Management Forecasts in Crowded Sectors

Abstract

This paper documents a dual role for disclosure. In addition to the traditional role of alleviating information asymmetry, firms are motivated to disclose to attract investors' limited resources and order flow away from other firms (Fishman and Hagerty, 1989). In periods when firms returns comove more with their sector's returns and thus face more competition for investors, they issue more guidance, especially capex guidance. The effect of firm-sector comovement ("sector crowdedness") on guidance increases with fiercer competition for investors. Guidance increases liquidity and price efficiency (measured as investment sensitivity to price), but the impact of guidance decreases in sector crowdedness, consistent with the proposition that more disclosure in the crowded sectors is investor-seeking rather than precision increasing. Although the impact of guidance on investment-price sensitivity is lower in more crowded sectors, the effect is still positive, suggesting that firms can improve price efficiency by issuing guidance to attract informed investors to the firm.

1 Introduction

A substantial literature examines disclosure as a tool firms use to reduce information asymmetry.[1] One set of studies in this literature tests the hypothesis that disclosure will increase a firm's liquidity and reduce its cost of capital (e.g. Diamond, 1985; Diamond and Verrecchia, 1991). A second line of research supposes that if information asymmetry reduction motivates disclosure, then firms with the greatest information asymmetry problems, or with the greatest incentives to mitigate them, will disclose more. Empirical studies have documented a number of firm characteristics associated with disclosure, assuming disclosure is motivated by incentives to mitigate information asymmetry, including periods of raising capital (e.g., Lang and Lundholm, 2000), stock-based compensation plans (e.g., Nagar et al., 2003), institutional following and ownership (e.g., Bushee and Noe, 2000; Ali et al., 2014), corporate governance (Ajinkya et al., 2005), and many others. Together these studies are interpreted as evidence that disclosure is an effective tool firms use to reduce information asymmetry.

We examine a different motivation for voluntary disclosure choice – competing with other stocks for limited investor resources. As modelled by Fishman and Hagerty (1989), when investors have limited resources to study firm disclosures and extract valuable information, they must allocate their limited resources among stocks. Firms, which are motivated to attract informed investors to improve price and investment efficiency, can attract informed investors to study them by providing more precise disclosures than other firms. Fishman and Hagerty (FH) predict a prisoners dilemma-style equilibrium in which the level of disclosure is greater than the socially optimal disclosure level. Firms make more disclosures than they would in an unconstrained environment because they use disclosure not only to reduce information asymmetry but also as a tool to win investors' limited attentiveness.[2] The investor-seeking motive for disclosure, in addition to an information asymmetry reduction motive, generates novel predictions about when and which firms will disclose and the consequences of disclosure.

Before discussing our findings, we note that our proxy for disclosure is the issuance of management guidance. FH model disclosure as an informative signal in the traditional sense that the

[1] See Beyer et al. (2010) for a review of the literature.

[2] Attentiveness represents the investor's conscious choice to spend her limited resources to "attend" to or study a firm's disclosures.

disclosure increases the precision of a trader's estimate of firm value. As an example, they suggest that a firm could increase the precision of the signal by improving disclosures within the 10-K. Management guidance fits the description of a precision-increasing disclosure based on prior research.[3] In addition, empirical evidence shows a positive association between the frequency of management guidance and proxies for financial reporting quality (Ball and Shivakumar, 2008; Ball et al., 2012). Thus, we use guidance frequency as a proxy for the firm's overall strategy regarding disclosure precision.

Our first analysis relates to the question of when and which firms will disclose assuming that increased disclosure is a tool firms can use to compete for investors. We show that firms that have greater return comovement with their industry peers ("firm-sector comovement" or greater "sector crowdedness"), issue more frequent guidance.[4] A high degree of firm-sector comovement suggests that the firm's economic fundamentals are likely to experience common shocks with its industry peers which, from investors' perspectives, increases the substitutability among the stocks. Information precision becomes a relatively more important factor in an investor's choice about which firms to study and ultimately about security selection. This result is consistent with firms viewing disclosure as having a dual role – reducing information asymmetry and attracting investors who only study a limited set of firms within a sector.

The correlation between sector crowdedness and forecasting is most economically significant for capital expenditure forecasts, which we expect contain more firm-specific information that can improve precision. But, the correlation also holds for total guidance, earnings-related guidance, and sales guidance and for short and long horizon guidance. This result is not driven by firm-level factors that are potentially correlated with both firm-sector comovement and firm-level management forecast decisions. The set of control variables we include comes from a recent review article on the antecedents on forecasting (Hirst et al., 2008) and includes proxies for analyst and investor environment, information asymmetry, firm performance, litigation risk, and product market competition. Common shocks to investment at the industry-year level do not explain the higher likelihood of capex guidance for firms with greater firm-sector comovement.

[3] See Hirst et al. (2008) for a survey of the literature on consequences of management guidance.

[4] We refer to the explanatory power of a model of the comovement of a firm's returns with the returns of other firms in the sector as "firm-sector comovement." We use the term "return synchronicity" for the explanatory power of a market model, that regresses a firm's return on a *market* index (e.g., Morck et al. (2000)), and possibly other factors.

In cross-sectional analysis, we show that firms with the greatest incentives to differentiate themselves from the crowd provide more total guidance as sector crowdedness increases. We predict that the benefits of disclosure in terms of attracting investors are greater for smaller firms with lower analyst following and for firms that are not in the S&P 500. We also predict that disclosure benefits are greater for firms that have more volatile variation in institutional holdings, under the assumption that firms value institutional ownership. Based on all four firm-level proxies for incentives to compete, the sensitivity of disclosure to sector crowdedness is stronger for firms that face greater exposure to the limits on investors' resources. We also examine industry-level proxies for incentives to compete. The guidance decisions of firms are more sensitive to firm-sector comovement in sectors with high levels of comovement or proportions of firms that comove. This finding is consistent with our assumption of category investing, which predicts that category investing increases comovement (Barberis and Shleifer, 2003; Barberis et al., 2005). As investment in a particular category increases, regardless of what drives the sentiment, firms will disclose to capture a piece of the pie. Also, firms disclosures are less sensitive to comovement in industries followed by more dedicated investors and more sensitive to comovement in industries characterized by quasi-indexers. Both the firm-level and industry-level variation in the disclosure-comovement sensitivity is consistent with the prediction that competition for investors is a factor in disclosure choice.

We next examine predictions about disclosure consequences assuming that increased disclosure is a tool firms can use to compete for investors. We first confirm the well-documented association between management forecasts and liquidity and cost of capital (Leuz and Verrecchia, 2000; Lang and Maffett, 2011; Balakrishnan et al., 2014). Given our finding of an association between comovement and disclosure, we question whether part of the disclosure-liquidity relation could be driven by an association between firm-sector comovement and liquidity. Prior literature hypothesizes and finds a positive association between synchronicity and liquidity because the common information in price reduces adverse selection costs (Chan et al., 2013; Baruch et al., 2007). We find, however, that guidance and comovement have independent effects on our three proxies for liquidity. Adding fixed effects significantly reduces the coefficient estimates, particularly for the effect of management forecasts on liquidity. Hence, the effect of guidance on liquidity is mainly cross-sectional rather than time-varying, but sector crowdedness is an important driver of both time-varying within-firm and cross-sectional liquidity.

The key finding, however, is that the effect of guidance on liquidity and price efficiency, measured as the sensitivity of investment to price, decreases with the level of firm-sector comovement. This evidence is consistent with FH's proposition that, when firms compete for investors, disclosure is greater than is needed to increase information precision. The excess disclosure is an optimal strategic response necessary to attract traders' limited resources. Thus, the marginal effect of the disclosure on liquidity and price efficiency is smaller as firm-sector comovement increases.

The finding that sector crowdedness affects guidance decisions provides a new explanation for the well-documented association between disclosure and liquidity. Both information asymmetry reduction and competition for investors motivate disclosure. Competition is fiercer when assets are more substitutable, in which case the driving factor in the investor's asset selection decision within the sector is not firm fundamentals, but rather the relative precision of the information about the fundamentals. Thus, from the firm's point of view, disclosure serves a dual role. It provides information, which reduces information asymmetry, but it also provides incentives for more traders to study and invest in the firm's stock. Our analysis of liquidity confirms that the disclosures increase liquidity and price efficiency.

These findings have implications for the learning-from-price literature. Chen et al. (2006), for example, show that the sensitivity of corporate investment to stock price is higher for firms with lower firm return synchronicity with market and industry returns. They interpret this result as evidence of a learning channel, based on the assumption that lower return synchronicity implies more firm-specific information in price. Thus, Chen et al. (2006) conclude that firms with a weak information environment have worse price and investment efficiency. Our findings suggest that higher return synchronicity could mean that the firm's fundamentals are more correlated with the sector, reducing adverse selection as in Chan et al. (2013), not that the firm has a weaker information environment. Moreover, the firm-sector comovement motivates disclosure. Taken together, the analysis shows that firms can change the investment-price efficiency calculus by issuing guidance and increasing disclosure precision.

The paper proceeds as follows. Section 2 sketches out the FH model and discusses the literature on return comovement and category investing, which are the building blocks of our proposition. Section 3 discusses our sample and the model and variable specifications. Sections 4 and 5, respectively, report our analysis of disclosure and sector crowdedness and the capital market consequences

of disclosure in crowded sectors. Section 6 concludes.

2 Limited Investor Resources and Disclosure

2.1 The Fishman-Hagerty model

Our empirical predictions about sector crowdedness and disclosure follow the logic of the Fishman and Hagerty (1989) model, which predicts that competition for limited investor resources motivates firm-level disclosure. FH model a single market in which firms make an unobservable investment in a risky asset and provide a signal of the project's value. Firms have an incentive to increase price efficiency and hence investment efficiency, which they can accomplish by disclosing a more precise signal. The firm chooses the disclosure's precision; greater precision is more costly.

Individual traders can study firms' disclosures and then trade. Each trader can observe the signal of one firm costlessly; observing more than one signal is prohibitively costly. The assumption that observing signals is costly means that traders must incur costs to extract informative signals from publicly available documents. For example, all traders may be able to *see* a 10-K document, but it is costly to *observe* the informative signal within the 10-K. The assumption that traders study only one firm is made for mathematical convenience, but the general idea that investors follow a subset of firms in the market is plausible (Merton, 1987; Barberis and Shleifer, 2003). After traders observe the signal, trading occurs in a securities market as in Kyle (1985).

FH predict that firms will compete to induce investors to study their disclosures by producing more precise signals. A more precise disclosure about the project value has two effects: (1) precision directly increases the precision of the order flow and (2) precision attracts more informed traders to study the firm. These two effects together lead to a more efficient price for the disclosing firm. A firm's precise disclosure creates a negative externality – a less efficient price for firms that provide less precise disclosures. The result is a prisoners dilemma-style equilibrium in which the level of disclosure is higher than in settings in which investor resources are less constrained. FH conclude that firms that are exposed to this type of competition for limited investor resources expend more resources on disclosure than is socially optimal.

