qs filed in month t-1. Newey-West standard errors reported in parentheses. ** and * indicate significance at the 0.01 and 0.05 level, respectively, based on two-tailed tests.

Panel A: Sample Period 1994-2010

	Dependent Variable: ICC_{GLS}								
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC1	-0.0453**	-0.047**	-0.0357**	-0.0455**	-0.0450**	-0.0509**	-0.0464**	-0.0490**	-0.0530**
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
CONTROL		0.0262*	-0.0061**	-0.0172	0.0022	0.0729**	-0.0296	0.3174	0.0023
		(0.011)	(0.002)	(0.149)	(0.005)	(0.012)	(0.025)	(0.182)	(0.001)
CONSTANT	0.1039**	0.0892**	0.1041**	0.1039**	0.1033**	0.1040**	0.1041**	0.1031**	0.0751**
	(0.002)	(0.006)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.015)
Adj. Rsq	0.043	0.107	0.105	0.038	0.039	0.099	0.048	0.055	0.066
Observations	203	203	203	203	203	203	203	203	203
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC2	-0.0735**	-0.0731**	-0.0609**	-0.0738**	-0.0732**	-0.0798**	-0.0746**	-0.0778**	-0.0851**
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.018)
CONTROL		0.0251*	-0.0060**	-0.0180	0.0022	0.0725**	-0.0291	0.3144	0.0025*
		(0.011)	(0.002)	(0.149)	(0.005)	(0.013)	(0.024)	(0.180)	(0.001)
CONSTANT	0.1047**	0.0904**	0.1049**	0.1047**	0.1041**	0.1048**	0.1049**	0.1039**	0.0742**
	(0.002)	(0.006)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.015)
Adj. Rsq	0.061	0.119	0.120	0.057	0.057	0.117	0.066	0.074	0.089
Observations	203	203	203	203	203	203	203	203	203

Panel B: Sample Period 1994-2000

	Dependent Variable: ICC_{GLS}								
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC1	-0.2946**	-0.2819**	-0.2436**	-0.2933**	-0.2500**	-0.2938**	-0.2948**	-0.2478**	-0.2971**
	(0.051)	(0.060)	(0.051)	(0.052)	(0.043)	(0.052)	(0.051)	(0.049)	(0.051)
CONTROL		-0.0100	-0.0109**	0.2849	-0.0683**	0.0423	0.0025	-1.3893	0.0017
		(0.018)	(0.003)	(0.185)	(0.018)	(0.389)	(0.027)	(0.783)	(0.001)
CONSTANT	0.1105**	0.1158**	0.1107**	0.1094**	0.1284**	0.1105**	0.1105**	0.1118**	0.0899**
	(0.003)	(0.009)	(0.003)	(0.003)	(0.006)	(0.003)	(0.003)	(0.003)	(0.017)
Adj. Rsq	0.438	0.435	0.507	0.442	0.550	0.432	0.432	0.461	0.443
Observations	83	83	83	83	83	83	83	83	83
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC2	-0.3686**	-0.3440**	-0.3054**	-0.3688**	-0.3098**	-0.3679**	-0.3697**	-0.3080**	-0.3722**
	(0.061)	(0.070)	(0.061)	(0.063)	(0.051)	(0.064)	(0.060)	(0.059)	(0.062)
CONTROL		-0.0197	-0.0116**	0.3421	-0.0668**	0.0309	0.0071	-1.4400	0.0018
		(0.016)	(0.003)	(0.181)	(0.018)	(0.405)	(0.027)	(0.814)	(0.001)
CONSTANT	0.1111**	0.1216**	0.1114**	0.1098**	0.1284**	0.1111**	0.1111**	0.1124**	0.0900**
	(0.003)	(0.008)	(0.003)	(0.003)	(0.006)	(0.003)	(0.003)	(0.003)	(0.017)
Adj. Rsq	0.430	0.439	0.509	0.438	0.535	0.423	0.423	0.455	0.435
Observations	83	83	83	83	83	83	83	83	83

