Industry expertise and the informational advantages of analysts over managers

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Abstract

This paper examines whether analysts have an industry-level information advantage over managers when forecasting a firm's earnings. We argue that such an advantage is more likely to exist for firms that operate in industries that are characterized by more uncertain operating environments due to industry-level shocks. We find that for firms in such industries, analysts provide more accurate forecasts than managers. We further find that managers of firms in such industries provide fewer and less precise (e.g., range versus point estimates) forecasts, and that these results are more pronounced when analyst following and institutional ownership are higher. These findings suggest that for industries with certain characteristics, analysts have an informational advantage over managers with respect to industry-level information.

Keywords: Voluntary disclosure, management earnings forecasts, industry expertise, analysts

1. Introduction

This paper examines the information advantage of analysts relative to managers with respect to industry-level information. Managers possess superior firm-level information compared to analysts when forecasting a firm's earnings, because managers have access to internal information and make decisions about their firm's investment and operations (Hutton et al. 2012). However, for industry-level information, analysts are arguably more knowledgeable than managers. Analysts are often viewed as industry experts (e.g., Piotroski and Roulstone, 2004; Kadan et al., 2012; Hutton et al., 2012; Amiram et al., 2016b). Investment banks generally provide industry-level forecasts and their analysts commonly cover multiple firms in the same industry. *Institutional Investor Magazine* ranks industry expertise as one of the most important attributes of a sell-side analyst. Moreover, industry knowledge is also an important determinant of sell side analysts' compensation (Brown et al. 2015). Yet, managers are also likely to have industry expertise, because to be appointed and serve effectively as a CEO or CFO, managers need to be knowledgeable about their industry (e.g., Hutton et al., 2012). Thus, the following interesting question arises: do analysts have an industry-level information advantage over managers when forecasting firms' earnings? Hutton et al. (2012) address this question, but they "fail to find evidence that analysts have an information advantage over managers at the industry level." In this paper, we re-examine this question.

We argue that analysts are more likely to have an industry-level information advantage over managers for firms in industries that are characterized by more uncertain operating environments due to industry-level shocks. First, managers focus on managing their firm's operations, especially if their firm is in an industry with a highly uncertain operating environment. Even though forward looking industry-level information is helpful to managers when planning their firm's future operations, they may not be able to devote the required time and effort to gather and process such information. In contrast, analysts' main job is to gather and process forward looking information. Moreover, they typically cover firms belonging to just a few industries. Thus, they are better able to devote the time and effort needed to gather and process industry-level information, especially for industries with more uncertain operating environments. Second, sell-side analysts' compensation is based primarily on their industry knowledge (Brown et al. 2015), whereas, managers are commonly evaluated relative to their peers' performance, and therefore managers' compensation is likely to be somewhat immune to the effects of industry-level shocks (e.g., Gibbons and Murphy, 1990; Jensen and Murphy, 1990; Janakiraman, Lambert and Larcker, 1992; Albuquerque, 2009). Thus, analysts are likely to be more motivated than managers to gather and process industry-level information. This difference in motivation is likely to be greater for industries with more uncertain operating environments, because managers are less motivated to expend the increased effort required to gather and process industry-level information for such industries, while analysts' knowledge related to such industries is likely to be of greater value to their clients. The above arguments suggest that if analysts' posses an informational advantage over managers with respect to industry-level information, the potential to observe the advantage is greater in industries with more uncertain operating environments due to industry-level shocks.

For our empirical analyses, we utilize several industry-level measures to capture our desired industry construct, namely, uncertainty in the operating environment due to industry-level shocks (industry-level operating uncertainty, hereafter). First, we utilize the industry sensitivity risk score produced by IBISWorld, a leading industry and market research firm. IBISWorld collectively refers to the external forces an industry is subject to, for example, input material prices, demographic trends, and legislative changes, as “sensitivities.” Sensitivity risk is an annual time-variant measure, and it is provided for industries defined at the six-digit NACIS level. Industries with higher sensitivity risk are expected to have more operating uncertainty. An important feature of this measure is that it focuses on uncertainty in the operating environment resulting from forces external to the industry. Since managers have limited control over external forces, they would find it more difficult to predict the effect of these factors on their firms' performance. We expect that analysts' industry-level information advantage over managers in forecasting earnings is positively associated with the sensitivity risk of the firm's industry.

To validate the sensitivity risk measure as well as the related empirical findings based on it, we consider two additional measures with which to identify the operating uncertainty of an industry: industry value added volatility and industry stock return volatility. Industry value added volatility is the standard deviation of the annual value added of the industry, computed using data from the past five years. The data for industry value added, which includes all public and private firms in an industry, are obtained from IBISWorld. Industry stock return volatility is the standard deviation of the value-weighted monthly returns of the industry portfolio, computed using data from the past twelve months. These two measures, though simple, have the benefit of being objective and intuitively appealing proxies for uncertainty in an industry's operating environment. We show that sensitivity risk is significantly but not very highly correlated with these measures (maximum correlation of 0.18), perhaps because sensitivity risk focuses on uncertainty associated only with forces external to the industry and because it incorporates more forward looking information.

We use two empirical approaches to measure the industry-level information advantage of analysts over managers. First, we compare the accuracy of analyst and management earnings forecasts. We find that the relative accuracy of management forecasts over analyst forecasts is negatively related to sensitivity risk, the volatility of industry value added, and the volatility of industry stock returns. These findings suggest that analysts have a greater industry related information advantage over managers for industries with greater industry-level operating uncertainty.

Our second approach to measure the industry-level information advantage of analysts over managers considers the likelihood of management earnings forecasts and the precision (e.g., range versus point estimates) of these forecasts. When analysts' information advantage over managers is greater, managers are likely to provide fewer and less precise forecasts. These predictions are consistent with Verrecchia's (1990) analytical finding that the likelihood of a manager making public disclosure decreases when her precision of private information about firm value, relative to the market's precision of information about firm value, decreases. As expected, we find that for firms in industries with higher operating uncertainty, managers are less likely to issue a forecast, issue fewer forecasts, and issue less precise forecasts.

We further show that the negative relations of industry-level operating uncertainty with the likelihood of issuing a management forecast, the frequency of forecasts, and the precision of forecasts are driven by firms with relatively high (above the sample median) analyst following and relatively high institutional ownership. For firms with relatively low analyst following and institutional ownership, managers are more likely to issue forecasts, issue more frequent forecasts and issue more precise forecasts when industry-level operating uncertainty is higher. These cross-sectional results are consistent with analysts and institutional ownership being potential sources of industry related information for investors (Piotroski and Roulstone, 2004). Note that higher institutional ownership motivates analysts to generate more industry related information. This is because buy side analysts, a major client of sell side analysts, consider industry-level information as the most useful input for the stock recommendations they make to institutional investors (Brown et al. 2016). Thus, high analysts following and high institutional holdings reduce managers' information advantage about firm value relative to the market's assessment of firm value, especially for firms in industries with higher levels of operating uncertainty. However, when there are relatively few analysts and institutional investors to provide the market with information on the effect of industry-level forces, the market's demand for corporate disclosure increases with the operating uncertainty of the industry.

Prior studies argue that analysts are viewed as industry experts, because they cover firms in only a few industries and because they are evaluated and compensated based primarily on their industry knowledge. Prior studies also provide evidence supporting the notion that analysts have industry expertise. The survey evidence in Brown et al. (2015) indicates that analysts' consider industry knowledge to be the most useful input in their earnings forecasts and stock recommendations, and that industry knowledge is an important determinant of their compensation. Piotroski and Roulstone (2004) show that analyst forecasting activities increase the amount of industry-level information in stock prices. Kadan et al. (2012) show that portfolios based on analysts' industry recommendations generate abnormal stock returns over both short and long horizons. In light of the above findings, Hutton et al. (2012) ask whether analysts have an industry-level information advantage over managers when forecasting earnings. They argue that if such an advantage exists, then the relative accuracy of analysts' forecasts over managers' forecasts should be higher for firms whose revenue is more synchronous with that of their industry, but they do not find supporting results.

In this paper, we address the above question by proposing that analysts are more likely to have an industry-level information advantage over managers for firms in industries that are characterized by more uncertain operating environments due to industry-level shocks. The reason being that analysts are better motivated as well as better positioned to devote the time and effort needed to gather and process industry-level information for such industries. We show that the accuracy of analyst earnings forecasts over management earnings forecasts is greater for firms in industries with greater operating uncertainty. Our finding is consistent with the notion that analysts' have an information advantage over managers at the industry level.

We also contribute beyond Hutton et al. (2012) by considering an additional approach to test for the information advantage of analysts over managers. We show that the amount of public disclosure measured as the likelihood of management forecasts, the frequency of management forecasts, and the precision of management forecasts, are lower for firms in industries with greater operating uncertainty. Moreover, these associations are more pronounced when analyst following and institutional ownership are relatively high. These results suggest that managers' information precision about firm value relative to that of the market is lower in industries with greater operating uncertainty, due to analysts' industry-level information advantage.

Finally, we contribute to the literature on the relation between industry characteristics and corporate disclosure. Several studies have examined the relation between firm-level disclosure and competition in an industry, using a variety of proxies such as industry concentration (e.g., Harris, 1998; Botosan and Stanford, 2005; Berger and Hann, 2007; Beyer et al., 2010; Li, 2010; Bens et al., 2011; Berger, 2011; Li et al., 2013; Ali et al., 2014; Huang and Li, 2014). We show that the uncertainty of the operating environment in an industry is another industry characteristic that significantly affects firm-level disclosure.