2.2 Translating the FH model

The FH model assumes that investors make their resource allocation decision across firms in a single market. The informed traders then trade only the shares of the firm they have studied; trading other firms is unprofitable. A more realistic version of the stylized FH model assumes that traders first make a portfolio allocation decision across investment categories and subsequently they (or their delegated asset managers) select specific securities within the category to study and trade. This practice – commonly called category investing – can arise optimally with costly information processing or when investors are subject to information acquisition constraints (Van Nieuwerburgh and Veldkamp, 2010).[5] Peng and Xiong (2006) also offer theoretical support for category investing, by showing that costly information acquisition and limited investor resources lead to category-learning behavior.

We focus on sectors as an investment category. Peng and Xiong (2006) suggest industry as a category that investors could want to learn about. Firms in the same industry are more likely to be subject to common shocks because they use similar inputs and produce similar outputs. Evidence suggests that analysts tend to concentrate on certain industries (O'Brien, 1990; Dunn and Nathan, 2005). Analyst concentration consolidates the learning of common information (Veldkamp, 2006), but leaves open the need for firm-level disclosures to analysts who can study and understand them. Empirically, we observe category investing by industry. As of December 31, 2016, there were 356 sector funds with total net asset value of 360 billion dollars.

Assuming investors engage in sector investing, firms will consider their industry peers to be the set of firms they compete against for investors' limited resources through increased disclosure.[6] The more substitutable the assets in a sector, the more important disclosure precision will be to the investor's security selection within the category. Without substitutability, fundamentals are a clear driver of asset selection. With substitutability, investors will choose between otherwise "identical" stocks based on information precision. This proposal implies a time-varying measure of similarity with other firms in the sector to capture the notion of fiercer competition. As the substitutability

[5] Van Nieuwerburgh and Veldkamp (2010) predict that this sort of information gathering will lead to under-diversified portfolios.

[6] Minton and Schrand (2016) predict that firms appeal to investors by remaining exposed to a common factor that is an attractive investment index, such as gold or oil prices. Remaining exposed to a factor by *not* hedging it is a costly real activity. A credible disclosure policy is an alternative.

increases, the firm will engage in strategies to increase disclosure precision and attract investors.

2.3 Empirical predictions

The first testable prediction is that firms that face more crowded sector conditions – with highly substitutable assets – will disclose more. To capture within-sector asset substitutability, we use a time-varying firm-level measure of the comovement of a stock's returns with the average returns of stocks in the firm's sector ("firm-sector comovement"). Higher firm-sector comovement indicates greater correlation among the underlying economic fundamentals, which increases the substitutability of the stocks. Including year-quarter and firm fixed effects and other documented determinants of disclosure in the model mitigates concerns about omitted variables that are correlated with both disclosure and firm-sector comovement. Our model explains the within-firm response of disclosure to time-varying comovement.

Our comovement measure is distinct from typical return synchronicity measures used in prior literature. Typically, even studies that examine industry comovement measure the R^2 of a two-factor market model that includes industry returns. Our R^2 is based on a model that does not include the market index. This measure is consistent with our assumption that investors engage in sector investing, thus the correlation of returns with the market is unrelated to the choice of assets within the sector. This measure is a proxy for correlated fundamentals within the sector.

Although we use firm-sector comovement as a proxy for correlated fundamentals, it is correlated with return synchronicity and we recognize the possibility that higher return comovement could be correlated with the amount of firm-specific information in price. There are two schools of thought on a possible correlation between return synchronicity and the extent of private information in price. The first is that return comovement represents a weaker information environment and less firm-specific information in price. This idea is common in the literature,[7] particularly related to cross-country or industry synchronicity, with studies primarily citing empirical evidence in Morck et al. (2000). For clarification, Morck et al. (2000) examines variation in country-level measures of synchronicity. They show that cross-country variation in synchronicity is not explained by their country-level measure of synchronous fundamentals – a country-level index for comovement of ROA – but it is associated with country-level measures of a weak information environment. Since the

[7] See the discussion in Li et al. (2014).

publication of Morck et al. (2000), studies have assumed that return synchronicity is negatively correlated the amount of firm-specific information in price, not just in cross-country studies, but also in studies within the U.S that compute firm-level measures of synchronicity with the market or an industry factor. In the context of disclosure, Haggard et al. (2008) document a negative concurrent association between return synchronicity and disclosure rankings, concluding that better disclosure increases the amount of firm-specific information in price. Hutton et al. (2009) find that firms with more opaque financial statements, measured by greater abnormal accruals, have higher R^2s in a two factor market model with an industry factor. The effect ends after the Sarbanes-Oxley Act (SOX) in 2002. They attribute the cessation of guidance to greater monitoring such that the abnormal accruals measure no longer captures opacity. Recently, the generalizability of the Morck et al. (2000) findings have been questioned for cross-country synchronicity (Alves et al., 2010) and synchronicity in general (Li et al., 2014)). Alves et al. (2010) suggests that the results are specific to 1995, the only year of analysis in Morck et al. (2000). Subsequent literature largely ignores the idea that correlated fundamentals would also generate return synchronicity, although prominent as an alternative in Morck et al. (2000).

Overall, while there is theoretical support for the idea that synchronicity implies a weak information environment, studies subsequent to Morck et al. (2000) suggest that our firm-sector measure of comovement is unlikely to reflect a weaker information environment. In addition, we provide descriptive and anecdotal evidence consistent with our interpretation of firm-sector comovement as a measure of correlated fundamentals. The types of industries with higher comovement on average have a common commodity factor such as gold or oil (see Figure 1). In addition, we find that firms in more crowded sectors have higher liquidity, analyst following, and institutional ownership, all characteristics of a stronger, not weaker, information environment. Finally, our results hold despite controls for a weak information environment in all of the models.

A second school of thought suggests that comovement represents greater transparency and *more* private information in price, opposite to the first school. One theory is that comovement implies that price contains more public and easily observable information for the market maker (Baruch et al., 2007). The commonality reduces adverse selection costs and results in higher volume and liquidity.[8]

[8] Dasgupta et al. (2010) suggest another possibility. For more transparent firms, price better reflects information about the future. More informative current prices imply fewer surprises in subsequent periods, which implies greater return synchronicity as measured by R^2.

Empirical evidence is consistent with the idea that synchronicity implies more common information in price. If higher comovement implies *more* information in price, then using comovement as a proxy for substitutability biases the tests against our hypothesis as firms in more crowded sectors would not need to disclose; they could free ride on the information in peer firm disclosures as in Baginski and Hinson (2016).[9] Nonetheless, in robustness tests, we include lagged peer disclosures and firm fixed effects in the model to proxy for external information. All results, including the cross-sectional results, are robust to this specification.

Our proxies for disclosure are various measures related to the existence and frequency of management guidance. The premise behind these proxies is that information precision is higher when a management forecast is provided, and when more forecasts are provided, than when no forecast is provided. These measures are basic, but there is substantial evidence that forecasts on average can provide information (Hirst et al., 2008). In addition, Ball and Shivakumar (2008) and Ball et al. (2012) provide evidence that guidance frequency is correlated with earnings quality metrics and audit fees. Thus, guidance is one of a number of correlated choices that reflect greater precision in financial reporting overall.

Throughout the analysis, we examine capital expenditure forecasts separately from sales or earnings forecasts. We expect capital expenditure forecasts to contain relatively more firm-specific information that can differentiate the firm from its peers than earnings forecasts on average. Earnings reflects both firm-specific news and common macroeconomic or industry trends, and the latter is easily accessible from public information. For example, an earnings announcement by a gold firm aggregates information about gold prices with information about the firm's business model as it relates to gold production or distribution. The gold price component is public knowledge and does not require costly study by investors. Hence, sales and earnings forecasts are expected to provide the sort of precision investors can profit from only if the growth in sales or earnings is abnormal relative to an overall trend for the firm or sector. Capital expenditure forecasts, by contrast, are more likely to contain information that increases precision and attracts investors to study the firm. Prior research suggests that disclosures of future capital expenditures are a relevant signal of firm value and managerial reputation (e.g., McConnell and Muscarella, 1985; Hirshleifer, 1993; Chung

[9] Baginski and Hinson (2016) show that when a firm stops issuing guidance, firms in the same industry that were "free riding" on the common information increase forecasting activity, which affects their cost of capital.

et al., 2001; Brailsford and Yeoh, 2004).

We provide evidence on sector crowdedness, measured by firm-sector comovement, as an antecedent of disclosure choice, measured by guidance issuance, in three steps. Our first analysis establishes the positive temporal correlation between sector crowdedness and subsequent quarter management guidance decisions, in general, and for capex guidance in particular. Second, we consider alternative explanations for the positive association between sector crowdedness and disclosure and attempt to rule them out through robustness and falsification tests. Finally, we show predictable covariation in the disclosure-crowdedness relation. We predict that the influence of sector crowdedness on disclosure will be strongest for smaller firms with lower analyst following, who are less studied. At the firm level, we also predict that disclosures of firms with more variable institutional ownership and those that are not in the S&P 500 will be more sensitive to sector crowdedness. At the industry level, we predict that the guidance of firms in sectors with higher comovement on average and with a greater proportion of competing firms will be more sensitive to crowdedness, following the predictions of Barberis et al. (2005). Their analysis shows that correlated fund flows into a style, which could be a sector, lead to greater comovement in asset prices within the style. This result implies that the overall industry-level of comovement will increase the competition for investors. Our model includes firm-sector comovement as a main effect and also conditions on industry-wide comovement, which represents a bigger pie that firms are competing for with the other stocks in the same sector. Finally, we predict that the effect will be stronger for firms that rely on quasi-indexers that choose to trade a subset of available securities from the sector they are tracking.

We next examine disclosure consequences. Although the proposition that firms are motivated to disclose to compete for limited investor resources predicts excessive disclosure – more than is socially optimal – the guidance nonetheless increases liquidity and price efficiency. As recognized in the FH model, disclosure serves the dual role of increasing liquidity and price efficiency by attracting more informed investors *and* by reducing information asymmetry. Increasing liquidity and price efficiency are also predicted if information asymmetry alone motivates disclosure. The motives of information asymmetry reduction and investor-seeking are not mutually exclusive.

To distinguish whether investor-seeking is an incremental factor in disclosure choice beyond the objective to reduce information asymmetry, we estimate the marginal effect of disclosure on liquidity and price efficiency as sector crowdedness increases. FH propose that firms facing limited investor

resources disclose more than they would disclose in an unconstrained environment. Since some of the disclosure in a crowded sector is excessive, disclosure improves liquidity and price efficiency *less* in more crowded sectors. In less crowded sectors, firms have incentives to disclose only to reduce information asymmetry. This proposition implies that the marginal unit of disclosure will impact liquidity and price efficiency less when disclosure is motivated by investor-seeking, that is when firm-sector comovement is higher. Our analysis models liquidity and price efficiency as a function of guidance, consistent with the existing literature, and also includes an interaction term between guidance and firm-sector comovement.