Panel C: Sample Period 2001-2010

	Dependent Variable: ICC_{GLS}								
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC1	-0.0308*	-0.0285*	-0.0244*	-0.0308*	-0.0290*	-0.0359**	-0.0308**	-0.0321**	-0.0278*
	(0.012)	(0.012)	(0.011)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
CONTROL		0.0460**	-0.0033*	0.0015	0.0090*	0.0667**	-0.0288	0.4529	0.0015
		(0.011)	(0.001)	(0.178)	(0.005)	(0.010)	(0.033)	(0.261)	(0.002)
CONSTANT	0.1044**	0.0780**	0.1042**	0.1044**	0.1019**	0.1045**	0.1044**	0.1027**	0.0840**
	(0.002)	(0.005)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.031)
Adj. Rsq	0.021	0.334	0.044	0.013	0.045	0.111	0.025	0.077	0.019
Observations	120	120	120	120	120	120	120	120	120
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC2	-0.0519**	-0.0411**	-0.0439**	-0.0519**	-0.0496**	-0.0575**	-0.0518**	-0.0521**	-0.0489**
	(0.016)	(0.015)	(0.015)	(0.016)	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)
CONTROL		0.0452**	-0.0032*	0.0034	0.0089*	0.0664**	-0.0285	0.4447	0.0016
		(0.010)	(0.001)	(0.177)	(0.004)	(0.010)	(0.033)	(0.256)	(0.002)
CONSTANT	0.1052**	0.0787**	0.1050**	0.1052**	0.1026**	0.1051**	0.1052**	0.1034**	0.0842**
	(0.002)	(0.005)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.029)
Adj. Rsq	0.036	0.337	0.057	0.028	0.059	0.126	0.039	0.090	0.034
Observations	120	120	120	120	120	120	120	120	120

Table 3: Disclosure and Cost of Capital Controlling for Significant Events

This table presents results from regressions of ICC_{GLS} on disclosure controlling for information shocks. ICC_{GLS} is the market cost of capital estimated using the Gebhardt, Lee, and Swaminathan (2001) approach for all IBES firms in month t. DISC1 is the number of firms providing forecasts in month t-1 scaled by the total number of IBES firms in month t-1. DISC2 is the sum of the specificity of forecasts in month t-1. REGFD is an indicator variable equal to one for periods after August 2000. SOX is an indicator variable equal to one for periods after April 2002. LEHMAN is an indicator variable equal to one for periods after September 2008. Newey-West standard errors reported in parentheses. ** and * indicate significance at the 0.01 and 0.05 level, respectively, based on two-tailed tests.

	Dependent Variable: ICC_{GLS}				Dependent Variable: ICC_{GLS}		
	(1)	(2)	(3)		(4)	(5)	(6)
DISC1	-0.3386**	-0.1113**	-0.0477**	DISC2	-0.4084**	-0.1694**	-0.0714**
	(0.053)	(0.029)	(0.015)		(0.067)	(0.041)	(0.020)
REGFD	-0.0085*			REGFD	-0.0081*		
	(0.003)				(0.004)		
DISC1×REGFD	0.3095**			DISC2×REGFD	0.3587**		
	(0.055)				(0.069)		
SOX		0.0000		SOX		-0.0001	
		(0.003)				(0.004)	
DISC1×SOX		0.0877**		DISC2×SOX		0.1237**	
		(0.032)				(0.045)	
LEHMAN			0.0167**	LEHMAN			0.0165**
			(0.004)				(0.004)
DISC1×LEHMAN			0.0855*	DISC2×LEHMAN			0.1166*
			(0.039)				(0.055)
CONSTANT	0.1122**	0.1047**	0.1011**	CONSTANT	0.1125**	0.1058**	0.1017**
	(0.003)	(0.003)	(0.002)		(0.003)	(0.003)	(0.002)
Adj. Rsq	0.212	0.121	0.380	Adj. Rsq	0.212	0.145	0.388
Observations	203	203	203	Observations	203	203	203

Table 4: Disclosure and Cost of Capital Controlling for Time Trends and Lagged Disclosure

This table presents results from regressions of ICC_{GLS} on disclosure controlling for time trends and lagged disclosure. ICC_{GLS} is the market cost of capital estimated using the Gebhardt, Lee, and Swaminathan (2001) approach for all IBES firms in month t. DISC1 is the number of firms providing forecasts in month t-1 scaled by the total number of IBES firms in month t-1. LAG_DISC1 is the lagged value of DISC1. DISC2 is the sum of the specificity of forecasts in month t-1. LAG_DISC2 is the lagged value of DISC2. TREND is a trend variable that begins with one and increases by one unit for each month. See Table 2 for other variable definitions. Newey-West standard errors reported in parentheses. ** and * indicate significance at the 0.01 and 0.05 level, respectively, based on two-tailed tests.