The remainder of the paper is organized as follows. Section 2 discusses the related literature and empirical predictions. Section 3 discusses our measures of industry-level operating uncertainty. Section 4 describes our research methodology and empirical findings related to forecast accuracy. Section 5 describes our research methodology and empirical findings related to firms' disclosure policy. Section 6 concludes.

2. Related Literature and Empirical Predictions

2.1 Related Literature

Investors have two important sources of information when predicting and evaluating firms' earnings: management and analysts. The two parties are likely to have different incentives, forecasting abilities, and other information gathering and processing advantages/disadvantages when providing forecasts. One potential reason for differences in the quality of management and analyst forecasts is heterogeneity in their knowledge about the firm versus the industry. Firm-level information includes a firm's response to abnormal inventory buildup, cost structures, excess capacity, or losses (Hutton et al. 2012). Industry knowledge includes understanding the industry's key trends and technologies; its supply chains, distribution models, and margins; and its customers, labor, and management teams (Brown et al., 2015).

Managers possess superior information about their firm's investment and operations, because they manage the firm's day to day activities and have access to internal reports (e.g., Diamond, 1985). Thus, one might expect managers to be able to create more accurate earnings forecasts compared with outsiders, such as analysts. However, prior studies show that the earnings forecasts of analysts are more accurate than that of managers about half of the time (Ruland 1978; Hutton and Stocken 2009). Hutton et al. (2012) examine the reasons for this finding and conclude that though managers have an informational advantage at the firm level, analysts have an information advantage over managers at the macroeconomic level. Specifically, analysts provide more accurate earnings forecasts than managers when the firm's earnings covary more with macroeconomic factors such as Gross Domestic Product and energy costs. Hutton et al. (2012) also examine if analysts have an information advantage over managers at the industry level when making earnings forecasts, but do not obtain conclusive evidence.

2.2 Empirical Predictions

It is not obvious whether analysts have superior industry knowledge when compared to managers. Even though analysts are considered to be industry experts, managers are also expected to be very knowledgeable about their industry. Obtaining industry expertise helps managers rise to top management positions and enables them to manage their firm more effectively (Hutton et al. 2012). Below, we discuss some of the reasons why analysts may have an advantage over managers with respect to industry-level information. We also discuss the characteristics of industries where this advantage is more likely to manifest.

Analysts can have an advantage over managers with respect to industry-level information, because analysts are likely to have more time and resources at their disposal to acquire and process industry-level information. They are also likely to have greater incentives to acquire and process industry-level information. First, because managers are focused on their firms' operations, it is unlikely that they can devote the amount of time and resources analysts can to gather and process industry-level information. Analysts tend to be industry focused, because they cover multiple firms in an industry. Moreover, analysts' primary role is to gather and process information. Thus, they are better positioned to devote the time and resources to generate industry related information. Second, managers are evaluated and compensated based on relative performance metrics, which adjusts for industry-wide factors (e.g., Gibbons and Murphy, 1990; Jensen and Murphy, 1990; Janakiraman, Lambert and Larcker, 1992; Albuquerque, 2009). Thus, if a firm's performance is adversely affected by an industry-level shock the manager did not foresee, the managers' evaluation may not be adversely affected, especially if the shock arises from forces that are external to the industry, over which the managers did not have much control. In contrast, an important determinant of sell-side analysts' compensation is their industry knowledge, which is highly valued by their brokerage houses' key clients, namely, institutional investors (Brown et al. 2015). Thus, analysts are likely to have greater incentives than managers to acquire industry-level information.

We further argue that analysts are more likely to have an industry-level information advantage over managers for firms in industries that are characterized by more uncertain operating environments due to industry-level shocks. A firm in an industry with higher operating uncertainty is likely to face more unexpected scenarios, and its managers need to devote more resources to navigating their firm's operations through such scenarios. Consequently, in such industries, analysts are likely to be better positioned than managers to devote time and resources towards gathering and processing forward looking industry-level information.

Industry-level operating uncertainty also increases the differential incentives of analysts, relative to managers, to acquire industry-level information. When operating uncertainty due to industry-level shocks is higher, greater effort is required to gather industry-level information. Analysts have the incentive to expend the effort required to gather such information, because their knowledge in such industries is likely to be highly valued by their clients. Therefore, analysts are likely to be well rewarded for such effort. Managers on the other hand may not find it optimal to invest substantial effort in gathering industry-level information, because their evaluation and compensation are likely to be based on relative performance metrics, and may therefore be somewhat immune to industry-level shocks.

When analysts have an information advantage over managers, the accuracy of analysts' earnings forecasts would be greater than that of managers. Based on the above argument that analysts are more likely to have an industry-level information advantage for firms in industries that are characterized by greater operating uncertainty, we make the following prediction:

P1: The accuracy of analysts' earnings forecasts relative to managers' earnings forecasts is higher for firms in industries with greater operating uncertainty.

Verrecchia (1990) argues that the likelihood of a firm's public disclosure of information decreases when the precision of managers' information about firm value, relative to that of investors, declines. If the manager has imprecise private information, disclosing it will yield little capital market benefits. In other words, the market will not discount the firm's value significantly for withholding imprecise information, yet the disclosure will still give rise to disclosure related costs. Similarly, if the market has more precise information about firm value, any new information provided by managers would lead to only minor capital market benefits while still resulting in disclosure related costs. Therefore, the precision of the manager's private information and the precision of the market's prior information both affect management's incentives to disclose private information, but in opposite directions. Hence, the probability that a manager discloses private information decreases when the relative precision of managers' information compared to that of investors declines.

Since analysts, and thereby investors, are more likely to have an information advantage over managers in industries that are characterized by greater operating uncertainty, we make the following prediction:

P2: For firms in industries with greater operating uncertainty, managers are less likely to issue earnings forecasts, and the forecasts they issue are likely to be less precise.

For firms in industries with greater operating uncertainty, the collective informational advantage of analysts and hence that of the investors over managers would be more pronounced when more analysts follow the firm (Piotroski and Roulstone, 2004). Thus, the predicted negative relation between the likelihood of public disclosures by managers and industry-level operating uncertainty should also be more pronounced when the firm's analyst following is higher. The effect of higher institutional ownership in a firm is similar to that of higher analyst following. Higher levels of institutional ownership motivate analysts to generate more industry related information. Buy-side analysts indicate that industry knowledge is the most useful input to their stock recommendations, and that they rely on sell side analysts for this knowledge (Brown et al., 2016). This leads us to our third prediction:

P3: The predicted negative relations between the likelihood of managers issuing earnings forecasts, or the precision of the forecasts, and industry-level operating uncertainty, are more pronounced for firms with greater analyst following and for firms with higher institutional ownership.

3. Measures of Industry-Level Operating Uncertainty

Empirical examination of the above predictions requires a proxy for operating uncertainty due to industry-level shocks. We consider multiple measures. Our primary measure is from the data provided by IBISWorld, which specializes in producing industry related information. IBISWorld creates industry reports, which include proprietary forward-looking industry characteristics related risk scores (e.g., Amiram, Kalay and Sadka, 2016). A risk score indicates the relative level of certain industry characteristic that affects the operating environment of the industry. A higher score implies a more difficult and uncertain operating environment.

IBISWorld provides separate risk scores for industry characteristics that are related to the industry's internal structure, such as industry competition and life cycle stage, and for industry characteristics that are related to the industry's external factors. The external factors are collectively known by IBISWorld as "sensitivities," and the related risk score is referred to as sensitivity risk. IBISWorld identifies several sources of sensitivities in their description of sensitivity risk, including goods and materials inputs, demographics and consumer changes, macroeconomic change, government and legislative change, natural resource allocation, and global prices and competition for resources. Sensitivity risk is defined by IBISWorld as an annual measure that captures the combination of 1) the significance of the external factors (sensitivities) to outcomes in the industry, 2) the potential negative effect the external forces have on firms in the industry, and 3) the expected variation in the external factors. IBISWorld also states that as compared to internal factors, external factors "tend to be less predictable and are more difficult for operators within an industry to manage, because the factors are outside the scope of an industry operator's experience." This fact underscores the suitability of sensitivity risk as a measure of industry-level operating uncertainty when examining the industry-level information advantage of analysts over managers. Since external factors are more difficult for managers to predict and manage, this measure would be more effective in identifying situations when analysts are likely to have an advantage over managers with respect to industry knowledge.

In addition to sensitivity risk, we employ two additional measures for industry-level operating uncertainty. These are intuitive measures based on financial data and stock returns. First, we consider volatility in industry value added (EVA), defined as the standard deviation of the annual industry EVA, computed using past five years' data. Industry EVA is an industry-level earnings measure provided by IBISWorld.[1] We do not compute industry EVA using Compustat data, because Compustat data are available only for U.S. public firms, whereas IBISWorld industry value-added data incorporates both private and international firms. Second, we consider volatility of industry-level returns computed as the standard deviation of the value-weighted monthly returns of the industry portfolio over twelve months. This measure differs from the other two measures in that it is based on data from only publicly traded firms and captures operating uncertainty of an industry as perceived by the capital market. Finally, both the industry EVA volatility and the industry stock returns volatility differ from sensitivity risk in that they proxy for total uncertainty in the operating environment of an industry, and not just uncertainty related to factors external to the industry, as is the case with the sensitivity risk measure.