3 Model and Variable Specifications

To test the association between sector crowdedness and firm-level guidance decisions, we estimate OLS models of the existence and frequency of management forecasts by firm i in quarter q on firm-sector comovement of firm i in quarter $q-1$ ($Comove_{iq-1}$) as follows:

$$Y_{iq} = \alpha_0 + \alpha_1 Comove_{iq-1} + \Gamma_c' Controls_{iq-1} + \epsilon_{iq}, \tag{1}$$

where the dependent variable is one of several firm-quarter forecast measures described below. We lag firm-sector comovement by one quarter to control for the possibility that forecast issuance can reversely cause changes in comovement. Γ_c is a vector of coefficient estimates on the control variables. Standard errors are clustered at the firm level.

As a benchmark, we estimate the model without fixed effects. Throughout the paper, the primary specification includes control variables (raw and industry-adjusted as described below), firm fixed effects, and fixed time (year-quarter) effects to control for time trends in comovement and disclosure.

3.1 Management forecasts

Our dependent variables are the existence and frequency of different types of management forecasts. We obtain management forecasts issued between January 2003 and December 2016 from

I/B/E/S Guidance.[10] We choose 2003 as the start year because I/B/E/S started collecting guidance data in 2003.

We assign management forecasts from I/B/E/S Guidance into each quarter by comparing the forecast announcement dates with firms' fiscal quarter end dates from the Compustat Quarterly File. Following Anilowski et al. (2007), we exclude forecasts issued just after the firm's corresponding fiscal quarter end date because these forecasts are likely to be pre-announcements of quarterly results instead of informative guidance. The dataset includes forecasts of all types (e.g., mainly earnings, sales, capital expenditures), horizons (forecasts for the forthcoming and future quarters), and frequency (annual and quarterly).

We construct the following forecast variables. The existence of management forecasts (*Guide*) equals one if management issues at least one forecast between the previous quarter end date and the current quarter end date. The number of management forecasts (*Num Guide*) is the natural logarithm of one plus the total number of forecasts issued between the previous quarter end date and the current quarter end date. *Capex Fcst* is the existence of at least one capital expenditure forecast, and *Num Capex Fcst* is the natural logarithm of the number of capital expenditure forecasts. Capital expenditure forecasts are conceptually closer to the notion of a signal in Fishman and Hagerty (1989) that, if studied in the context of the firm's full set of available information, can increase the precision of an investor's estimate of firm value. We also compute the natural logarithm of one plus the total number of unique types of forecasts (*Num Fcst Types*). In addition, we present the main results separately for forecasts with a horizon longer than a year (*Long Horizon*), forecasts for the next quarter (*Short Horizon*), and sales forecasts (*Sales Fcst*).

3.2 Firm-sector return comovement

We operationalize the concept of sector crowdedness with a firm-quarter measure of a stock's return comovement with other firm's returns in the same industry. This measure captures asset substitutability by measuring the degree to which the stocks in a sector have similar responses to

[10] Chuk et al. (2013) question the validity of classifying firm disclosure decisions using CIG (Company Issued Guidance) data and find that CIG does not correctly record the frequency of guidance. The data from I/B/E/S Guidance is an upgrade from CIG. The likelihood of guidance using I/B/E/S Guidance is similar to the hand-collected sample of Chuk et al. (2013).

common shocks. We estimate the model using daily stock returns for firm i in quarter q as follows:

$$Ret_{iqt} = \alpha_{iq} + \beta_{iq,-1} IndRet_{jqt-1} + \beta_{iq,0} IndRet_{jqt} + \beta_{iq1} IndRet_{jqt+1} + \epsilon_{iqt},$$

where Ret_{iqt} is the daily stock return of firm i on day t of quarter q and $IndRet_{jqt}$ is the value-weighted stock return of industry j on day t of quarter q, excluding firm i's own stock return. Leads and lags of $IndRet$ are included to control for potential infrequent trading bias. The regression requires a minimum of 50 daily stock return observations for a firm quarter. Firm-sector comovement is:

$$Comove_{iq} = \log(1 + \frac{{R_{iq}}^2}{1 - {R_{iq}}^2}),$$

where ${R_{iq}}^2$ is the adjusted R squared of each regression. A higher comovement value means that a firm's stock return is more correlated with the industry returns. $Comove_{iq}$ is set to zero whenever the adjusted R squared is negative, which is equivalent to negligible predictive value of the regression.

3.3 Control variables

Our regression models include control variables for factors that prior research has determined are associated with disclosure choice. We draw the most comprehensive list based on a recent review of the guidance literature (Hirst et al., 2008), and we follow their framework to classify the determinants of management forecast decisions into forecast environment variables and forecaster characteristics. We construct these variables using data from the Compustat Quarterly File, CRSP, and I/B/E/S Detail History.

3.3.1 Forecast environments

In Hirst et al. (2008) the forecast environment includes the regulatory environment as well as the firm's analyst and investor environment. Because our sample starts after Regulation FD and SOX, the regulatory environment stays relatively stable. Nevertheless, we include calendar year-quarter fixed effects to control for common trends (Lang et al., 2012).

The model includes controls for analyst following and institutional ownership. Prior studies find a positive association between analyst following and institutional ownership and the existence

and frequency of management forecasts (e.g. Healy et al., 1999; Bushee and Noe, 2000; Ajinkya et al., 2005). Following Ajinkya et al. (2005), we measure analyst following (*Analyst following*) as the number of analysts that make a forecast for firm i during quarter $q-1$, and institutional ownership (*Inst holdings*) as the percentage of institutional ownership of firm i during quarter $q-1$. Controlling for these variables reduces an omitted correlated variable bias given that prior literature also finds an association between return synchronicity and institutional ownership and analyst following (Piotroski and Roulstone, 2004; Chan and Hameed, 2006; An and Zhang, 2013; Hameed et al., 2015; Israelsen, 2016).[11]

3.3.2 Forecaster characteristics

Forecaster characteristics include information asymmetry, pre-commitment to forecasts, litigation risk, managerial incentives, prior forecasting behavior, and proprietary costs including product market competition (Hirst et al., 2008).

Information asymmetry. Information asymmetry reduction is the commonly explored motive for voluntary disclosure, with the predicted consequence being higher liquidity (e.g., Diamond (1985), Diamond and Verrecchia (1991)). Empirical evidence finds that higher information asymmetry is positively associated with the likelihood of guidance (Coller and Yohn, 1997; Balakrishnan et al., 2014; Billings et al., 2015).[12] The information asymmetry motive is not one that we attempt to rule out, but rather one that co-exists with the investor-seeking motive for issuing guidance. We control for information asymmetry in the model so that we can measure the incremental explanatory effect of sector crowdedness on guidance. We use return volatility (*Return volatility*) of the previous quarter to capture a firm's information environment (Nagar et al., 2003; Chen et al., 2011a). We also control for the market to book ratio ($Market-to-book$) and leverage (*Leverage*) at $q-1$ to account for information asymmetry that arises from firms' growth opportunities (Bamber and Cheon, 1995; Ajinkya et al., 2005).

Pre-commitment to forecasts. One factor that leads to more frequent/regular forecasts is firm performance. Miller (2002), Chen et al. (2011a), and Houston et al. (2010) document a positive

[11] Veldkamp (2006) predicts that the existence of information markets in which investors pay for analysis will lead to higher return synchronicity when the cost of information is fixed. Investors purchase information with valuation implications for multiple firms.

[12] Waymire (1985), for an earlier time period, found a lower likelihood of management forecasts as information asymmetry increases, which he attributes to the difficulty of forecasting.

relation between the likelihood of disclosure and performance. We measure firm performance using return on assets (ROA) of firm i in quarter $q-1$ and we include an indicator variable if quarter $q-1$ is a loss quarter ($Loss$). We also control for earnings surprise ($EarningsSurprise$), consistent with prior research showing that firms' discretionary disclosure decisions are associated with the size of an earnings surprise (Kasznik and Lev, 1995).

Litigation risk. A large literature documents a positive relation between management forecast decisions and litigation risk (e.g., Skinner, 1994; Field et al., 2005). Hirst et al. (2008) identify four factors that affect litigation risk: "(1) firm size, (2) variability of returns, (3) impending negative news that leads to a large drop in stock price, and (4) industry membership." We control for firm size ($Size$) using one plus the natural logarithm of the total assets of quarter $q-1$ (Feng and Koch, 2010). Variability of returns and news are controlled for by return volatility and firm performance, respectively. Industry membership is implicitly controlled for by including firm fixed effects. We do not additionally control for impending negative news; we expect our other control variables such as ROA and earnings surprise and the fixed effects are adequate.

Product market competition. Studies find mixed evidence on measures of product market competition and guidance. Rogers and Stocken (2005) find that firms in more concentrated industries (a proxy for proprietary costs) issue more pessimistic forecasts to deter entry. Wang (2007) finds that R&D expenditure scaled by total assets is negatively related to the likelihood of management forecast decisions. Ajinkya et al. (2005), however, find no relation between a firm's forecast decisions and proprietary costs, proxied by the market-to-book ratio. Li (2010) argues that the effect of competition on disclosure depends on the nature of the competition. She finds that existing rivals decrease guidance but potential entrants increase it. The model includes the market-to-book ratio, a proxy for a firm's growth opportunities, to capture the time-varying element of proprietary costs. In untabulated analysis, we find that our results are robust to the inclusion of an industry Herfindahl index as an alternative measure of proprietary costs that arise from product market competition.

Managerial incentives. Studies document that equity based compensation affects the likelihood of forecasting because it increases managers' incentives to boost short-term stock price (e.g. Nagar et al., 2003). Despite the potential relevance to disclosure, there is no evidence that compensation is related to return synchronicity or intra-industry comovement, which would necessitate

including control variables for incentives as control variables. Moreover, managerial incentives are driven by firm news and the information environment, which are captured by our existing control variables, such as firm performance (*ROA* and *Loss*), firm size, return volatility, and the fixed effects (Nagar et al., 2003; Aboody et al., 2005). We therefore do not control for managers' equity based compensation directly.

Prior forecast behavior. Hirst et al. (2008) define prior forecast behavior as historical forecast accuracy and tendency to meet or beat analyst forecasts. We do not control for historical forecast accuracy because computing historical forecast accuracy requires firms to have issued forecasts in the past, which will impose a selection bias. We believe our overall controls for the information environment and the fixed effects are adequate.

3.4 Descriptive statistics

Our sample consists of 183,884 firm-quarter observations from 2003 to 2016 with non-missing variables. The sample excludes firms in the utility and financial services industries. We obtain management forecast data from I/B/E/S Guidance. Financial variables are from Compustat and CRSP.