	Dependent Variable: ICC_{GLS}								
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC1	-0.0581**	-0.0581**	-0.0490**	-0.0582**	-0.0581**	-0.0621**	-0.0585**	-0.0595**	-0.0583**
	(0.013)	(0.012)	(0.013)	(0.013)	(0.013)	(0.013)	(0.012)	(0.012)	(0.013)
LAG_DISC1	-0.0622**	-0.0608**	-0.0541**	-0.0625**	-0.0622**	-0.0609**	-0.0624**	-0.0616**	-0.0618**
	(0.013)	(0.013)	(0.013)	(0.014)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
CONTROL		0.0238*	-0.0041*	-0.0168	0.0001	0.0672**	-0.0263	0.2211	0.0010
		(0.010)	(0.002)	(0.137)	(0.004)	(0.013)	(0.022)	(0.180)	(0.002)
TREND	0.0001**	0.0001*	0.0001*	0.0001*	0.0001*	0.0001*	0.0001*	0.0001*	0.0001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CONSTANT	0.1026**	0.0897**	0.1032**	0.1027**	0.1025**	0.1029**	0.1030**	0.1024**	0.0914**
	(0.003)	(0.006)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.018)
Adj. Rsq	0.146	0.199	0.169	0.142	0.142	0.195	0.150	0.150	0.145
Observations	202	202	202	202	202	202	202	202	202
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC2	-0.0973**	-0.0937**	-0.0864**	-0.0975**	-0.0972**	-0.1012**	-0.0975**	-0.0983**	-0.0978**
	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
LAG_DISC2	-0.1029**	-0.0981**	-0.0929**	-0.1036**	-0.0001**	-0.1005**	-0.1032**	-0.1017**	-0.1023**
	(0.018)	(0.017)	(0.018)	(0.018)	(0.000)	(0.017)	(0.018)	(0.018)	(0.018)
CONTROL		0.0205*	-0.0035	-0.0275	0.0002	0.0649**	-0.0259	0.1913	0.0011
		(0.010)	(0.002)	(0.133)	(0.004)	(0.013)	(0.021)	(0.170)	(0.002)
TREND	0.0001**	0.0001**	0.0001**	0.0001**	0.0001**	0.0001**	0.0001**	0.0001**	0.0001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

CONSTANT	0.1042**	0.0930**	0.1046**	0.1044**	0.1042**	0.1045**	0.1046**	0.1040**	0.0921**
	(0.003)	(0.006)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.017)
Adj. Rsq	0.204	0.242	0.220	0.200	0.200	0.249	0.208	0.206	0.203
Observations	202	202	202	202	202	202	202	202	202

Table 5: Change in Disclosure and Market Cost of Capital

This table presents results from regressions of ICC_{GLS} on change in disclosue. ICC_{GLS} is the market cost of capital estimated using the Gebhardt, Lee, and Swaminathan (2001) approach for all IBES firms in month t. CHG_DISC1 is the number of firms providing forecasts in month t-1 scaled by the total number of IBES firms in month t-1, minus the number of firms providing forecasts in month t-13 scaled by the total number of IBES firms in month t-13. CHG_DISC2 is the sum of the specificity of forecasts in month t-1, minus the sum of the specificity of forecasts in month t-13. BTM is the average book-to-market ratio for all IBES firms in month t-1. SENT is the Baker and Wurgler (2006) monthly sentiment index in month t-1. IPGR is the industrial production growth rate in month t-1. AFE is the average analyst forecast error for all IBES firms in month t-1. REV is the average analyst forecast revision of one-year-ahead earnings for all IBES firms in month t-1. MOM is the monthly value-weighted S&P 500 return with dividends in month t-1. VOL is the aggregate volatility of value-weighted daily returns in month t-1. LENGTH is the average size of 10-Qs filed in month t-1. Newey-West standard errors reported in parentheses. ** and * indicate significance at the 0.01 and 0.05 level, respectively, based on two-tailed tests.