The IBISWorld sensitivity risk measure is more opaque than the industry EVA volatility and industry return volatility measures, because it is computed by IBISWorld using proprietary data. Therefore, we consider validating the IBISWorld measure by examining its correlation with the other two measures. Columns 1 and 2 of Table 1 reports that sensitivity risk is positively associated with Ind. (industry) EVA volatility and Ind. (industry) return volatility. These associations are significant at the 10% and 1% level, respectively, but are not large in magnitude,

[1] We scale Industry EVA by the number of employees in the industry, which is also provided by IBISWorld.

as indicated by the low R-square values. Furthermore, column 3 of Table 1 reports that sensitivity risk has significant incremental positive association with both Ind. EVA volatility and Ind. return volatility. These results suggest that sensitivity risk captures industry-level operating uncertainty, and that it also has distinct features as compared to the other two measures.

4. Relative Accuracy of Management and Analyst Forecasts

4.1 Data and Methodology

To examine whether managers' earnings forecast accuracy relative to that of analysts is related to industry-level operating uncertainty, we follow the empirical approach employed by Hutton, Lee, and Shu (2012) (hereafter, HLS). Our sample includes all point and range annual management earnings forecasts that are issued after the release of prior year's earnings and are available in First Call's Company Issued Guidelines (CIG) database. Focusing on point and range forecasts enables us to compute management forecast accuracy. For range forecasts, we use the mid-point of the range to compute forecast accuracy. We use the first annual forecast issued after an earnings announcement. Forecasts issued following the release of prior year's earnings provides a more powerful setting to examine analysts' and managers' comparative information advantages. As HLS point out, towards the end of a fiscal year, analysts' information advantages are likely to dissipate as a result of the realizations of macro- and industry-level shocks. In addition, factors such as management's ability and incentives to meet analysts' or their own forecasts can confound the relative accuracy of forecasts issued late in the fiscal year. Our sample begins in 2003 because the IBISWorld industry data we employ is available between 2003 and 2011. Our sample ends in 2010 because First Call's Company Issued Guidelines (CIG) database was discontinued in early 2011.

To compare management forecasts to those of analysts, we merge our First Call sample with the I/B/E/S detailed file, which contains individual analyst estimates and actual earnings. For each management forecast, we gather all annual earnings forecasts for the same fiscal year made by individual analysts within the previous 30 days. If a management forecast is made within 30 days after prior year's earnings announcement, we only retain analyst forecasts starting two days following prior year's earnings announcement, to ensure analysts had access to the earnings announcement. We compute the analyst consensus forecast by taking the mean of these forecasts and then compare it to the corresponding management forecast.

We obtain data for the explanatory variables employed by HLS from CRSP and Compustat, data for the industry sensitivity risk score and Ind. EVA volatility measure from IBISWorld, and data for Ind. return volatility from CRSP.

To estimate the relation between industry-level operating uncertainty and managers' forecast accuracy relative to that of analysts, we estimate the following model:

$$\begin{aligned} Relative\ Accuracy_{ijt} = {} & \alpha + \beta * operating\ uncertainty_{jt} + \gamma * firm-level\ controls_{it} \\ & + \lambda * HLS\ measures_{it} + \varphi * industry\ effects_{j} + \phi * year\ effects_{t} + \varepsilon_{ijt} \end{aligned} \tag{1}$$

where $Relative\ Accuracy_{ijt}$ is defined as:

$$Relative\ Accuracy_{ijt} = \frac{\left|Analyst\ consensus_{ijt} - actual_{ijt+1}\right| - \left|Management\ \ forecast_{ijt} - actual_{ijt+1}\right|}{price_{ijt}}$$

The unit of analysis in this specification is a management forecast for which we measure the relative accuracy. Therefore, the subscripts *i*, *j*, and *t* represent firm, industry, and date, respectively. Relative Accuracy measures the difference between analysts' absolute forecast errors and managers' absolute forecast errors, scaled by the price at the end of the month prior to the issue date of the manager's forecast. Larger values represent relatively more accurate manager forecasts.[2] For *operating uncertainty*, our main explanatory variable of interest, we use one of the following three measures: Sensitivity risk, Ind. EVA volatility, and Ind. return volatility.

We follow HLS and include a set of control variables: firm size (size), leverage, market-to-book, analyst following, forecast dispersion, an indicator variable if managers forecast a loss (loss), an indicator variable for whether the forecast is a point or range forecast (point), an indicator variable if the manager's forecast is larger than the analysts' consensus (good news), and the natural log of the horizon of the manager's forecast in days (horizon). We also include the amount of special items (special items) and the number of geographic and business segments (# business segments / # geographical segments) to control for the complexity of the forecasting environment.[3] HLS Measures refers to the measures that Hutton, Lee, and Shu (2012) employ to examine analysts' information advantage over managers at the macroeconomic- and industry-level. To examine analysts' information advantage at the macroeconomic-level, HLS use the following three measures: *Cyclicality*, *Energy*, and *Spread*, defined as the association of Gross Domestic Product (GDP), energy prices, and interest rate spreads, respectively, with firm-level earnings (See HLS and the appendix for details)[4]. To examine analysts' information advantage at the industry-level, HLS use the following measure: *Synchronicity*, defined as the association of the industry's sales growth with the firm's sales growth. To alleviate concerns that any relation observed between our variables of interest and forecasting accuracy is due to any omitted

[2] HLS employ a binary version of this variable in their primary tests, and the continuous version we employ in their robustness tests (pg. 1238). We focus on the continuous variable to maximize the power of our tests, which relies on a robust fixed-effect structure. In untabulated results, we find that managers are more accurate than analysts only 47% percent of the time. This is comparable to the 50% reported by HLS.
[3] HLS employ the Fog index (Li 2008) of the annual report to control for business complexity. This measure captures the readability of the firm's 10-K filings. Including the Fog index results in a 20% decline in our sample size. Therefore, we do not include Fog index in our main regressions. However, we reach similar inferences when we include Fog index in our models.
[4] See also Tseng (2017).

variables related to industry membership, we include industry fixed-effects in our models. The industry indicator variables are defined at the six-digit NAICS level. This detailed industry definition results in 311 indicator variables. Finally, we include year fixed-effects to remove the effect of potential time trends in the data. Thus, our identification arises from how changes in operating uncertainty within an industry affect the relative accuracy of analysts' forecasts over management forecasts.

Our final sample includes 3,389 observations, which is similar to the sample size reported in HLS.[5] Table 2 reports descriptive statistics for all the variables used in the relative accuracy tests. The variable definitions are described in detail in the appendix. The descriptive statistics for our sample are very similar to that reported in HLS. For example, for our sample the management forecast horizon is 229 days and 11 percent are point estimates. The corresponding numbers for HLS are 225 days and 11 percent. Also, in our sample the mean analysts following is 4.9 and forecast dispersion is 0.040. The corresponding numbers in HLS are 4.7 and 0.034. Our descriptive statistics of *Cyclicality*, *Energy*, *Spread*, and *Synchronicity* are also very similar to that of HLS.

We also explore how our measures for industry-level operating uncertainty relate to the measures that HLS employ to examine analysts' information advantage over managers at the macroeconomic- and industry-level. Note that the HLS measures are fundamentally different from our measures, because their main argument related to when analysts are likely to have information advantage over mangers is different from ours. They argue that analysts are better at forecasting macroeconomic variables and industry growth. Therefore, they predict analysts to have an advantage over managers when forecasting earnings if the firm's earnings moves closely

[5] HLS's sample period is 7 years long, between 2001 and 2007, and they report a sample size of 3,775 firm-year observations. Our sample period is 8 years long, between 2003 and 2010. Unlike HLS, we require the NAICS code to be available in Compustat in order to match observations with the IBISWorld dataset.

with macroeconomic or industry factors, and does not have much idiosyncratic variation. As noted above, to examine analysts' information advantage at the macroeconomic level, HLS use *Cyclicality*, *Energy*, and *Spread*, and to examine analysts' information advantage at the industry-level, HLS use *Synchronicity*. Table 3 reports correlations of our three measures of industry-level operating uncertainty with the aforementioned four measures used by HLS. Our operating uncertainty measures exhibit a significant positive correlation with *Synchronicity*, but as expected the magnitudes of the correlations are not large, with magnitudes of less than or equal to 0.09. Our operating uncertainty measures exhibit a significant negative correlation with *Cyclicality*, *Energy*, and *Spread*, but once again the magnitudes of the correlations are not large, with magnitudes of less than or equal to 0.16. The above results suggest that our measures of industry-level operating uncertainty capture a somewhat different construct than that captured by the HLS measures. However, given that the correlations between HLS's and our measures are statistically significant, it is important to include the HLS measures as control variables in our analyses.

4.2 Results

We examine the relation between industry-level operating uncertainty and the relative accuracy of management and analyst earnings forecasts by estimating equation (1), and report the results in Table 4. The coefficient for sensitivity risk in column (1) is negative and statistically significant. This result suggests that management forecasts become less accurate, relative to analysts' forecasts, as sensitivity risk increases. We report similar results in column (2) when we include the measures that HLS employ to examine analysts' information advantage over managers at the macroeconomic and industry levels, namely, *Cyclicality*, *Energy*, and *Spread*, and *Synchronicity*.[6] The results in columns (1) and (2) are consistent with the idea that analysts' information advantage about the impact of industry-level forces increases with sensitivity risk. The results are also economically significant. An interquartile increase in sensitivity risk lowers relative accuracy by about 5%, which is economically meaningful given that the interquartile range of relative accuracy is 23%.