Table 1 summarizes the distribution of the variables used in our empirical analysis. As reported in Panel A, average firm-sector comovement is 0.28 with a standard deviation 0.33, which suggests sufficient variation for the empirical analysis. Approximately 49% of firm-quarter observations in our sample issue some form of management forecast. Earnings forecasts are the most common type (34%), followed by sales forecasts (31%) and capital expenditure forecasts (20%). Short horizon forecasts (i.e., for the next quarter) are more common than forecasts with a horizon longer than a year (33% vs. 2.7%).

[Insert Table 1]

Table 1 Panels B through E report summary statistics for other variables used throughout the analysis. Raw control variables (Panel B) are adjusted by their industry and year averages (Panel C). Industry-adjusting occurs before we exclude observations with missing data from the sample, thus the sample averages of the industry-by-year adjusted variables can differ from zero. All control variables are winsorized at 1% and 99%.

Table 2 presents averages for the guidance, liquidity, and control variables by comovement decile.[13] The likelihood of providing a management forecast increases monotonically as the comovement of the firm's return with its industry peers increases. This univariate pattern is consistent with our proposition that sector crowdedness motivates disclosure. Our various measures of liquidity (zero return days, bid-ask spread, and Amihud illiquidity) have been multiplied by -1 so that a smaller negative amount represents higher liquidity. All three measures increase monotonically in firm-sector comovement, consistent with Baruch et al. (2007) and Li et al. (2014).

[Insert Table 2]

The univariate patterns are useful for assessing $Comove_{iq}$ as a proxy for correlated fundamentals (i.e., asset substitutability) that would drive firms to compete for investors. The analysis also provides evidence to assess whether comovement is positively related to information asymmetry as in Morck et al. (2000) or positively related to information transparency and lower adverse selection as described in Chan et al. (2013) and Baruch et al. (2007). The results offer suggestive evidence that, if anything, comovement is related to a better firm information environment, instead of a lack of firm-specific information in price. For the control variables, larger, better-performing and less volatile firms, and firms with higher institutional ownership and analyst following have higher firm-sector comovement. These patterns are inconsistent with comovement as an inverse measure of firm-specific information in price. The patterns are consistent with studies that show that comovement of asset returns can attract more informative order flows and increase liquidity. These variables are included as controls in the disclosure model given their relations with both comovement and disclosure. Hence, we interpret an effect of comovement on guidance as incremental to the effect of information asymmetry.

Figure 1 plots the distribution of firm-sector comovement across one-digit SIC industries excluding the financial service and utility industries. Consistent with Minton and Schrand (2016), we find that mining and construction industries have the highest median comovement (SIC=1). Mining and construction industries are subject to common economic shocks such as commodity price movements. The descriptive evidence is consistent with our interpretation that *Comove* proxies for correlated economic fundamentals.

[13] Because return comovement = 0 for greater than 10% of the observations, we combine observations in the first and second deciles.

[Insert Figure 1]

Table 3 is a quarter-to-quarter transition matrix of *Comove*, which shows the persistence of firm-sector comovement. The columns represent comovement deciles in quarter q and the rows represent comovement deciles in quarter $q-1$. Twenty percent of the observations appear in decile 1 because greater than ten percent of the observations had comovement measures that were indistinguishable from zero. Each cell contains (1) the number of observations in a particular comovement decile combination (top) and (2) the percentage of observations in a particular comovement decile in quarter q among all the observations in the comovement decile in quarter $q-1$ (bottom). The sum of the percentages in each row is 100. The higher percentages (or number of observations) in the diagonal line indicate that quarterly firm-sector comovement is persistent. However, time variation exists, which can be seen from the off-diagonal elements. The time variation allows us to identify the effects of a crowded sector using a within-firm specification, which helps to mitigate concerns about various omitted correlated variables.

[Insert Table 3]

4 Results: Disclosure Choice

We first examine the association between sector crowdedness, proxied by *Comove*, and the likelihood and frequency of management forecasts in Section 4.1. In Section 4.2, we explore several alternative explanations for the results. In Section 4.3, we analyze cross-sectional variation in the sensitivity of disclosure to comovement as a function of firm and industry-level factors that vary exposure to competition for limited investor resources.

4.1 Forecast likelihood and frequency

Table 4 Panel A documents the effects of firm-sector comovement in quarter $q-1$ on the likelihood and frequency of management forecasts in quarter q using model (1). Columns (1)-(4) report results using the existence of management forecasts in quarter q as the dependent variable and different combinations of fixed effects and control variables. Standard errors are clustered by firm for all specifications.

The coefficient estimate on *Comove* in column (1) is 0.417. Including firm and year-quarter fixed effects and control variables decreases the coefficient to 0.048 in the model with control variables (column 3), and 0.051 in the model with raw and industry-adjusted control variables (column 4), both statistically significant. Because we include firm fixed effects, it is not surprising that adding industry-adjusted control variables has little impact on the coefficient estimates or significance levels. We use the model with industry-year-adjusted control variables (plus raw control variables and firm and year-quarter fixed effects) as our main specification going forward. Based on the coefficient estimate from column (4), a one standard deviation increase in comovement (0.33) is associated with 1.68 percentage point (0.33*0.051) higher probability of issuing a management forecast. The economic magnitude is small relative to the unconditional likelihood of management forecasts (0.49).

Column (5) reports results using the natural logarithm of the total number of management forecasts in quarter q as the dependent variable and includes the full set of raw and industry-adjusted control variables and fixed effects. A one standard deviation increase in firm-sector comovement (0.33) is associated with a 2% (0.33*0.06) increase in the number of management forecasts.

[Insert Table 4]

Panel B models capital expenditure forecasts. Both the likelihood and number of capital expenditure forecasts increase with sector crowdedness. A one standard deviation increase in comovement is associated with a 1.81 percentage point increase in the likelihood of issuing capital expenditure forecasts. Given the unconditional likelihood of 20%, the effect of comovement on capital expenditure forecasts is more dramatic than for total forecasts. A one standard deviation increase in comovement is associated with a 1.49% increase in the number of capital expenditure forecasts (column 5).

Table 4 Panel C reports results for the other forecast variables. Column (1) shows that the likelihood of EPS forecasts responds less to changes in comovement than does the likelihood of capex forecasts. A one standard deviation increase in comovement is associated with a 0.83 percentage point increase in the likelihood of an EPS forecast. The economic magnitude is small relative to the unconditional likelihood of 34%. Similarly, a one standard deviation increase in comovement is associated with a 1.1 percentage point increase in sales forecasts, again a small effect compared to capital expenditure forecasts and the unconditional likelihood of 31%. The relative strength of the economic effect of sector crowdedness on capital expenditure forecasts compared to EPS and sales

forecasts is consistent with our conjecture that capital expenditure forecasts are the most likely to increase the precision of traders' estimates of value in the sense of Fishman and Hagerty (1989).

Columns (3) and (4) show that the results hold for both long and short horizon forecasts. This result sheds light on the difference between our findings and those in Gong et al. (2013). They document that firms with *less* earnings synchronicity issue more long term guidance. At first their findings seem to contradict our findings, as we predict and find that firms with *higher* comovement issue more forecasts. Their result holds only for long horizon forecasts, which are a small element of total forecasting behavior. In addition, instead of return synchronicity, they examine earnings (non) synchronicity, which is measured using earnings before extraordinary items. Nonrecurring items are included in their earnings measure. Thus, their earnings synchronicity measure could be capturing firm quarters with large negative one-time items, which motivate the firm to issue a long horizon forecast based on only the persistent component of earnings. Gong et al. (2013) do not separately examine capital expenditure forecasts.

The signs on the control variables are consistent with reported patterns in prior studies. Better performance (based on *ROA* and *Loss*), lower return volatility, higher growth, greater analyst following and institutional ownership, and better news are associated with a higher likelihood and number of management forecasts. When using capital expenditure forecasts as the dependent variable, loadings on the control variables are similar except that the loadings on firm performance, return volatility, and earnings surprise are not significant.

4.2 Alternative explanations and robustness tests

The finding that capital expenditure forecasts are increasing in firm-sector comovement could be explained by a correlation between comovement and actual capital expenditures. That is, high-comovement firms could have greater capital expenditures on average to issue guidance about. We examine this possible confounding effect by estimating equation (1) controlling for the level of capex, where capex is defined as capital expenditure scaled by lagged total assets. The coefficient on comovement remains similar (untabulated).

A second alternative explanation we consider is that industries with higher comovement also have lower proprietary costs of disclosure. Our results are robust to controlling for firm, year-quarter, and industry-by-quarter fixed effects. To the extent that the level of competition is mainly cross-

sectional, the fixed effects structure mitigates the competition explanation. In addition, our results are robust to controlling for product market competition, measured using an industry Herfindahl index (untabulated). Finally, this argument likely applies more to capital expenditure forecasts than to forecasts of earnings that will be released in the forthcoming financial reports within a quarter at most. Our results are concentrated in capital expenditure forecasts, where we expect the proprietary costs to be higher, which is not consistent with this argument.

Finally, in untabulated analysis, we estimate the regressions with lagged peer firm disclosures. Disclosure by a peer firm could inform investors about the firm's private information endowment, which affects traders' beliefs about the non-disclosing firm and results in return comovement. We find that the comovement-guidance association is incremental to the effects of lagged peer disclosures.[14]

One potential concern in our model specification is that the panel data analysis hides the effects of a few major shocks to high comovement industries, and the firms' correlated responses to the shock drive the results. The model includes industry-adjusted control variables, which should mitigate this concern. In addition, we estimate the model including industry-by-year fixed effects, which absorb time varying industry specific shocks, and find similar results (untabulated). Finally, we estimate the model by year. The untabulated results for *Capex Fcst* are positive and significant beginning in 2005 (not 2003 or 2004) and remain significant through 2016.[15] The results for *Guide* are significant and positive in 2008 - 2016. The consistency of the results across the years also helps to alleviate concerns about asymmetric synchronicity, which has been documented to be higher during down markets compared to bull markets (e.g., Ang and Chen, 2002).

4.3 Predictable cross-sectional variation

In the FH model, all firms are identically motivated to compete for informed investors to improve price efficiency. In reality, firms face varying incentives to disclose and attract the limited resources of investors. We separately examine firm characteristics and industry characteristics that affect the incentives of firms in a crowded sector to differentiate themselves from their peers in the following sections.

[14]The cross-sectional tests in the next section are also robust to inclusion of lagged peer firm guidance.

[15]Two studies note a disruption to guidance practice in 2003 following Coca Cola's announcement that it would stop issuing earnings guidance (Chen et al., 2011b; Houston et al., 2010).

4.3.1 Firm characteristics

We predict that larger firms and firms with greater analyst following have less incentive to disclose to attract investors. Because greater amounts of accessible information are generated about these firms by external parties, investors have greater incentives to study larger, well-followed firms within a sector relative to their smaller and less-followed peers. Even absent disclosure by the firm, the cost of studying these firms is lower. Assuming disclosure is costly, larger, well-followed firms will have less incentive to use guidance to compete for investors. We predict a smaller cross-sectional effect of size and analyst following on the sensitivity of capex guidance to crowdedness, assuming that capex guidance provides more unique information than earnings guidance. Hence, their disclosure decisions are expected to be less responsive to sector crowdedness.