	Dependent Variable: ICC_{GLS}								
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
CHG_DISC1	-0.0597*	-0.0648*	-0.0036	-0.0600*	-0.0618*	-0.0577*	-0.0569*	-0.0587*	-0.0390
	(0.028)	(0.030)	(0.031)	(0.028)	(0.028)	(0.027)	(0.028)	(0.028)	(0.028)
CONTROL		0.0264*	-0.0058**	-0.0859	0.0060	0.0674**	-0.0189	0.3572	0.0019
		(0.011)	(0.002)	(0.142)	(0.005)	(0.010)	(0.025)	(0.199)	(0.001)
CONSTANT	0.0993**	0.0843**	0.1002**	0.0994**	0.0977**	0.0990**	0.0994**	0.0981**	0.0752**
	(0.001)	(0.005)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.017)
Adj. Rsq	0.011	0.092	0.067	0.009	0.016	0.071	0.011	0.034	0.028
Observations	191	191	191	191	191	191	191	191	191
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
CHG_DISC2	-0.0759*	-0.0836*	0.0016	-0.0768*	-0.0777*	-0.0740*	-0.0737*	-0.0746*	-0.0510
	(0.034)	(0.037)	(0.039)	(0.034)	(0.034)	(0.033)	(0.034)	(0.034)	(0.034)
CONTROL		0.0266*	-0.0059**	-0.0898	0.0060	0.0675**	-0.0199	0.3565	0.0019
		(0.010)	(0.002)	(0.142)	(0.005)	(0.010)	(0.024)	(0.200)	(0.001)
CONSTANT	0.0994**	0.0843**	0.1002**	0.0996**	0.0978**	0.0991**	0.0995**	0.0982**	0.0756**
	(0.001)	(0.005)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.017)
Adj. Rsq	0.013	0.095	0.067	0.011	0.017	0.073	0.013	0.035	0.029
Observations	191	191	191	191	191	191	191	191	191

Table 6 Disclosure and Alternative Measures of Cost of Capital

This table presents results using alternative measures of market cost of capital. ICC_{MPEG} is the market cost of capital estimated using the Easton (2004) approach for all IBES firms in month t. Panel A reports results from regressions of ICC_{MPEG} on disclosure controlling for time trends and lagged disclosure. Panel B reports results from regression of ICC_{MPEG} on change in disclosure. DISC1 is the number of firms providing forecasts in month t-1 scaled by the total number of IBES firms in month t-1. LAG_DISC1 is the lagged value of DISC1. DISC2 is the sum of the specificity of forecasts in month t-1. LAG_DISC2 is the lagged value of DISC2. CHG_DISC1 is the number of firms providing forecasts in month t-1 scaled by the total number of IBES firms in month t-1, minus the number of firms providing forecasts in month t-13 scaled by the total number of IBES firms in month t-13. CHG_DISC2 is the sum of the specificity of forecasts in month t-1, minus the sum of the specificity of forecasts in month t-13. See Table 2 for other variable definitions. Newey-West standard errors reported in parentheses. ** and * indicate significance at the 0.01 and 0.05 level, respectively, based on two-tailed tests.