We repeat the analysis using Ind. return volatility as a proxy for industry-level operating uncertainty, and as expected find negative and statistically significant coefficients on this variable. The economic magnitude of the results is similar to that found using sensitivity risk. An interquartile increase in Ind. return volatility lowers relative accuracy by about 4%. We find similar results when we employ Ind. EVA volatility as our measure of industry-level operating uncertainty. The model in the last column of the table includes all three measures of industry-level operating uncertainty simultaneously. We find that the coefficients on all of the measures are negative and statistically significant, suggesting that all three measures have significant incremental power to explain relative earnings forecast accuracy of managers over analysts. Taken together, the results in Table 4 are consistent with our prediction that analysts have an information advantage over managers about the impact of industry forces on firm performance in industries with more uncertain operating environment due to industry-level shocks.

[6] We do not tabulate the coefficients for the HLS measures in our tables for brevity. The coefficients on these variables are not statistically significant, perhaps due to our use of a different research design, e.g., including a 6-digit industry fixed effects and a different sample period. When we replicate the results in HLS using their research design and sample period, we do find results suggesting that analysts' have an information advantage over managers at the macroeconomic level.

5. Disclosure Policy

5.1 Data and Methodology

To examine how industry-level operating uncertainty affects managers' disclosure policy, we obtain data from various sources, namely, the First Call Database, IBISWorld, Compustat, CRSP, and IBES. For this test, our unit of analysis is firm-year. Each firm year in Compustat is matched to the IBISWorld database based on the year of the observation. For firms with a fiscal year end between January and June, the year of the observation is defined as the year prior to the year of the report date. For firms with fiscal year ends between July and December, the year of the observation is defined as the year of the report date. We examine the relation between the manager's guidance activities in each year, between two report dates, and the industry-level operating uncertainty measures for the year of the observation as defined above. Our final sample includes 18,869 firm-years and the sample period is from 2003 to 2010.

We use the following empirical model for our tests:

$$\begin{aligned} MF\ char_{ijt} = {} & \alpha + \beta * operating\ uncertainty_{jt} + \gamma * firm-level\ controls_{it} + \lambda * HLS\ measures_{it} \\ & + \varphi * industry\ effects_{j} + \phi * year\ effects_{t} + \varepsilon_{ijt} \end{aligned} \quad (2)$$

MF char represents the management forecast characteristic being examined. The subscripts *i, j,* and *t* represent firm, industry, and year, respectively. We consider the following forecast characteristics. First, we examine whether the firm is a forecasting firm. A firm is defined as a forecasting firm in year *t* if it issues at least one forecast in three out of four quarters in the year (Rogers et al., 2009). The variable *Forecaster* equals 1 if the firm is a forecasting firm and zero otherwise. Second, we examine the number of management forecasts in a year. Third, we examine the average precision of the management forecasts issued in a year, *Precision*. Following Armstrong et al. (2012), the precision of a forecast equals 4 for point estimates, 3 for range estimates, 2 for open-ended estimates, 1 for qualitative estimates, and 0 for no forecasts. The variable *Precision* equals the average precision of the management forecasts issued over the year. Industry-level operating uncertainty and HLS measures are defined as in equation (1).

To alleviate concerns that any documented relation between industry-level operating uncertainty and management forecasting activity arises from a correlated omitted variable related to industry membership, we include industry fixed-effects in our analysis. The industry indicator variables are defined at the six-digit NAICS level. This detailed industry definition results in 457 industry indicator variables included in the regressions. Additionally, we include year effects to control for potential time trends. Thus, our identification arises from how changes in operating uncertainty within an industry relate to a firm's disclosure policy.

Our model also includes a large number of firm-level control variables that prior literature has shown to be associated with firms' disclosure policies (e.g., Lang and Lundholm, 1993, 1996; Skinner, 1994; Leuz and Verrecchia, 2000; Miller, 2002; Li, 2008). The number of analysts following the firm (analyst following) controls for the firm's information environment. Prior returns (returns) and return on assets control for differences in firm performance. Return volatility and earnings volatility proxy for firm-level uncertainty that may affect manager's disclosure activities. The number of business and geographic segments, in addition to the amount of special items reported in the annual report (special items) control for the complexity of the firm's business. We also control for the following additional variables that prior literature has found to be associated with a firm's disclosure policy: firm size (size), leverage, market-to-book, institutional ownership, age, and inclusion in the S&P index (S&P Index). All the variables are defined in detail in the appendix. Table 5 provides descriptive statistics for all the variables included in the analyses.

To identify the managers' forecasting activity, we rely on the presence of forecasts in the First Call database. Chuk et al. (2013) show that First Call fails to cover some management forecasts in the database, and that the misidentification is systematic. First, Chuk et al. (2013) point out that the coverage by First Call is more complete after 1998. We address this concern because our sample period is between 2003 and 2010. Second, Chuk et al. identify several determinants as driving the coverage in First Call (Table 4, page 32 in Chuk et al., 2013), namely, firm size (market cap), analyst following, institutional ownership, loss occurrence, and year fixed-effects. Most of these determinants are already included as control variables in our regressions. [7]

To test our cross-sectional predictions, P3, we employ the following model:

$$\begin{aligned} MF\ char_{ijt} = \alpha &+ \beta_1 * operating\ uncertainty_{jt} + \beta_2 * Firm\ Char_{i,t-1} * operating\ uncertainty_{jt} \\ &+ \beta_3 * Firm\ Char_{i,t-1} + \gamma * firm-level\ controls_{it} + \lambda * HLS\ measures_{it} \\ &+ \varphi * industry\ effects_j + \phi * year\ effects_t + \varepsilon_{ijt} \end{aligned} \quad (3)$$

In model (3), *Firm Char* represents either the number of analyst following the firm, or the percentage of institutional ownership in the firm. Specifically, *Firm Char* is an indictor variable which takes the value of 1 for observations above or equal to the median value in the sample, and zero otherwise. The *Firm Char* variables are measured at time t-1 because they proxy for pre-existing firm characteristics which affect the relation between industry-level operating uncertainty and managers' disclosure choices. The remaining variables are the same as those employed in model (2).

[7] The only variable Chuk et al. (2013) identify that is not already included in our model is the frequency of losses the firm reports over the prior eight quarters (N_loss). The results are very similar to those reported in the paper, when we repeat our analyses after including this variable in our regressions.

5.2 Results

We estimate the relation between industry-level operating uncertainty and the disclosure policy of the firm using model (2), and report the related results in Table 6, Panels A, B and C. The dependent variables for the regression models relating to Panel A, B, and C are *Forecaster*, *Number of forecasts*, and *Precision*, respectively.

In Panel A, in column 1, the coefficients on sensitivity risk is negative but not statistically significant, and in columns 2 and 3, the coefficients on Ind. EVA volatility as well as Ind. return volatility are negative and significant. In column 4, which considers all three measures of industry-level operating uncertainty simultaneously, the coefficients on all three variables are negative and significant. These results suggest that firms in industries with more uncertain operating environment are less likely to provide management forecasts on an ongoing basis, that is, in three out of four quarters in a year.

Panel B is very similar to Panel A, except that it reports results related to the numebr of management forecasts. The coefficients on all our measures of industry-level operating uncertainty are negative, as predicted, and significant in five out of six cases. These results suggest that firms operating in industries with higher levels of operating uncertainty issue forecasts less frequently. Panel C report results related to forecast precision. The coefficients on all our measures of industry-level operating uncertainty are negative, as predicted, and are significant in four out of six cases. These results suggest that firms operating in industries with higher operating uncertainty provide less precise forecasts. In terms of economic significance, an interquartile increase in sensitivity risk lowers both the number of forecasts issued and the precision of the forecasts, by approximately 4% of the sample averages. Taken together, the results in Table 6 support prediction P2, reinforcing our conclusion that analysts have a greater information advantage over managers in industries with higher levels of operating uncertainty.

To further explore the relation between operating uncertainty and managers' disclosure policy, we consider cross-sectional variation in the presence of information intermediaries who have superior knowledge about industry-level forces. Specifically, we estimate model (3), which includes interaction terms based on the level of analyst following and institutional ownership in the firm. The results of the analysis containing interactions with analyst following are reported in Table 7 and with institutional ownership in Table 8. In these tables, Panel A reports results for an indicator variable for forecasting firm, Panel B reports results for forecast frequency and Panel C reports results for forecast precision.

Column 1 of Panel A of Table 7 shows that the coefficient on the interaction between high (above-median) analyst following and sensitivity risk is significantly negative, suggesting that relation between industry-level operating uncertainty and disclosure is more negative for firms with higher analyst following. We also find that the effect of sensitivity risk on disclosure for firms with high analyst following is significantly more negative than the average effect for the full sample, reported in Table 6. The slope coefficient on sensitivity risk in the first column is 0.0109, and on the interaction term is -0.0296. Thus the effect of sensitivity risk for firms with high analyst following is therefore -0.0187, which is significantly more negative than the coefficient of -0.0049 on sensitive risk reported in Panel A of Table 6. In columns 2 and 3 we find similar results for our other two measures of industry-level operating uncertainty. In column 4 all three measures are included in the model simultaneously, and we observe that coefficients on the interactions of high analyst following with the three measures of industry-level operating uncertainty are all negative and significant.

The results in Panels B and C, where the dependent variables are Number of Forecasts and Precision, are consistent with those in Panel A. For example, the coefficients on the interactions of high analyst following with our three measures of industry-level operating uncertainty are all negative and statistically significant. Taken together, the results in Table 7 suggest that the negative relations between our three measures of disclosure and our three measures of industry-level operating uncertainty documented in Table 6 are driven mainly by firms with high analyst following, consistent with the notion that the sensitivity of analysts' information advantage over managers to industry-level operating uncertainty is greater among firms with high as opposed to low analyst following.