The next two firm-level cross-sectional variables capture the firm's exposure to competition for investors. First, we measure the within-firm variation in the percentage of institutional ownership ($Inst\ SD$). Greater volatility of institutional ownership should imply more exposure to competition for investors, and we expect the disclosure decisions of firms with greater $Inst\ SD$ to be more sensitive to sector crowdedness. Second, firms that are in the S&P 500 have lower incentives to use costly disclosure to attract investors. The evidence in Barberis et al. (2005) suggests that investors view stocks in the S&P 500 as an investment category,[16] hence firms in the index have less need to attract more investors and their disclosure decisions are expected to be less responsive to sector crowdedness.

Table 5 presents cross-sectional results conditional on industry-year firm size and analyst following; the within-firm standard deviation of institutional ownership; and S&P 500 index inclusion. We predict a negative coefficient estimate on the interaction of *Comove* with firm size, analyst following, and S&P 500 inclusion since such firms are less motivated to use disclosure as a tool to compete for investors, and a positive coefficient estimate on the interaction of *Comove* with the

[16] Barberis et al. (2005) examine the comovement between a stock's return and the S&P 500 return after the stock's inclusion in the index. They find a significant increase in the stock's beta. Given that fundamentals are unlikely to change upon index inclusion, they interpret their findings as evidence that sentiment-driven demand for a particular habitat (i.e., the S&P 500) explains a stock's comovement with the stock's category. Their results are consistent with category investing, as assumed in our analysis. Although they claim that their findings "...cannot easily be explained by the fundamentals-based view of comovement", their evidence on S&P 500 index inclusions does not provide evidence – either for or against – on our firm-sector comovement measure as a proxy for asset substitutability within a sector.

within-firm standard deviation of institutional ownership.[17] Columns (1), (3), (5), and (7) report the regression results using *Guide* as the dependent variable; columns (2), (4), (6), and (8) report results for *Capex Fcst*. The models include raw and industry-adjusted control variables and firm and calendar year-quarter fixed effects. The interaction terms in all cases have the predicted signs and are statistically significant: when firms are smaller, with fewer analysts, *not* in the S&P 500, or with high time-varying institutional holdings, their disclosures are more sensitive to sector crowdedness. These firm characteristics moderate the effect of return comovement on a firm's guidance decision. In all cases, incentives to compete play less of a moderating role for capital expenditure forecasts.

[Insert Table 5]

4.3.2 Industry characteristics

Our second set of cross-sectional predictions conditions on industry-level characteristics. We first predict that firms in industries with higher comovement are more exposed to competition for investors. We use two variables to measure industry-level comovement. *High Comove SIC* is an indicator variable equal to one if the median comovement of a two-digit SIC industry is in the upper quartile for all two-digit SIC industries, and zero otherwise. % *High Comove* is a time-varying measure of industry-level comovement that equals the percentage of firms in a two-digit SIC industry-quarter whose comovement is higher than the median comovement of the full sample.

[Insert Table 6]

Table 6 columns (1) through (4) present the results. For both measures of the absolute magnitude of industry-level comovement, the interaction term is positive and significant.[18] These results are consistent with our proposition that the effect of comovement on disclosure is related to competition for investors, which becomes more fierce as sector crowdedness increases.

We also examine exposure to competition for investors using classifications based on observed trading activity (Bushee, 1998): dedicated owners, quasi-indexers, and transient investors. Dedi-

[17] For columns (1) through (4), the main effect (firm size or analyst following) is included with the control variables, as described previously. For columns (5) and (6), the main effect is redundant with the firm fixed effects and is excluded from the model.

[18] The main effect of *Comove* is negative in column (4). This coefficient represents the case in which % *High Comove* = 0, which is less than the 1st percentile (see Table 1, Panel D). The main effect therefore reflects an extreme case and should not be interpreted alone.

cated owners have large, long-term holdings, concentrated in a small number of firms, and are more likely to gather private information about a firm and directly monitor its managers. Quasi-indexers tend not to rely heavily on private information and adopt a passive monitoring style. Transient investors hold small stakes in many firms and trade frequently on publicly available information, but they do not generally acquire private information. We assume that quasi-indexers are most likely to behave as category investors, choosing to study and trade a subset of stocks within a particular sector. Hence, we predict that firms in industries with high percentages of quasi-indexers are the most likely to use disclosure to compete for investors. Firms in industries dominated by dedicated investors are unlikely to need to use costly disclosure to compete. We use transient investors as the baseline. We create two industry-quarter variables for the percentages of firms in a two-digit SIC industry-quarter whose proportions of dedicated (DED) and quasi-indexer (QIX) institutional holdings are higher than the corresponding full sample medians.[19]

The last two cross-sectional covariates focus on institutional investors. The models that predict category learning and investing as an optimal choice (Peng and Xiong, 2006; Van Nieuwerburgh and Veldkamp, 2010) predict that investors with greater information processing capacity (i.e., less constrained) will engage in specialized information acquisition about common risk factors and allocate more wealth to the "learning" portfolio. Assuming institutions are less constrained than individual investors, institutions should engage in sector investing and choose among assets in the sector. More constrained investors should focus on generalized learning and invest in the market portfolio. Prior empirical evidence also suggests that firms compete for the attention of institutional investors (Bushee and Noe, 2000).

Table 6 columns (5) and (6) present results using *Guide* and *Capex Fcst* as the dependent variables. The coefficient estimate on the interaction between DED and *Comove* is negative and significant. This finding is consistent with the proposition that guidance would not be an effective tool to compete for investors when the industry is exposed to higher levels of dedicated investors. In such cases, the costs of disclosure would outweigh the benefits.[20] The coefficient estimate on the interaction term of *Comove* with a measure of exposure to quasi-indexers, in contrast, is positive

[19] We thank Brian Bushee for making the institution classification data available on his website: http://acct.wharton.upenn.edu/faculty/bushee/IIclass.html).

[20] The main effect of *Comove* is negative in column (6). This coefficient represents the case in which the proportion of dedicated investors in the industry (% $High\ DED$) equals 0.

and significant. This variable represents industry-quarters in which quasi-indexers were trading more heavily in the sector, and quasi-indexers are more likely to be category investors that choose among substitutable securities in a sector.

Overall, the evidence in Table 6 suggests that the response of firm guidance to sector crowdedness increases in periods when the firms' exposures to competition for investors are predicted to be the highest.

5 Results: Disclosure Consequences

Our first analysis examines the joint effects of sector crowdedness and guidance on three proxies for firm liquidity. The effect of management guidance on liquidity is well documented, but our evidence now shows that disclosure is endogenously related to sector crowdedness, measured by firm-sector comovement. If return comovement is related to liquidity, then our finding raises a question about a form of reverse causality in the documented disclosure-liquidity relation. Prior literature has linked return synchronicity to liquidity, both theoretically and empirically, suggesting that higher return synchronicity makes the price of an asset less sensitive to its own order flows and attracts both liquidity and informed traders (Chan et al., 2013; Baruch et al., 2007). In other words, return synchronicity begets liquidity. Thus, one reason for examining the direct relation between comovement and liquidity is to estimate whether the comovement-liquidity relation partially explains the disclosure-liquidity relation.

The analysis also recognizes that information asymmetry reduction and competition for investors are not mutually exclusive motives for disclosure choice. The FH model predicts excessive disclosure – more than is socially optimal – when firms compete for limited investor resources, but the disclosure nonetheless increases precision. Since our findings in the first part of the paper suggest that more of the guidance in crowded sectors is issued for investor-seeking purposes, we predict that the impact of disclosure on liquidity will decrease as sector crowdedness increases. In summary, we expect that sector crowdedness has a direct effect on liquidity, consistent with prior literature (Chan et al., 2013). We also expect that guidance has a direct effect on liquidity, as documented in the prior literature and consistent with theory (e.g. Diamond, 1985; Diamond and Verrecchia, 1991). Our analysis will determine whether either of these effects – disclosure or crowdedness – subsumes the

other and whether the effect of crowdedness moderates the previously documented effect of guidance on liquidity. The moderation prediction is important because it is unique to our proposition that firms disclose to compete for investors. The information asymmetry reduction proposition does not predict a marginally decreasing effect of guidance on liquidity as sector crowdedness increases.

We model liquidity as follows:

$$Liquidity_{iq} = \beta_0 + \beta_1 Comove_{iq-1} + \beta_2 Guide_{iq-1} + \Gamma_c' Controls + \eta_{iq}, \tag{2}$$

where $Liquidity_{iq}$ represents one of three liquidity measures for firm i in quarter q described below, and $Guide_{iq-1}$ equals one if a firm provided a forecast in quarter $q-1$ and zero otherwise. We estimate the model with only *Comove* and *Guide*, each with a one quarter lag. We also estimate the model with these main effects plus an interaction term between *Guide* and *Comove*. Γ_c is a vector of coefficient estimates on the control variables. Following prior studies on liquidity (Leuz and Verrecchia, 2000; Balakrishnan et al., 2014), we control for firm size, return volatility, S&P 500 membership, and institutional ownership. We also control for firm stock price because similarly priced stocks tend to move together (Green and Hwang, 2009) and the level of stock price can also affect liquidity (Heflin et al., 2005). In all specifications, we add firm and calendar year-quarter fixed effects. The standard errors are clustered at the firm level.

The three measures of liquidity are the percentage of zero return days out of all trading days with positive trading volume, bid-ask spread, and the price impact of trade (Amihud, 2002). Because these variables are highly skewed, we take the natural logarithm of one plus the variable. We then multiply them by minus one so that higher values indicate higher liquidity.

[Insert Table 7]

Table 7 Panel A presents estimates of the main effects of *Comove* and *Guide*. Firm-sector comovement and management forecasts both have positive effects on liquidity, which confirm the results from studies of disclosure and liquidity and studies of return synchronicity and liquidity (e.g. Leuz and Verrecchia, 2000; Chan et al., 2013). When both *Comove* and *Guide* are included in the regression, the coefficient estimates for each variable are similar to those when they are separately included in the model. The effects of disclosure and sector crowdedness on liquidity do not subsume

each other.[21]

Table 8 presents our tests for the marginal effects of guidance on liquidity conditional on sector crowdedness. Across all three measures of liquidity, the effects of guidance on disclosure decrease as sector crowdedness increases. The economic effect is large. Using the estimates in column (3), which controls for firm fixed effects, the marginal effect of issuing a management forecast on bid ask spread is 0.053-0.093*0.408=0.015 when *Comove* is at the 75th percentile, a relatively small effect compared with the full sample mean for bid ask spread of -0.432.[22] In contrast, the marginal effect of issuing a management forecast is 0.050 when *Comove* is at the 25th percentile, a much larger effect than that when *Comove* is at the 75th percencile. Similar results hold for the marginal effects of issuing capex forecasts and for using other liquidity measures as the outcome variable. The results confirm the interpretation of our main result that firms disclose to compete for investors at levels that go beyond the effects of disclosure on information asymmetry.