Panel A: Controlling for Time Trends and Lagged Disclosure

	Dependent Variable: ICC_{MPEG}								
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC1	-0.0548**	-0.0548**	-0.0462**	-0.0554**	-0.0546**	-0.0581**	-0.0553**	-0.0564**	-0.0551**
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
LAG_DISC1	-0.0551**	-0.0541**	-0.0475**	-0.0568**	-0.0549**	-0.0540**	-0.0553**	-0.0543**	-0.0542**
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
CONTROL		0.0176*	-0.0038*	-0.0992	0.0011	0.0565**	-0.0310	0.2732*	0.0019
		(0.008)	(0.002)	(0.107)	(0.003)	(0.008)	(0.018)	(0.108)	(0.002)
TREND	0.0001**	0.0001**	0.0001**	0.0001**	0.0001**	0.0001**	0.0001**	0.0001**	0.0001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CONSTANT	0.1003**	0.0908**	0.1009**	0.1009**	0.1001**	0.1006**	0.1008**	0.1001**	0.0784**
	(0.003)	(0.005)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.017)
Adj. Rsq	0.175	0.209	0.201	0.201	0.171	0.218	0.185	0.187	0.185
Observations	202	202	202	202	202	202	202	202	202

	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
DISC2	-0.0884**	-0.0858**	-0.0778**	-0.0892**	-0.0916**	-0.0893**	-0.0880**	-0.0896**	-0.0886**
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
LAG_DISC2	-0.0891**	-0.0857**	-0.0794**	-0.0916**	-0.0871**	-0.0880**	-0.0889**	-0.0876**	-0.0895**
	(0.015)	(0.015)	(0.015)	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)

CONTROL		0.0146	-0.0034*	-0.1056	0.0544**	0.0020	0.0012	0.2459*	-0.0306
		(0.008)	(0.002)	(0.103)	(0.008)	(0.001)	(0.003)	(0.102)	(0.017)
TREND	0.0001**	0.0001**	0.0001**	0.0001**	0.0001**	0.0001*	0.0001**	0.0001**	0.0001**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CONSTANT	0.1017**	0.0936**	0.1021**	0.1023**	0.1019**	0.0789**	0.1013**	0.1014**	0.1021**
	(0.003)	(0.005)	(0.003)	(0.003)	(0.003)	(0.016)	(0.003)	(0.003)	(0.003)
Adj. Rsq	0.223	0.246	0.243	0.223	0.219	0.262	0.233	0.232	0.234
Observations	202	202	202	202	202	202	202	202	202

Panel B: Change in Disclosure

	Dependent Variable: ICC_{MPEG}								
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
CHG_DISC1	-0.0649*	-0.0689*	-0.0119	-0.0657*	-0.0669**	-0.0631*	-0.0611*	-0.0638*	-0.0332
	(0.026)	(0.027)	(0.030)	(0.026)	(0.026)	(0.025)	(0.026)	(0.026)	(0.026)
CONTROL		0.0210*	-0.0054**	-0.1862	0.0067	0.0582**	-0.0260	0.4234**	0.0029*
		(0.009)	(0.002)	(0.122)	(0.004)	(0.006)	(0.022)	(0.134)	(0.001)
CONSTANT	0.0989**	0.0869**	0.0997**	0.0992**	0.0971**	0.0987**	0.0991**	0.0975**	0.0620**
	(0.001)	(0.005)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.017)
Adj. Rsq	0.019	0.082	0.082	0.029	0.029	0.074	0.026	0.062	0.078
Observations	191	191	191	191	191	191	191	191	191

	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
CHG_DISC2	-0.0827**	-0.0889**	-0.0100	-0.0847**	-0.0847**	-0.0811**	-0.0797*	-0.0811**	-0.0444
	(0.031)	(0.033)	(0.037)	(0.031)	(0.031)	(0.030)	(0.031)	(0.031)	(0.031)
CONTROL		0.0213*	-0.0055**	-0.1905	0.0067	0.0584**	-0.0271	0.4226**	0.0030*
		(0.009)	(0.002)	(0.121)	(0.004)	(0.006)	(0.022)	(0.134)	(0.001)
CONSTANT	0.0991**	0.0870**	0.0998**	0.0993**	0.0972**	0.0988**	0.0992**	0.0976**	0.0625**
	(0.001)	(0.005)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.017)
Adj. Rsq	0.022	0.086	0.081	0.032	0.031	0.077	0.029	0.065	0.079
Observations	191	191	191	191	191	191	191	191	191