Table 7 further shows that the coefficients on sensitivity risk are positive and significant in column 1 of all three panels, suggesting that when analyst following is low, our measures of disclosure are positively associated with sensitivity risk. Also, the coefficient on Ind. EVA volatility are positive and significant in columns 3 and 4 of all three panels, suggesting that when analyst following is low, our measures of disclosure are positively associated with Ind. EVA volatility. We do not observe similar significant results for Ind. return volatility, however. Overall, these results provide some support to the notion that when analyst following is low, the supply of industry related information to the market is more limited, and thus managers' disclosure increases with operating uncertainty, because of increases in investors' demand for information.

We repeat the above analysis after replacing the variable high analyst following with high (above median) institutional ownership and obtain quite consistent results. For example, Table 8 shows that in columns 1, 2, and 3 of the three panels (for the three disclosure measures), the coefficients on the interactions of high institutional ownership with the three industry-level operating uncertainty measures are negative, and significant in all but one case. In column 4, where the models include the three measures simultaneously, the coefficients on the interactions of high institutional ownership with two of the industry-level operating uncertainty measures are negative and significant. Overall these results suggest that that the relation between operating uncertainty and disclosure is more negative among firms with higher levels of institutional ownership. This finding is consistent with the notion that institutional investors consider industry related information very valuable, especially for firms in industries with greater operating uncertainty, motivating analysts to generate such information. Thus, for firms with higher institutional ownership, there is likely to be a larger decrease in the information advantage of managers over investors with an increase in industry-level operating uncertainty.

In sum, the results in this section are consistent with our predictions that analysts' information advantage over managers about the impact of industry forces on firm performance increases with industry-level operating uncertainty. Such information advantage of analysts reduces managers' incentive to make public disclosure, and that this effect is more pronounced for firms with greater analyst following and greater institutional ownership.

6. Conclusions

This paper examines whether analysts, who are often viewed as industry experts, have an industry-level information advantage over managers. Prior work addresses this question but "fails" to find conclusive evidence. We argue that analysts are more likely to have an information advantage over managers for industries where analysts' expertise is more important. We further argue that such industries are characterized by more uncertain operating environments due to industry-level shocks. We label such industries as having higher industry-level operating uncertainty. To measure this characteristic, we use an IBISWorld's industry risk score called sensitivity risk, as well as the volatility of industry value added and industry stock returns.

Our results show that the relative accuracy of analysts' forecasts over that of management forecasts increases with industry-level operating uncertainty. Moreover, the frequency and precision of management forecasts decreases with industry-level operating uncertainty, and this effect is more pronounced for firms with high analysts following and institutional ownership levels. These results suggest that analysts' have an information advantage over managers with respect to industry-level knowledge, especially in industries characterized by more uncertain operating environment due to industry-level shocks.

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Appendix: Variable Definitions

Variable Name	***Description***
Relative Accuracy	• The difference between the analyst's absolute forecast error and the manager's absolute forecast error, scaled by the price and the end of the month prior to the issue date of the management forecast. • The analysts forecast error is computed using the mean (consensus) forecast, for all available forecasts issued in the 30 days prior to the manager's forecast. • The variable is computed for the first annual management forecasts issued after the announcement of prior years' earnings. • Management forecast activity is obtained from First Call's Company Issued Guidelines (CIG) database. • Analyst estimates and actuals are obtained from IBES • Price is obtained from CRSP
Forecaster	• An indicator variable that equals 1 if the firm issues at least one forecast in three out of four quarters in a given year, and zero otherwise (Rogers et al. 2008). • Management forecast activity is obtained from First Call's Company Issued Guidelines (CIG) database.
Number of Forecasts	• Natural log of (1+ the number of forecasts issued in a given year).
Precision	• The precision of a forecast equals 4 for point estimates, 3 for range estimates, 2 for open-ended estimates, 1 for qualitative estimates, and 0 for no forecasts (Armstrong et al. 2012). • The variable precision equals the average precision of the forecasts issued over the year.
Sensitivity Risk	• Sensitivity Risk, measures the sensitivity of firms in an industry to external economic factors such as changes in input costs and demographic trends. The risk score includes not-independently quantifiable sensitivities (e.g., changes in consumer tastes). • Industries are defined at the six-digit NACIS level and are assigned scores using a scale of 1 to 9, where higher scores indicate more sensitive industries (industries with more difficult and uncertain operating environments due to sensitivity risk). • Industry risk scores are obtained from IBISWorld.
Ind. return volatility	• Industry returns are measured as the value weighted monthly returns of all the firms in an industry. Industry portfolios are formed using the six-digit NAICS code. • Ind. return volatility equals the standard deviation of the monthly returns of the industry portfolios measured over the year (with a minimum of 10 months).

Ind. EVA volatility	• Industry wide value added (EVA) equals the Industry Value Added measure computed by IBISWorld. Industry value added, also called industry gross product, describes the market value of goods and services produced by an industry minus the cost of goods and services used by the industry in the productive process, which leaves the gross product of the industry (also called 'value added'). This measure is calculated as follows: revenue plus the increase (or less the decrease) in the value of stocks, minus purchases, transfers in and selected expenses. This measure is computed at the six digit NAICS level. • EVA is scaled by the number of employees in the industry, as reported by IBISWorld. • Industry EVA volatility equals the standard deviation of the scaled EVA value measured over 5 years (with a minimum of 3 years).
Cyclicality	• The cyclicity measure employed by Hutton, Lee and Shu, (2012). • Cyclicality equals the R^2 from a regression of firm-level earnings on the nominal GDP level. Each observation is obtained from a regression using quarterly data from the prior 12 quarters. • For earnings, we employ income before extraordinary items available on Compustat (Hutton, Lee and Shu, 2012). • Quarterly GDP data is available at https://www.bea.gov/national/index.htm#gdp
Energy	• The energy measure employed by Hutton, Lee and Shu (2012). • Energy equals the R^2 from a regression of firm-level earnings on energy costs. Each observation is obtained from a regression using quarterly data from the prior 12 quarters. • For earnings, we employ income before extraordinary items available on Compustat (Hutton, Lee and Shu, 2012). • Energy cost data is available at http://www.imf.org/external/np/res/commod/index.asp
Spread	• The spread measure employed by Hutton, Lee and Shu (2012). • Spread equals the R^2 from a regression of firm-level earnings on the interest rate spread. The interest rate spread is the difference between the 30-year mortgage rate and the T-bill rate. Each observation is obtained from a regression using quarterly data from the prior 12 quarters. • For earnings, we employ income before extraordinary items available on Compustat (Hutton, Lee and Shu, 2012). • Interest rate data are available at http://www.freddiemac.com/pmms/pmms30.htm, and http://www.federalreserve.gov/releases/h15/data.htm
Synchronicity	• The revenue synchronicity measure employed by Hutton, Lee and Shu (2012).

	• Synchronicity equals the R^2 from a regression of firm-level revenues on industry-wide revenues, for all the firms in the same industry. Each observation is obtained from a regression using quarterly data from the prior 12 quarters. • Revenue data is obtained from Compustat.
Loss	• An indicator variable equal to one if the manager forecasts negative earnings and zero otherwise. • Management forecasts are obtained from First Call.
Good News	• An indicator variable equal to one if the manager's forecast is larger than the analyst consensus forecast.
Point	• An indicator variable equal to one if the manager's forecast is a point forecast. The variable equals zero if the forecast is a range forecast.
Horizon	• The natural log of the horizon of the manager's forecast in days
Size	• Natural log of the market cap of the firm measured at the end of the fiscal year as reported by CRSP. • Size is measured either during the month of the annual report date, or the fiscal year end prior to the manager's forecast date.
Leverage	• Ratio of (debt in current liabilities + long term debt) / (total assets), as reported by Compustat. • Leverage is measured during the fiscal year end, or during the fiscal year end prior to the issue date of the manager's forecast.
Market-to-Book	• The market value of equity / the book value of equity. The market value of equity is measured at the end of the fiscal year (the month of the report date), as reported by CRSP. The book value of equity is obtained from Compustat. • The variable is measured during the fiscal year end, or during the fiscal year end before the issue date of the manager's forecast.
S&P Index	• An indicator variable equal to one if the firm is included in the S&P index in a given year, and zero otherwise. • The data are obtained from the Compustat index constituents file.
Analysts Following	• Natural log of (1 + the number of annual earnings estimates (for the next fiscal period) present in the IBES summary file. • The most recent record in IBES prior to the data date in Compustat, or the issue date of the manager's forecast, is employed. • If no data are present on IBES, the variable is set to zero.
High Analyst Follow	• An indicator variable equal to one for firm-years, or forecast announcements, where the number of analysts following the firm is above or equal to the median in the sample, and zero otherwise.