[Insert Table 8]

The final analysis examines a second predicted consequence of increasing disclosure – greater price efficiency. In the model of Fishman and Hagerty (1989), more disclosure attracts investors to study the firm. The resulting decrease in the noise in the firm's stock price makes stock price more sensitive to investment, which in turn increases the incentive to invest. Fishman and Hagerty (1989) therefore predict that disclosure increases investment-price sensitivity.

A higher investment-price sensitivity is also predicted by a learning channel. Studies interpret a positive association between investment and Tobin's Q as evidence that management can learn from an informative stock price.[23] This learning channel, although different from the mechanism in the FH model, similarly predicts that investment-price sensitivity should be higher when price is more informative. One such study in this literature is Chen et al. (2006), which we have chosen because they use industry-level return synchronicity as a proxy for price informativeness. They assume that return synchronicity is *negatively* associated with price informativeness based on Morck et al. (2000). As discussed previously, subsequent studies have questioned the validity of return synchronicity as

[21] In untabulated analysis, we repeat the estimations excluding firm fixed effects. Excluding fixed effects significantly increases the coefficient estimates, particularly for the effect of management forecasts on liquidity. The results suggest that the effect of management forecasts on liquidity is mainly cross-sectional rather than time-varying. In contrast, sector crowdedness is an important driver of both within-firm and cross-sectional liquidity, which is consistent with the time variation noted in Table 3.

[22] Recall that the mean bid ask spread is negative because we transform the raw bid ask spread using $-log(1+x)$.

[23] See Bond et al. (2012) for a discussion of this literature.

a proxy for a weaker information environment (e.g., Li et al., 2014) and have found mixed evidence on the relation between return synchronicity and information environment characteristics. Our sample period starts after the sample period in Chen et al. (2006) ends. In addition, our firm-sector comovement measure ($Comove$) is different from their R^2 measure, which is based on a two-factor market model that includes an industry factor. Nonetheless, their empirical model is a useful starting point for our analysis.

Chen et al. (2006) regress capital expenditures (and other proxies for investment) on Tobin's Q, conditional on return synchronicity as a price informativeness, and find that investment-price sensitivity is negatively associated with return synchronicity in their sample period. They interpret this result as evidence that greater price informativeness implies greater investment efficiency. The findings in Chen et al. (2006) are provocative given our finding that comovement, as a proxy for correlated fundamentals, is associated with guidance. The combination of findings raises the question of whether firms with high firm-sector comovement can mitigate price inefficiency through voluntary disclosure.

We follow the specification in Chen et al. (2006), but we replace return synchronicity with firm-sector comovement ($Comove$), and we add a main effect of guidance and an interaction between $Guide$ and Tobin's Q.

$$Capex_{it} = \alpha_0 + \alpha_1 Q_{it-1} + \alpha_2 Q_{it-1} X Guide_{it-1} + \alpha_3 Guide_{it-1} + \Gamma_c' Controls + \eta_{it},$$

where $Capex_{it}$ is capital expenditures of firm i in year t divided by beginning-of-year assets, Q_{it-1} is firm i's Tobin's Q in year $t-1$, defined as the market value of equity (price times shares outstanding) plus book value of debt, scaled by book assets, and $Guide_{it-1}$ is an indicator for issuance of a management forecast or capital expenditure forecast in year $t-1$. The control variables follow Chen et al. (2006) and include: $1/Assets_{it-1}$, CF_{it}, and $RET3_{it}$. The reciprocal of firm assets is included because $Capex_{it}$ and Q_{it-1} are both scaled by book assets. Cash flow is included to ensure that the results do not simply capture cash-flow-investment sensitivity. The variable $CF_{i,t}$ is allowed to vary with management forecast decisions ($Guide_{it-1}$) and firm-sector comovement ($Comove_{it-1}$). Finally, $RET3_{i,t}$, the stock return of the next three years, captures the

possibility that investment increases with expected equity over-valuation. The definitions of the control variables are in Table A1.

The coefficient of interest is α_2. We expect that firm investment decisions ($Capex$) in year t are more sensitive to stock price when management provided a capital expenditure forecast in year $t-1$, that is, $\alpha_2 > 0$.

[Insert Table 9]

Table 9 demonstrates that providing a capital expenditure forecast increases price efficiency. Column (1) shows that investment-price sensitivity increases by 0.003 when a capital expenditure forecast is provided relative to the baseline of 0.006 absent a capital expenditure forecast. In column (2), the interaction term between $Guide$ and Q is both economically and statistically insignificant. The combination of results suggests that, in the case of learning from stock price about firm investment, providing capex guidance improves price efficiency but other forms of guidance do not.

We next extend the analysis to consider the effects of guidance on price efficiency, conditional on sector crowdedness, as was done in the liquidity tests. We predict that the marginal effect of capital expenditure forecasts on price efficiency decreases as firm-sector comovement increases. To test this prediction, we should interact $Q_{it-1}XGuide_{it-1}$ with $Comove_{it-1}$. Because the triple interaction is difficult to interpret, we estimate the model separately for high and low comovement subsamples, where a high comovement firm-quarter observation is measured relative to the full-sample median. Our results are robust to the triple interaction.

[Insert Table 10]

Table 10 shows that price efficiency is higher for both the high and low comovement subsamples when management provides a capital expenditure forecast. While the baseline investment-price sensitivity (α_1) is similar for the two subsamples (0.006 and 0.007), the magnitude of the interaction term is significantly higher both statistically and economically when firm-sector comovement is low. This pattern indicates that the marginal effect of disclosure on informativess, and hence price efficiency, decreases with sector crowdedness. This finding is consistent with the prediction that a disclosure in a high comovement-sector is more likely to be serving the dual roles of information asymmetry reduction and investor-seeking.

Overall, we find that the marginal benefit of disclosure on liquidity and price efficiency declines with firm-sector comovement. When disclosure plays both an information role and an investor-seeking role, as is the case in a crowded sector, there are diminishing marginal returns to disclosure. Studies that consider only the informational role for disclosure do not predict that the marginal benefit of disclosure declines with sector crowdedness. The information role and investor-seeking roles are not mutually exclusive. The results in Table 7 and 9 clearly demonstrate a main effect of disclosure on liquidity and price efficiency, but the declining marginal effect suggests that investor-seeking is an additional factor that motivates disclosure.

6 Conclusion

This paper examines the effect of being in a crowded sector with highly substitutable assets on firms' disclosure decisions. Using a firm's comovement with the firm's industry returns as our proxy for substitutability and sector crowdedness, we find that firms are more likely to provide management forecasts as the sector becomes more crowded. Our results are consistent with the prediction of Fishman and Hagerty (1989). FH show that when firms have incentives for price efficiency and traders have limited information processing resources and can study disclosures by only a subset of firms as in Merton (1987), firms will compete for investors by increasing disclosure.

The effects of crowded sectors on disclosure are stronger for capital expenditure forecasts than for earnings related forecasts, presumably because these forecasts provide more firm-specific information that would lead to profitable trade. In addition, the effects of sector crowdedness on guidance are stronger for firms and in industries that have the strongest incentives for differentiation. Furthermore, when sectors are crowded, management forecasts have smaller effects on liquidity and price efficiency. The disclosures improve liquidity and price efficiency, which is consistent with an informational role for the disclosures, but the reduction is smaller than in less crowded sectors, which is consistent with disclosures by firms in crowded sectors also playing an investor-seeking role.

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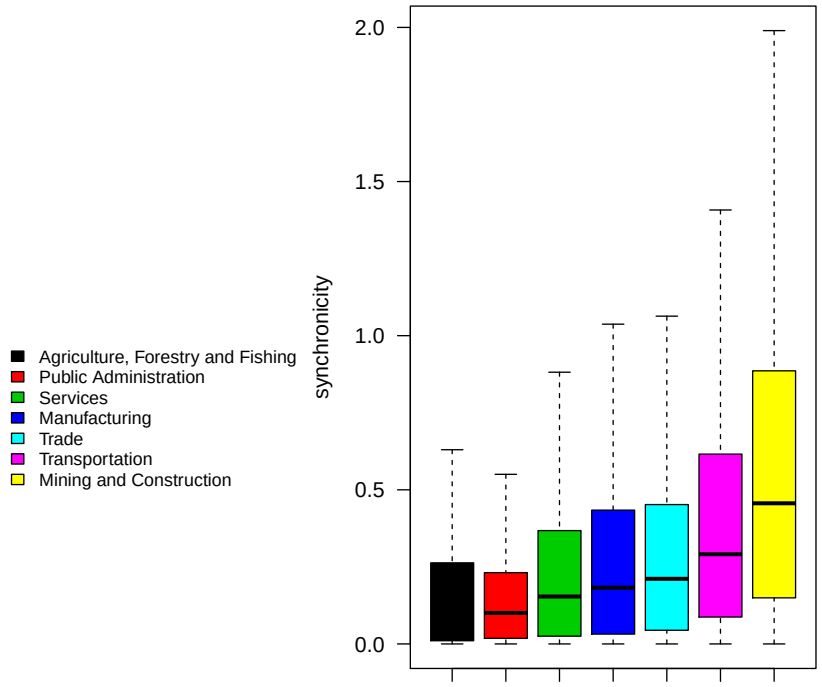

Figure 1: Distribution of Firm-sector Comovement across Industries

This figure presents the average firm-sector comovement for one-digit SIC industries. Firm-sector comovement is the natural logarithm of $1 + \frac{R^2}{1-R^2}$, where R^2 values are from the following firm-quarter-specific regressions of firm i's daily stock returns in quarter q on the corresponding value weighted returns of firm i's two-digit SIC industry, excluding firm i's own stock returns: $Ret_{iqt} = \alpha_{iq} + \beta_{iq,-1} IndRet_{jqt-1} + \beta_{iq,0} IndRet_{jqt} + \beta_{iq1} IndRet_{jqt+1} + \epsilon_{iqt}$. The regression requires 50 daily stock return observations. When the estimated R^2 is negative, it is replaced with zero in the calculation.

Table 1: Summary Statistics

This table reports descriptive statistics for the key variables of our empirical analysis. Firm-sector comovement (*Comove*) is the natural logarithm of $1 + \frac{R^2}{1-R^2}$, where R^2 is the adjusted R^2 from firm-year-quarter specific regressions of firm returns on value-weighted two-digit-SIC industry returns. Variable definitions are reported in Table A1. All continuous variables are winsorized at the 1 and 99 percentiles. Panels A-D, respectively, report summary statistics for the main variables (firm-sector comovement and management forecasts); raw control variables; industry-by-year-adjusted control variables; and cross-sectional variables, all measured quarterly. Panel E reports the price efficiency variables, measured annually.