Table 7: Alternative Measures of Disclosure and Market Cost of Capital

This table presents results using alternative measures of disclosure. ICC_{GLS} is the market cost of capital estimated using the Gebhardt, Lee, and Swaminathan (2001) approach for all IBES firms in month t. Panel A reports results from regressions of ICC_{GLS} on disclosure controlling for time trends and lagged disclosure. Panel B reports results from regression of ICC_{GLS} on change in disclosure. REGULAR is the number of firms providing regular forecasts in month t-1 scaled by the total number of IBES firms in month t-1. LAG_REGULAR is the lagged value of REGULAR. CHG_REGULAR is the number of firms providing regular forecasts in month t-1 scaled by the total number of IBES firms in month t-1, minus the number of firms providing regular forecasts in month t-13 scaled by the total number of IBES firms in month t-13. BTM is the average book-to-market ratio for all IBES firms in month t-1. SENT is the Baker and Wurgler (2006) monthly sentiment index in month t-1. IPGR is the industrial production growth rate in month t-1. AFE is the average analyst forecast error for all IBES firms in month t-1. REV is the average analyst forecast revision of one-year-ahead earnings for all IBES firms in month t-1. MOM is the monthly value-weighted S&P 500 return with dividends in month t-1. VOL is the aggregate volatility of value-weighted daily returns in month t-1. LENGTH is the average size of 10-Qs filed in month t-1. Newey-West standard errors reported in parentheses. ** and * indicate significance at the 0.01 and 0.05 level, respectively, based on two-tailed tests.

Panel A: Controlling for Time Trends and Lagged Disclosure

	Dependent Variable: ICC_{GLS}								
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
REGULAR	-0.0678**	-0.0340*	-0.0695**	-0.0713**	-0.0588**	-0.0763**	-0.0700**	-0.0656**	-0.0533**
	(0.021)	(0.017)	(0.021)	(0.023)	(0.021)	(0.021)	(0.020)	(0.019)	(0.019)
LAG_REGULAR	-0.0784**	-0.0395*	-0.0786**	-0.0867**	-0.0689**	-0.0773**	-0.0772**	-0.0688**	-0.0657**
	(0.021)	(0.018)	(0.021)	(0.022)	(0.022)	(0.021)	(0.021)	(0.020)	(0.020)
CONTROL		0.0584**	0.0035**	-0.2708*	0.0152**	0.0671**	-0.0607**	0.7241*	-0.0045**
		(0.009)	(0.001)	(0.123)	(0.005)	(0.008)	(0.019)	(0.300)	(0.001)
TREND	-0.0001*	-0.0001**	-0.0001*	-0.0001*	-0.0001**	-0.0001*	-0.0001*	-0.0001**	-0.0000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CONSTANT	0.1445**	0.1133**	0.1434**	0.1457**	0.1406**	0.1447**	0.1453**	0.1438**	0.1956**
	(0.002)	(0.005)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.014)
Adj. Rsq	0.320	0.412	0.341	0.337	0.369	0.371	0.362	0.409	0.376
Observations	202	202	202	202	202	202	202	202	202

Panel B: Change in Disclosure

	Dependent Variable: ICC_{GLS}								
	(1)	(2) BTM	(3) SENT	(4) IPGR	(5) AFE	(6) REV	(7) MOM	(8) VOL	(9) LENGTH
CHG_REGULAR	-0.2084**	-0.1875**	-0.1123	-0.2083**	-0.2023**	-0.1912**	-0.2081**	-0.1990**	-0.1800**
	(0.070)	(0.059)	(0.075)	(0.069)	(0.070)	(0.062)	(0.070)	(0.068)	(0.067)
CONTROL		0.0244*	-0.0047**	-0.0824	0.0045	0.0639**	-0.0214	0.3310*	0.0017
		(0.010)	(0.002)	(0.136)	(0.005)	(0.011)	(0.023)	(0.199)	(0.001)
CONSTANT	0.0997**	0.0857**	0.1002**	0.0998**	0.0984**	0.0994**	0.0998**	0.0985**	0.0784**
	(0.001)	(0.005)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.016)
Adj. Rsq	0.044	0.113	0.078	0.041	0.044	0.097	0.046	0.063	0.057
Observations	191	191	191	191	191	191	191	191	191