Forecast Dispersion	• The standard deviation of analyst forecasts scaled by the average forecast (for the next fiscal period), as reported in the IBES summary file. • The most recent record in IBES prior to the issue date of the manager's forecast is employed.
Institutional Ownership	• The (%) of outstanding shares held by institutions based on quarter-end 13F filings, as of the end of the fiscal year (the report date on Compustat). • The variable is constructed by WRDS in its s34 database. • In cases where the (%) reported exceeds 100%, we redefine the variable to equal 100%.
High Inst. Ownership	• An indicator variable equal to one for firm-years, or forecast announcements, where the (%) of outstanding shares held by institutions is above or equal to the median in the sample, and zero otherwise.
Returns	• Total returns as reported by CRSP in the monthly file. • Returns are measured for the entire fiscal year, or the 90 days prior to the management forecast announcement.
Return on assets	• Annual earnings before extraordinary items scaled by total assets. • Data are obtained from Compustat.
Return Volatility	• The standard deviation of monthly returns measured over the fiscal year, or the 90 days prior to the management forecast announcement. • Data are obtained from CRSP. At least 10 months of data are required to compute the variable.
Earnings Volatility	• The standard deviation of annual operating income after deprecation scaled by total assets, measured over five years, using a minimum of three years. • Data are obtained from Compustat.
Age	• The number of years since the firm's first observation in CRSP.
# of Business Seg.	• The natural log of the number of business segments the firm operates in, for a given year. • The data are obtained from the segment file in Compustat. Firms with missing records receive a value of one.
# of Geographic Seg.	• The natural log of the number of geographic segments the firm operates in, for a given year. • Data are obtained from the segment file in Compustat. Firms with missing records receive a value of one.
Special Items	• The amount of special items reported in the 10K, scaled by total assets. • Data are obtained from Compustat.

Table 1: Sensitivity Risk Validation Test

This table reports results for the validation test of the IBISWorld industry risk measure, Sensitivity Risk. Sensitivity Risk measures the sensitivity of firms in an industry to external economic factors such as changes in input costs and demographic trends. The measure is provided by IBISWorld. Ind. EVA volatility is the volatility of industry-wide value added scaled by the number of employees, as reported by IBISWorld. Ind. return volatility equals the volatility of monthly industry-level returns measured over a year. The analysis includes all available industry-level data. All the variables are defined in detail in the Appendix. All the specifications are estimated using OLS regressions. The coefficients for the intercepts are untabulated. *t-statistics*, based on robust standard errors clustered at industry-level, are presented below the coefficient estimates

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	Sensitivity Risk		
Ind. EVA volatility	2.000*		3.406**
	[1.78]		[2.33]
Ind. return volatility		3.643***	3.704***
		[7.16]	[7.30]
Observations	5,948	2,968	2,960
Adj. R-Squared	0.002	0.037	0.043

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 2: Summary Statistics; Relative Forecast Accuracy Analysis

This table reports summary statistics for all the variables employed in the relative forecast accuracy analysis (Table 4). All the variables are described in detail in the Appendix. The distributions of the raw variables are reported although log transformations are employed for some of the variables in the regressions. All firm-level variables are winsorized at the 1% level.

	Mean	P25	Median	P75	Std.
Relative Accuracy	-0.017	-0.127	-0.004	0.105	0.489
Sensitivity Risk	4.57	3.73	4.430	5.360	1.168
Ind. return volatility	0.077	0.047	0.066	0.094	0.044
Ind. EVA volatility	0.013	0.002	0.006	0.017	0.018
Cyclicality	0.257	0.037	0.154	0.414	0.267
Energy	0.203	0.026	0.118	0.313	0.223
Spread	0.207	0.030	0.124	0.317	0.219
Synchronicity	0.187	0.024	0.102	0.295	0.209
Size ($M)	5,825	567.6	1,449	4,644	12,549
Leverage	0.206	0.038	0.183	0.322	0.181
Market-to-Book	3.30	1.62	2.40	3.81	3.00
Analyst Following	4.9	2.0	3.0	6.0	4.9
Forecast Dispersion	0.040	0.014	0.024	0.045	0.061
# Business Segments	2.3	1.0	2.0	3.0	1.5
# Geographical Segments	1.6	1.0	1.0	1.0	1.4
Special Items	-0.009	-0.006	0.000	0.000	0.055
Loss	0.02	0.00	0.00	0.00	0.14
Good News	0.40	0.00	0.00	1.00	0.49
Point	0.11	0.00	0.00	0.00	0.32
Horizon	229.3	235.0	247.0	255.0	60.7

Table 3: Correlations for the Industry-Level Operating Uncertainty Measures, and the Hutton et al. (2012) Macroeconomic and Industry Synchronicity Measures

This table reports the correlations between the measures of industry-level operating uncertainty employed in the paper, and the macroeconomic and industry synchronicity measures employed by Hutton, Lee and Shu (2012). Person Correlations are reported above the diagonal and Spearman correlations are reported below the diagonal. All correlations highlighted in bold are significant at the 5% level.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)	Sensitivity Risk	1	**0.18**	**0.09**	**-0.16**	**-0.15**	**-0.05**	**0.09**
(2)	Ind. return volatility	**0.15**	1	**-0.09**	**-0.09**	**-0.12**	-0.01	**0.07**
(3)	Ind. EVA volatility	**0.06**	**-0.14**	1	**-0.04**	-0.01	**-0.03**	**0.06**
(4)	Cyclicality	**-0.15**	**-0.07**	0.01	1	**0.74**	**0.64**	-0.02
(5)	Energy	**-0.12**	**-0.10**	**0.04**	**0.65**	1	**0.57**	0.01
(6)	Spread	**-0.04**	0.02	-0.01	**0.54**	**0.45**	1	-0.01
(7)	Synchronicity	**0.08**	**0.06**	**0.07**	-0.01	0.01	0.00	1

Table 4: Relative Accuracy of Management versus Analysts Forecasts, and Industry-Level Operating Uncertainty

This table present results from the estimation of equation (1). The dependent variable, relative accuracy, is the relative forecast accuracy of management forecasts which equals the difference between the analyst's absolute forecast error and the manager's absolute forecast error, scaled by price. Larger values are associated with more accurate managements forecasts. The analysts forecast error is computed using the mean (consensus) forecast, for all available forecasts issued in the 30 days prior to the manager's forecast. The variable is computed for the first annual management forecasts issued after the announcement of prior years' earnings. Sensitivity Risk measures the sensitivity of firms in an industry to external economic factors such as changes in input costs and demographic trends. The measure is provided by IBISWorld. Ind. EVA volatility is the volatility of industry-wide value added scaled by the number of employees, as reported by IBISWorld. Ind. return volatility equals the volatility of monthly industry-level returns measured over a year. HLS measures refers to the measures employed in Hutton et al. (2012) which include cyclicality, energy, spread, and synchronicity. All the variables are defined in detail in the Appendix. All the specifications are estimated using OLS regressions and include year-effects and industry-effects. Industry-effects are defined at the six-digit NAICS level. The coefficients for the intercepts are untabulated. *t-statistics*, based on robust standard errors clustered at the firm level, are presented below the coefficient estimates.

	Relative Accuracy						
Sensitivity Risk	**-0.0313***** **[-2.60]**	**-0.0259**** **[-2.05]**					**-0.0269**** **[-2.16]**
Ind. return volatility			**-0.944**** **[-2.32]**	**-0.943**** **[-2.26]**			**-0.858**** **[-2.05]**
Ind. EVA volatility					**-2.880*** **[-1.94]**	**-2.151** **[-1.52]**	**-2.832*** **[-1.78]**
Size (ln)	-0.00258 [-0.28]	-0.00417 [-0.42]	-0.00345 [-0.37]	-0.00430 [-0.43]	-0.00220 [-0.24]	-0.00365 [-0.37]	-0.00408 [-0.40]
Leverage	0.191*** [2.69]	0.161** [2.14]	0.200*** [2.75]	0.171** [2.23]	0.186*** [2.61]	0.155** [2.05]	0.157** [2.05]
Market-to-Book	0.00467 [1.59]	0.00385 [1.30]	0.00410 [1.39]	0.00366 [1.21]	0.00484* [1.65]	0.00411 [1.39]	0.00383 [1.27]
Analyst Following (ln)	0.00375 [0.23]	0.0128 [0.77]	0.00652 [0.41]	0.0143 [0.85]	0.00376 [0.24]	0.0123 [0.74]	0.0129 [0.77]
Forecast Dispersion	-0.228 [-0.73]	-0.0553 [-0.17]	-0.190 [-0.61]	-0.00922 [-0.03]	-0.216 [-0.71]	-0.0357 [-0.11]	0.0255 [0.08]
Loss	0.157 [1.22]	0.172 [1.28]	0.161 [1.26]	0.178 [1.33]	0.157 [1.22]	0.173 [1.30]	0.186 [1.40]
Good News	0.00374 [0.20]	0.00466 [0.24]	-0.00126 [-0.07]	0.00140 [0.07]	0.00730 [0.39]	0.00850 [0.44]	0.00653 [0.33]
Point	-0.0321 [-0.98]	-0.0452 [-1.26]	-0.0239 [-0.73]	-0.0362 [-1.01]	-0.0369 [-1.12]	-0.0514 [-1.41]	-0.0392 [-1.08]
Horizon	-0.0368 [-1.51]	-0.0322 [-1.19]	-0.0392 [-1.58]	-0.0348 [-1.26]	-0.0388 [-1.59]	-0.0345 [-1.27]	-0.0354 [-1.27]
Special Items	-0.0268 [-0.13]	0.0430 [0.23]	-0.108 [-0.49]	-0.0324 [-0.16]	-0.0382 [-0.19]	0.0348 [0.18]	-0.0363 [-0.18]
# Business Seg. (ln)	-0.0153 [-0.77]	-0.0146 [-0.68]	-0.0128 [-0.64]	-0.0137 [-0.63]	-0.0131 [-0.67]	-0.0128 [-0.61]	-0.0111 [-0.52]
# Geographic Seg. (ln)	-0.00600 [-0.29]	-0.0175 [-0.86]	-0.00868 [-0.42]	-0.0179 [-0.88]	-0.00755 [-0.36]	-0.0192 [-0.93]	-0.0188 [-0.91]
Include HLS measures	No	Yes	No	Yes	No	Yes	Yes
Observations	3,389	3,104	3,274	2,996	3,360	3,075	2,967
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.061	0.061	0.065	0.065	0.061	0.061	0.068

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5: Summary Statistics; Management Forecast Characteristics Analysis

This table reports summary statistics for all the variables employed in our disclosure policy analyses (Table 6-8). All the variables are described in detail in the Appendix. The distributions of the raw variables are reported although log transformations are employed for some of the variables in the regressions. All firm-level variables are winsorized at the 1% level.