Panel A: Main variables

	N	Mean	SD	p1	p25	p50	p75	p99
Comove	183934	0.281	0.333	0.000	0.033	0.167	0.408	1.498
Guide	183934	0.488	0.500	0.000	0.000	0.000	1.000	1.000
Num Guide	183934	0.667	0.775	0.000	0.000	0.000	1.386	2.485
Capex Fcst	183934	0.204	0.403	0.000	0.000	0.000	0.000	1.000
Num Capex Fcst	183934	0.158	0.321	0.000	0.000	0.000	0.000	1.099
EPS Fcst	183934	0.338	0.473	0.000	0.000	0.000	1.000	1.000
Sales Fcst	183934	0.314	0.464	0.000	0.000	0.000	1.000	1.000
Short Horizon	183934	0.330	0.470	0.000	0.000	0.000	1.000	1.000
Long Horizon	183934	0.027	0.163	0.000	0.000	0.000	0.000	1.000
Num Fcst Types	183934	0.558	0.615	0.000	0.000	0.000	1.099	1.792
Zero Return	183934	−0.040	0.065	−0.334	−0.047	−0.016	0.000	0.000
Spread	183934	−0.432	0.509	−2.177	−0.615	−0.199	−0.085	−0.014
Amihud	183934	−3.063	2.798	−11.162	−4.768	−2.233	−0.709	−0.030

Panel B: Raw control variables

	N	Mean	SD	p1	p25	p50	p75	p99
ROA	183934	0.002	0.060	−0.258	−0.007	0.015	0.031	0.117
Ret Vol	183934	0.032	0.019	0.009	0.019	0.027	0.039	0.114
Analyst Following	183934	6.627	7.496	0.000	1.000	4.000	10.000	32.000
Inst Holdings	183934	0.500	0.321	0.000	0.197	0.540	0.783	1.000
Size	183934	6.128	2.053	2.075	4.613	6.045	7.534	11.148
Leverage	183934	0.198	0.208	0.000	0.002	0.148	0.317	0.924
Market to Book	183934	2.099	1.600	0.560	1.143	1.573	2.408	9.964
Loss	183934	0.349	0.477	0.000	0.000	0.000	1.000	1.000
Earnings Surprise	183934	0.001	0.073	−0.362	−0.007	0.000	0.007	0.382

Panel C: Industry-adjusted control variables

	N	Mean	SD	p1	p25	p50	p75	p99
ROA	183934	0.000	0.056	−0.224	−0.014	0.007	0.028	0.110
Ret Vol	183934	0.000	0.017	−0.030	−0.011	−0.004	0.006	0.064
Analyst Following	183934	0.192	7.141	−10.389	−4.758	−1.784	3.264	24.178
Inst Holdings	183934	0.017	0.307	−0.549	−0.263	0.056	0.277	0.548
Size	183934	−0.012	1.914	−3.940	−1.337	−0.101	1.229	4.852
Leverage	183934	0.000	0.193	−0.296	−0.137	−0.048	0.102	0.649
Market to Book	183934	−0.001	1.507	−1.994	−0.829	−0.354	0.306	6.941
Loss	183934	−0.002	0.457	−0.604	−0.346	−0.221	0.499	0.833
Earnings Surprise	183934	0.000	0.073	−0.348	−0.009	−0.001	0.008	0.365

Panel D: Cross-sectional variables

	N	Mean	SD	p1	p25	p50	p75	p99
Not S&P 500	183934	0.899	0.302	0.000	1.000	1.000	1.000	1.000
Inst SD	183934	0.124	0.072	0.001	0.070	0.121	0.164	0.328
% High Comove	183934	0.499	0.196	0.100	0.355	0.482	0.643	0.920
High Comove SIC	183934	0.175	0.380	0.000	0.000	0.000	0.000	1.000
% High DED	171056	0.240	0.173	0.000	0.120	0.164	0.390	0.667
% High QIX	171056	0.560	0.139	0.224	0.500	0.575	0.632	0.897

Panel E: Price efficiency variables

	N	Mean	SD	p1	p25	p50	p75	p99
Capex/Assets	48467	0.056	0.073	0.000	0.014	0.032	0.068	0.438
Q	48467	1.958	1.556	0.424	1.064	1.454	2.234	9.669
Comove	48467	0.294	0.353	0.000	0.033	0.170	0.422	1.589
1/Assets	48467	0.011	0.023	0.000	0.000	0.002	0.009	0.142
CF	48467	0.079	0.178	−0.663	0.028	0.093	0.164	0.555
Ret3	48467	0.014	0.815	−1.349	−0.490	−0.064	0.302	3.253
Guide	48467	0.535	0.499	0.000	0.000	1.000	1.000	1.000
Capex Fcst	48467	0.276	0.447	0.000	0.000	0.000	1.000	1.000

Table 2: Variable Means by Firm-sector Comovement Decile

This table reports the averages of key dependent and industry-adjusted control variables by firm-sector comovement decile. Firm-sector comovement ($Comove$) is the natural logarithm of $1 + \frac{R^2}{1-R^2}$, where R^2 is the adjusted R^2 from firm-year-quarter specific regressions of firm returns on value-weighted two-digit-SIC industry returns. The first two deciles are combined because comovement equals zero for $>$ 10 percent of the sample. Variable definitions are reported in Table A1.

Comovement deciles	Guide	Capex Fcst	Sales Fcst	EPS Fcst	Short Horizon	Long Horizon	Zero Return	Spread	Amihud
1	0.218	0.048	0.164	0.139	0.154	0.008	−0.087	−0.920	−5.861
2	0.309	0.087	0.220	0.210	0.217	0.013	−0.063	−0.701	−4.680
3	0.402	0.125	0.288	0.281	0.279	0.018	−0.045	−0.518	−3.677
4	0.486	0.168	0.335	0.349	0.338	0.021	−0.032	−0.366	−2.825
5	0.568	0.218	0.384	0.416	0.390	0.029	−0.024	−0.261	−2.189
6	0.623	0.265	0.409	0.449	0.420	0.036	−0.019	−0.205	−1.812
7	0.666	0.302	0.424	0.479	0.444	0.040	−0.017	−0.169	−1.526
8	0.684	0.347	0.408	0.481	0.456	0.042	−0.014	−0.147	−1.308
9	0.702	0.427	0.341	0.433	0.445	0.059	−0.010	−0.109	−0.895

Comovement deciles	ROA	Return volatility	Analyst following	Institutional ownership	Earnings Surprise	Size	Leverage	Market-to-Book	Loss
1	−0.020	0.007	−4.014	−0.205	0.001	−1.490	−0.016	−0.189	0.145
2	−0.014	0.005	−2.856	−0.122	0.000	−0.993	−0.010	−0.055	0.105
3	−0.007	0.002	−1.579	−0.045	0.000	−0.501	−0.005	−0.014	0.055
4	0.000	−0.001	−0.383	0.033	−0.001	−0.069	−0.001	0.043	0.008
5	0.006	−0.003	0.806	0.087	0.000	0.349	0.004	0.083	−0.037
6	0.010	−0.004	1.722	0.127	0.000	0.616	0.012	0.097	−0.072
7	0.013	−0.005	2.792	0.151	−0.001	0.875	0.013	0.103	−0.097
8	0.014	−0.005	3.769	0.163	−0.001	1.092	0.012	0.091	−0.123
9	0.016	−0.004	5.675	0.182	−0.002	1.493	0.007	0.014	−0.154

Table 3: Firm-sector Comovement Transition Matrix

This table reports the $q-1$ to q transition matrix for firm-sector comovement. Firm-sector comovement ($Comove$) is the natural logarithm of $1+\frac{R^2}{1-R^2}$, where R^2 is the adjusted R^2 from firm-year-quarter specific regressions of firm returns on value-weighted two-digit-SIC industry returns. The columns represent comovement deciles of quarter q and the rows represent comovement deciles of quarter $q-1$. Each cell contains (1) the number of observations that belong to a particular comovement decile combination (top), and (2) the percentage of observations that belong to a particular comovement decile in quarter q among observations that belong to a particular comovement decile in quarter $q-1$ (bottom). The sum of the percentages in each row add up to 100%. The first two deciles are combined because firm-sector comovement equals zero for >10 percent of the sample.

q-1 \ q	1	2	3	4	5	6	7	8	9	Total
1	20,173	7,175	4,537	2,410	1,276	673	347	148	35	36,774
	54.86	19.51	12.34	6.55	3.47	1.83	0.94	0.4	0.1	100
2	7,281	3,347	2,634	1,943	1,401	914	522	264	82	18,388
	39.6	18.2	14.32	10.57	7.62	4.97	2.84	1.44	0.45	100
3	4,574	2,672	2,828	2,558	2,132	1,627	1,154	649	194	18,388
	24.87	14.53	15.38	13.91	11.59	8.85	6.28	3.53	1.06	100
4	2,354	2,003	2,546	2,889	2,718	2,408	1,840	1,182	449	18,389
	12.8	10.89	13.85	15.71	14.78	13.09	10.01	6.43	2.44	100
5	1,228	1,371	2,171	2,743	2,990	2,835	2,498	1,753	798	18,387
	6.68	7.46	11.81	14.92	16.26	15.42	13.59	9.53	4.34	100
6	646	914	1,686	2,444	2,809	3,023	3,025	2,529	1,312	18,388
	3.51	4.97	9.17	13.29	15.28	16.44	16.45	13.75	7.14	100
7	337	542	1,144	1,833	2,581	3,068	3,468	3,285	2,130	18,388
	1.83	2.95	6.22	9.97	14.04	16.68	18.86	17.86	11.58	100
8	145	296	648	1,149	1,796	2,509	3,387	4,493	3,964	18,387
	0.79	1.61	3.52	6.25	9.77	13.65	18.42	24.44	21.56	100
9	37	68	194	419	684	1,331	2,147	4,085	9,424	18,389
	0.2	0.37	1.05	2.28	3.72	7.24	11.68	22.21	51.25	100
Total	36,775	18,388	18,388	18,388	18,387	18,388	18,388	18,388	18,388	183,878
	20	10	10	10	10	10	10	10	10	100

Table 4: The Effect of Firm-sector Comovement on Management Guidance

This table reports the coefficients of OLS regressions of management forecast decisions on firm-sector co-movement for the following specification:

$$Guide_{iq} = \beta_0 + \beta_1 Comove_{iq-1} + \Gamma_c' Controls + \eta_{iq}$$

In Panel A, the dependent variable is an indicator for the existence of a management forecast in quarter q for columns (1) through (4), and the log number of management forecasts in the quarter in column (5). In Panel B, the dependent variable is an indicator for the existence of a capital expenditure forecast in quarter q for columns (1) through (4), and the log number of capital expenditure forecast in quarter q in column (5). In Panel C, the dependent variable is an indicator for the existence of an EPS forecast in column (1), an indicator for the existence of a sales forecast in column (2), an indicator for the existence of a forecast for the next quarter in column (3), an indicator for the existence of a forecast with horizon longer than a year in column (4), and the log number of unique types of forecasts in column (5). All independent variables are lagged by one quarter. Firm-sector comovement ($Comove$) is the natural logarithm of $1 + \frac{R^2}{1-R^2}$, where R^2 is the adjusted R^2 from firm-year-quarter specific regressions of firm returns on value-weighted two-digit-SIC industry returns. Control variable are industry-by-year adjusted. All variables are defined in Table A1. Standard errors, reported in brackets, are clustered at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively. Within R^2 is reported for fixed effect regressions.