	Mean	P25	Median	P75	Std
Forecaster	0.251	0	0	1	0.434
Number of forecasts	1.86	0	0	3.0	3.32
Precision	1.05	0	0	3.0	1.47
Sensitivity Risk	4.70	3.74	4.53	5.53	1.30
Ind. return volatility	0.087	0.054	0.075	0.103	0.049
Ind. EVA volatility	0.042	0.0033	0.011	0.024	0.107
Cyclicality	0.227	0.033	0.138	0.352	0.239
Energy	0.200	0.029	0.120	0.309	0.214
Spread	0.189	0.028	0.115	0.288	0.202
Synchronicity	0.207	0.027	0.119	0.321	0.224
Size ($M)	3,045	115.7	493.0	1,979	7,726
Leverage	0.205	0.014	0.160	0.334	0.200
Market-to-Book	2.638	1.103	1.823	3.064	2.874
S&P Index	0.12	0	0	0	0.32
Analyst Following	5.8	1.0	4.0	9.0	6.4
Institutional Ownership	0.476	0.115	0.507	0.793	0.348
Returns	0.212	-0.184	0.109	0.432	0.668
Return on Assets	0.000	-0.008	0.034	0.074	0.196
Return Volatility	0.131	0.076	0.111	0.162	0.080
Earnings Volatility	0.073	0.019	0.034	0.073	0.227
Age	16.8	7.0	12.0	22.0	14.6
# Business Segments	2.2	1.0	2.0	3.0	1.5
# Geographical Segments	1.8	1.0	1.0	2.0	1.8
Special Items	-0.015	-0.008	0.000	0.000	0.068

Table 6: Management Forecast Characteristics and Industry-Level Operating Uncertainty

This table present results from the estimation of equation (2). The results for each forecasting characteristic examined are reported in a separate Panel. Sensitivity Risk measures the sensitivity of firms in an industry to external economic factors such as changes in input costs and demographic trends. The measure is provided by IBISWorld. Ind. EVA volatility is the volatility of industry-wide value added scaled by the number of employees, as reported by IBISWorld. Ind. return volatility equals the volatility of monthly industry-level returns measured over a year. HLS measures refers to the measures employed in Hutton et al. (2012) which include cyclicality, energy, spread, and synchronicity. All the variables are defined in detail in the Appendix. All the specifications are estimated using OLS regressions and include year-effects and industry-effects. Industry-effects are defined at the six-digit NAICS level. The coefficients for the intercepts are untabulated. *t-statistics*, based on robust standard errors clustered at the firm level, are presented below the coefficient estimates.

Panel A	Forecaster			
Sensitivity Risk	**-0.00490**			**-0.00579***
	[-1.62]			**[-1.86]**
Ind. return volatility		**-0.217***		**-0.168**
		[-2.87]		**[-2.22]**
Ind. EVA volatility			**-0.212***	**-0.237***
			[-3.92]	**[-4.25]**
Size (ln)	0.0298***	0.0311***	0.0297***	0.0307***
	[6.63]	[6.88]	[6.60]	[6.77]
Leverage	0.00485	0.00501	0.00204	0.00156
	[0.17]	[0.18]	[0.07]	[0.05]
Market-to-Book	0.00106	0.000735	0.00112	0.000842
	[0.61]	[0.42]	[0.65]	[0.48]
S&P Index	-0.0235	-0.0239	-0.0237	-0.0238
	[-1.00]	[-1.02]	[-0.99]	[-1.00]
Analyst Following (ln)	0.0990***	0.0972***	0.0995***	0.0979***
	[12.36]	[12.11]	[12.30]	[12.07]
Institutional Ownership	0.0779***	0.0772***	0.0786***	0.0785***
	[3.98]	[3.95]	[3.98]	[3.98]
Returns	-0.0154***	-0.0172***	-0.0155***	-0.0168***
	[-3.43]	[-3.79]	[-3.42]	[-3.67]
Return on Assets	0.113***	0.116***	0.108***	0.111***
	[5.65]	[5.70]	[5.45]	[5.51]
Return Volatility	-0.257***	-0.226***	-0.255***	-0.229***
	[-5.80]	[-4.78]	[-5.74]	[-4.83]
Earnings Volatility	-0.00878	-0.00928	-0.00677	-0.00695
	[-0.72]	[-0.76]	[-0.58]	[-0.59]
Age	-4.37e-06	-1.40e-05	-2.41e-05	-2.75e-05
	[-0.01]	[-0.03]	[-0.05]	[-0.05]
# of Business Seg. (ln)	-0.00919	-0.0110	-0.00760	-0.00945
	[-0.98]	[-1.18]	[-0.81]	[-1.01]
# of Geographic Seg. (ln)	-0.0237**	-0.0237**	-0.0232**	-0.0229**
	[-2.40]	[-2.39]	[-2.35]	[-2.30]
Special Items	-0.152***	-0.150***	-0.139***	-0.139***
	[-2.93]	[-2.85]	[-2.67]	[-2.64]
Include HLS measures	Yes	Yes	Yes	Yes
Observations	18,869	18,375	18,708	18,214
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.319	0.317	0.321	0.319

* significant at 10%; ** significant at 5%; *** significant at 1%

Panel B	Number of Forecasts			
Sensitivity Risk	**-0.0111***			**-0.0129****
	[-1.93]			**[-2.20]**
Ind. return volatility		**-0.283****		**-0.208**
		[-1.98]		**[-1.46]**
Ind. EVA volatility			**-0.243****	**-0.290*****
			[-2.25]	**[-2.65]**
Size (ln)	0.0699***	0.0721***	0.0697***	0.0712***
	[7.44]	[7.62]	[7.40]	[7.51]
Leverage	0.0558	0.0592	0.0527	0.0547
	[0.97]	[1.03]	[0.92]	[0.95]
Market-to-Book	0.00297	0.00256	0.00300	0.00268
	[0.82]	[0.70]	[0.83]	[0.74]
S&P Index	-0.0320	-0.0338	-0.0311	-0.0322
	[-0.66]	[-0.70]	[-0.63]	[-0.65]
Analyst Following (ln)	0.213***	0.210***	0.213***	0.210***
	[12.70]	[12.45]	[12.58]	[12.35]
Institutional Ownership	0.177***	0.175***	0.180***	0.180***
	[4.46]	[4.42]	[4.50]	[4.49]
Returns	-0.0363***	-0.0382***	-0.0360***	-0.0370***
	[-4.10]	[-4.23]	[-4.04]	[-4.07]
Return on Assets	0.258***	0.262***	0.247***	0.252***
	[6.30]	[6.29]	[6.10]	[6.10]
Return Volatility	-0.402***	-0.366***	-0.400***	-0.369***
	[-4.55]	[-3.85]	[-4.49]	[-3.87]
Earnings Volatility	0.00410	0.00380	0.00845	0.00881
	[0.19]	[0.18]	[0.42]	[0.43]
Age	-0.000367	-0.000345	-0.000397	-0.000357
	[-0.35]	[-0.33]	[-0.38]	[-0.34]
# of Business Seg. (ln)	-0.0237	-0.0269	-0.0197	-0.0229
	[-1.24]	[-1.41]	[-1.03]	[-1.19]
# of Geographic Seg. (ln)	-0.0505***	-0.0507***	-0.0490**	-0.0484**
	[-2.58]	[-2.59]	[-2.50]	[-2.46]
Special Items	-0.350***	-0.332***	-0.319***	-0.308***
	[-3.55]	[-3.33]	[-3.24]	[-3.09]
Include HLS measures	Yes	Yes	Yes	Yes
Observations	18,869	18,375	18,708	18,214
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.385	0.385	0.385	0.385

Panel C	Precision			
Sensitivity Risk	**-0.0165***			**-0.0198****
	[-1.67]			**[-1.97]**
Ind. return volatility		**-0.404**		**-0.294**
		[-1.63]		**[-1.19]**
Ind. EVA volatility			**-0.442****	**-0.513*****
			[-2.30]	**[-2.64]**
Size (ln)	0.106***	0.109***	0.106***	0.108***
	[6.76]	[6.91]	[6.71]	[6.79]
Leverage	0.129	0.131	0.127	0.128
	[1.36]	[1.37]	[1.34]	[1.33]
Market-to-Book	0.00179	0.00122	0.00140	0.000956
	[0.32]	[0.22]	[0.25]	[0.17]
S&P Index	-0.161**	-0.162**	-0.163**	-0.162**
	[-2.11]	[-2.13]	[-2.10]	[-2.10]
Analyst Following (ln)	0.381***	0.375***	0.381***	0.375***
	[14.21]	[13.94]	[14.06]	[13.80]
Institutional Ownership	0.312***	0.311***	0.321***	0.322***
	[4.84]	[4.81]	[4.93]	[4.93]
Returns	-0.0556***	-0.0596***	-0.0551***	-0.0578***
	[-3.45]	[-3.65]	[-3.40]	[-3.51]
Return on Assets	0.455***	0.467***	0.436***	0.450***
	[6.51]	[6.57]	[6.30]	[6.38]
Return Volatility	-0.547***	-0.493***	-0.549***	-0.504***
	[-3.50]	[-2.94]	[-3.49]	[-3.00]
Earnings Volatility	0.00351	0.00339	0.0118	0.0127
	[0.10]	[0.09]	[0.34]	[0.37]
Age	-0.00170	-0.00173	-0.00168	-0.00167
	[-1.01]	[-1.04]	[-0.99]	[-1.00]
# Business Seg. (ln)	-0.0432	-0.0473	-0.0359	-0.0399
	[-1.35]	[-1.48]	[-1.12]	[-1.24]
# Geographic Seg. (ln)	-0.0677**	-0.0673**	-0.0650*	-0.0634*
	[-2.00]	[-1.98]	[-1.92]	[-1.87]
Special Items	-0.698***	-0.682***	-0.644***	-0.639***
	[-4.07]	[-3.93]	[-3.76]	[-3.68]
Include HLS measures	Yes	Yes	Yes	Yes
Observations	18,869	18,375	18,708	18,214
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.385	0.385	0.385	0.385

Table 7: Management Forecast Characteristics, Industry-level Operating Uncertainty, and Analyst Following

This table present results from the estimation of equation (3) where the partitioning firm characteristic (Firm Char) is analyst following. High Analyst Follow is an indicator variable equal to one for firm-years where the number of analysts following the firm is above or equal to the median in the sample, and zero otherwise. The results for each forecasting characteristic examined are reported in a separate Panel. Sensitivity Risk measures the sensitivity of firms in an industry to external economic factors such as changes in input costs and demographic trends. The measure is provided by IBISWorld. Ind. EVA volatility is the volatility of industry-wide value added scaled by the number of employees, as reported by IBISWorld. Ind. return volatility equals the volatility of monthly industry-level returns measured over a year. HLS measures refers to the measures employed in Hutton et al. (2012) which include cyclicality, energy, spread, and synchronicity. All the variables are defined in detail in the Appendix. The model is estimated using OLS regressions and includes all the control variables employed in Table 6, as well as year-effects and industry-effects. Industry-effects are defined at the six-digit NAICS level. The coefficients for the intercepts are untabulated. *t-statistics*, based on robust standard errors clustered at the firm level, are presented below the coefficient estimates.

Panel A	Forecaster			
Sensitivity Risk	0.0109***			0.0013
	[3.01]			[0.34]
High Analyst Follow (x) Sensitivity Risk	-0.0296***			-0.0154***
	[-6.02]			[-2.99]
Ind. return volatility		0.0281		0.0626
		[0.32]		[0.70]
High Analyst Follow (x) Ind. return volatility		-0.4549***		-0.3907***
		[-3.66]		[-3.05]
Ind. EVA volatility			0.2748***	0.2237***
			[4.66]	[3.72]
High Analyst Follow (x) Ind. EVA volatility			-0.6990***	-0.6623***
			[-16.76]	[-15.64]
High Analyst Follow	0.2241***	0.1252***	0.1121***	0.2183***
	[8.30]	[7.29]	[9.03]	[7.88]
Include controls from Table 6	Yes	Yes	Yes	Yes
Include HLS measures	Yes	Yes	Yes	Yes
Observations	18,869	18,375	18,708	18,214
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.324	0.321	0.330	0.330

* significant at 10%; ** significant at 5%; *** significant at 1%

Panel B	Number of Forecasts			
Sensitivity Risk	0.0240***			0.0035
	[3.35]			[0.46]
High Analyst Follow (x) Sensitivity Risk	-0.0655***			-0.0352***
	[-6.55]			[-3.35]
Ind. Return volatility		0.1870		0.2336
		[1.07]		[1.32]
High Analyst Follow (x) Ind. return volatility		-0.8716***		-0.7374***
		[-3.52]		[-2.89]
Ind. EVA volatility			0.8148***	0.7069***
			[6.86]	[5.94]
High Analyst Follow (x) Ind. EVA volatility			-1.5209***	-1.4334***
			[-16.35]	[-15.15]
High Analyst Follow	0.4816***	0.2515***	0.2319***	0.4613***
	[9.00]	[7.49]	[9.62]	[8.47]
Include controls from Table 6	Yes	Yes	Yes	Yes
Include HLS measures	Yes	Yes	Yes	Yes
Observations	18,869	18,375	18,708	18,214
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.391	0.387	0.398	0.397

Panel C	Precision			
Sensitivity Risk	0.0396***			0.0058
	[3.20]			[0.45]
High Analyst Follow (x) Sensitivity Risk	-0.1048***			-0.0560***
	[-6.26]			[-3.21]
Ind. return volatility		0.0998		0.1755
		[0.33]		[0.57]
High Analyst Follow (x) Ind. return volatility		-0.9187**		-0.7222*
		[-2.22]		[-1.70]
Ind. EVA volatility			1.3362***	1.1601***
			[6.33]	[5.52]
High Analyst Follow (x) Ind. EVA volatility			-2.5561***	-2.4072***
			[-17.28]	[-16.06]
High Analyst Follow	0.7855***	0.3728***	0.3879***	0.7098***
	[8.55]	[6.38]	[9.02]	[7.59]
Include controls from Table 6	Yes	Yes	Yes	Yes
Include HLS measures	Yes	Yes	Yes	Yes
Observations	18,869	18,375	18,708	18,214
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.391	0.387	0.398	0.397

Table 8: Management Forecast Characteristics, Industry-level Operating Uncertainty, and Institutional Ownership

This table present results from the estimation of equation (3) where the partitioning firm characteristic (Firm Char) is institutional ownership. High Inst. Ownership is an indicator variable equal to one for firm-years where institutional ownership is above or equal to the median in the sample, and zero otherwise. The results for each forecasting characteristic examined are reported in a separate Panel. Sensitivity Risk measures the sensitivity of firms in an industry to external economic factors such as changes in input costs and demographic trends. The measure is provided by IBISWorld. Ind. EVA volatility is the volatility of industry-wide value added scaled by the number of employees, as reported by IBISWorld. Ind. return volatility equals the volatility of monthly industry-level returns measured over a year. HLS measures refers to the measures employed in Hutton et al. (2012) which include cyclicality, energy, spread, and synchronicity. All the variables are defined in detail in the Appendix. The model is estimated using OLS regressions and includes all the control variables employed in Table 6, as well as year-effects and industry-effects. Industry-effects are defined at the six-digit NAICS level. The coefficients for the intercepts are untabulated. *t-statistics*, based on robust standard errors clustered at the firm level, are presented below the coefficient estimates.

Panel A	Forecaster			
Sensitivity Risk	0.0116***			0.0062
	[3.15]			[1.64]
High Inst. Ownership (x) Sensitivity Risk	-0.0291***			-0.0219***
	[-5.89]			[-4.37]
Ind. return volatility		-0.0361		-0.0362
		[-0.39]		[-0.39]
High Inst. Ownership (x) Ind. return volatility		-0.3097**		-0.1917
		[-2.56]		[-1.57]
Ind. EVA volatility			0.2015***	0.1630***
			[3.37]	[2.70]
High Inst. Ownership (x) Ind. EVA volatility			-0.5902***	-0.5555***
			[-13.46]	[-12.94]
High Inst. Ownership	0.1813***	0.0705***	0.0479***	0.1647***
	[6.67]	[4.18]	[4.00]	[5.79]
Include controls from Table 6	Yes	Yes	Yes	Yes
Include HLS measures	Yes	Yes	Yes	Yes
Observations	18,869	18,375	18,708	18,214
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.322	0.319	0.327	0.326

Panel B	Number of Forecasts			
Sensitivity Risk	0.0240***			0.0128*
	[3.27]			[1.71]
High Inst. Ownership (x) Sensitivity Risk	-0.0617***			-0.0472***
	[-6.11]			[-4.60]
Ind. return volatility		-0.0064		-0.0368
		[-0.03]		[-0.20]
High Inst. Ownership (x) Ind. return volatility		-0.4737*		-0.2181
		[-1.94]		[-0.88]
Ind. EVA volatility			0.6633***	0.5869***
			[5.50]	[4.90]
High Inst. Ownership (x) Ind. EVA volatility			-1.2958***	-1.2183***
			[-13.28]	[-12.77]
High Inst. Ownership	0.3833***	0.1327***	0.1003***	0.3350***
	[6.98]	[3.92]	[4.18]	[5.89]
Include controls from Table 6	Yes	Yes	Yes	Yes
Include HLS measures	Yes	Yes	Yes	Yes
Observations	18,869	18,375	18,708	18,214
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.389	0.385	0.394	0.394

Panel C	Precision			
Sensitivity Risk	0.0406***			0.0224*
	[3.10]			[1.68]
High Inst. Ownership (x) Sensitivity Risk	-0.1000***			-0.0777***
	[-5.78]			[-4.42]
Ind. return volatility		-0.1550		-0.2206
		[-0.49]		[-0.69]
High Inst. Ownership (x) Ind. return volatility		-0.4235		-0.0007
		[-1.03]		[-0.00]
Ind. EVA volatility			1.0871***	0.9691***
			[5.09]	[4.57]
High Inst. Ownership (x) Ind. EVA volatility			-2.1820***	-2.0506***
			[-14.09]	[-13.54]
High Inst. Ownership	0.6479***	0.2131***	0.1881***	0.5453***
	[6.94]	[3.88]	[4.74]	[5.70]
Include controls from Table 6	Yes	Yes	Yes	Yes
Include HLS measures	Yes	Yes	Yes	Yes
Observations	18,869	18,375	18,708	18,214
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Adj. R-Squared	0.354	0.351	0.360	0.359