Panel A: General management forecast

VARIABLES	Guide	Guide	Guide	Guide	Num Guide
Comove_{iq-1}	0.417***	0.088***	0.048***	0.051***	0.060***
	[0.003]	[0.006]	[0.006]	[0.006]	[0.008]
Control variables:					
ROA_{iq-1}			0.242***	0.261***	0.422***
			[0.045]	[0.044]	[0.063]
Loss_{iq-1}			−0.031***	−0.031***	−0.054***
			[0.003]	[0.003]	[0.005]
$\text{Return volatility}_{iq-1}$			−0.432***	−0.456***	−0.831***
			[0.088]	[0.087]	[0.118]
$\text{Analyst following}_{iq-1}$			0.008***	0.008***	0.014***
			[0.001]	[0.001]	[0.001]
$\text{Inst holdings}_{iq-1}$			0.092***	0.092***	0.174***
			[0.014]	[0.014]	[0.022]
Size_{iq-1}			0.051***	0.046***	0.067***
			[0.006]	[0.005]	[0.008]
Leverage_{iq-1}			0.022	0.022	0.026
			[0.016]	[0.016]	[0.024]
$\text{Market-to-Book}_{iq-1}$			0.009***	0.009***	0.015***
			[0.002]	[0.002]	[0.003]
$\text{Earnings Surprise}_{iq-1}$			0.034***	0.037***	0.057***
			[0.010]	[0.010]	[0.013]
Constant	0.370***	0.519***	0.126***	0.561***	0.788***
	[0.001]	[0.006]	[0.036]	[0.008]	[0.011]
Industry-adjusted controls	No	No	No	Yes	Yes
Firm Fixed Effects	No	Yes	Yes	Yes	Yes
Year-quarter Fixed Effects	No	Yes	Yes	Yes	Yes
Observations	183,934	183,934	183,934	183,934	183,934
R^2	0.077	0.040	0.061	0.059	0.073
No. of firm clusters	6,948	6,948	6,948	6,948	6,948

Panel B: Capital expenditures guidance

VARIABLES	Capex Fcst	Capex Fcst	Capex Fcst	Capex Fcst	Num Capex Fcst
Comove_{iq-1}	0.341***	0.072***	0.054***	0.055***	0.045***
	[0.003]	[0.006]	[0.005]	[0.005]	[0.004]
Control variables:					
ROA_{iq-1}			−0.052	−0.023	−0.026
			[0.032]	[0.032]	[0.026]
Loss_{iq-1}			−0.006*	−0.009***	−0.006***
			[0.003]	[0.003]	[0.002]
Return volatility_{iq-1}			0.281***	0.081	0.058
			[0.069]	[0.067]	[0.053]
Analyst following_{iq-1}			0.007***	0.006***	0.005***
			[0.001]	[0.001]	[0.001]
Inst holdings_{iq-1}			0.037***	0.029**	0.018*
			[0.013]	[0.013]	[0.010]
Size_{iq-1}			0.022***	0.025***	0.021***
			[0.005]	[0.005]	[0.004]
Leverage_{iq-1}			0.020	0.023	0.018
			[0.015]	[0.015]	[0.012]
Market-to-Book_{iq-1}			0.004***	0.004***	0.003***
			[0.001]	[0.001]	[0.001]
Earnings Surprise_{iq-1}			−0.014	−0.007	−0.008
			[0.009]	[0.009]	[0.007]
Constant	0.100***	0.237***	0.021	0.254***	0.198***
	[0.001]	[0.006]	[0.030]	[0.007]	[0.006]
Industry-adjusted controls	No	No	No	Yes	Yes
Firm Fixed Effects	No	Yes	Yes	Yes	Yes
Year-quarter Fixed Effects	No	Yes	Yes	Yes	Yes
Observations	183,934	183,934	183,934	183,934	183,934
R^2	0.080	0.080	0.087	0.086	0.085
Num of firm clusters	6,948	6,948	6,948	6,948	6,948

Panel C: Additional guidance measures

VARIABLES	EPS Fcst	Sales Fcst	Short Horizon	Long Horizon	Num Fcst Types
Comove_{iq-1}	0.025***	0.033***	0.030***	0.014***	0.055***
	[0.006]	[0.005]	[0.005]	[0.003]	[0.006]
Control variables:					
ROA_{iq-1}	0.242***	0.344***	0.185***	0.027**	0.306***
	[0.041]	[0.041]	[0.037]	[0.012]	[0.050]
Loss_{iq-1}	−0.037***	−0.022***	−0.020***	0.000	−0.037***
	[0.003]	[0.003]	[0.003]	[0.001]	[0.004]
$\text{Return volatility}_{iq-1}$	−0.642***	−0.494***	−0.367***	0.015	−0.708***
	[0.080]	[0.079]	[0.075]	[0.025]	[0.095]
$\text{Analyst following}_{iq-1}$	0.006***	0.004***	0.006***	0.001***	0.010***
	[0.001]	[0.001]	[0.001]	[0.000]	[0.001]
$\text{Inst holdings}_{iq-1}$	0.095***	0.064***	0.030***	0.007	0.119***
	[0.014]	[0.013]	[0.012]	[0.005]	[0.017]
Size_{iq-1}	0.024***	0.025***	0.031***	0.004**	0.055***
	[0.005]	[0.005]	[0.004]	[0.002]	[0.006]
Leverage_{iq-1}	−0.006	0.025*	0.010	0.004	0.025
	[0.016]	[0.015]	[0.013]	[0.005]	[0.019]
$\text{Market-to-Book}_{iq-1}$	0.005***	0.008***	0.003*	0.002***	0.008***
	[0.002]	[0.002]	[0.001]	[0.001]	[0.002]
$\text{Earnings Surprise}_{iq-1}$	0.033***	0.037***	0.012	0.005	0.051***
	[0.008]	[0.008]	[0.012]	[0.004]	[0.011]
Constant	0.388***	0.368***	0.467***	0.019***	0.675***
	[0.007]	[0.007]	[0.008]	[0.003]	[0.009]
Industry-adjusted controls	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year-quarter Fixed Effects	Yes	Yes	Yes	Yes	Yes
Observations	183,934	183,934	183,934	183,934	183,934
R^2	0.024	0.037	0.058	0.018	0.088
No. of firm clusters	6,948	6,948	6,948	6,948	6,948

Table 5: The Effect of Firm-sector Comovement on Management Guidance Conditional on Firm Characteristics

This table examines the effect of firm-sector comovement on management guidance as a function of firm characteristics with the following specification:

$$Guide_{iq} = \beta_0 + \beta_1 Comove_{iq-1} + \beta_2 FirmVar + \beta_3 Comove * FirmVar + \Gamma_c' Controls + \eta_{iq},$$

where $FirmVar$ refers to firm characteristics. Columns (1) and (2) use firm size. Columns (3) and (4) use analyst following. Columns (5) and (6) use the within-firm variation in the percentage of institutional ownership. Columns (7) and (8) use an indicator that equals one when a firm is in the S&P 500 index. The dependent variables are an indicator for management guidance in columns (1), (3), (5), and (7), and an indicator for issuing capital expenditure forecasts in columns (2), (4), (6), and (8). Firm-sector comovement ($Comove$) is the natural logarithm of $1 + \frac{R^2}{1-R^2}$, where R^2 is the adjusted R^2 from firm-year-quarter specific regressions of firm returns on value-weighted two-digit-SIC industry returns. All control variables are industry-year adjusted. Coefficient estimates for the control variables are not tabulated. All variables are defined in Table A1. Standard errors, reported in brackets, are clustered at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively. Within R^2 is reported for fixed effect regressions.

VARIABLES	Guide	Capex Fcst	Guide	Capex Fcst	Guide	Capex Fcst	Guide	Capex Fcst
$Comove_{q-1}$	0.067***	0.061***	0.068***	0.063***	0.022**	0.027**	0.064*	0.064***
	[0.007]	[0.006]	[0.006]	[0.006]	[0.011]	[0.011]	[0.007]	[0.006]
$Comove_{q-1}$ X $Size_{q-1}$	−0.013***	−0.005*						
	[0.003]	[0.003]						
$Comove_{q-1}$ X Analyst following$_{q-1}$			−0.004***	−0.002***				
			[0.001]	[0.001]				
$Comove_{q-1}$ X Inst SD_{q-1}					0.217***	0.206***		
					[0.071]	[0.076]		
$Comove_{q-1}$ X S&P500_{q-1}							−0.047***	−0.034***
							[0.011]	[0.012]
S&P 500_{q-1}							−0.041**	0.004
							[0.017]	[0.021]
Industry-adjusted controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-quarter Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934
R^2	0.060	0.086	0.060	0.086	0.060	0.086	0.060	0.086
No. of firm clusters	6,948	6,948	6,948	6,948	6,948	6,948	6,948	6,948

Table 6: The Effect of Firm-sector Comovement on Management Guidance Conditional on Industry Characteristics

This table reports the coefficients of the following OLS regressions:

$$Guide_{iq} = \beta_0 + \beta_1 Comove_{iq-1} + \beta_2 IndVar_{iq-1} + \beta_3 Comove * IndVar_{iq-1} + \Gamma_c' Controls + \eta_{iq},$$

where $IndVar$ refers to industry characteristics. In columns (1) and (2) $IndVar$ equals one if the median comovement of a two-digit SIC industry is above the 75th percentile of the median comovement of all two-digit SIC industries. In columns (3) and (4) $IndVar$ is the percentage of firms in a two-digit SIC industry-quarter whose comovement is higher than the median comovement of the full sample. In columns (5) and (6), $IndVar$s are the percentage of firms in a two-digit SIC industry-quarter whose percentage of dedicated (DED) and quasi-indexer (QIX) institutional holdings are higher than the corresponding full sample medians. The dependent variables are an indicator for management guidance in columns (1), (3), and (5), and an indicator for issuing capital expenditure forecasts in columns (2), (4), and (6). Firm-sector comovement ($Comove$) is the natural logarithm of $1 + \frac{R^2}{1-R^2}$, where R^2 is calculated from firm-year-quarter specific regressions of firm returns on value weighted two-digit-SIC industry returns. All control variables are industry-year adjusted. Coefficient estimates for the control variables are not tabulated. All variables are defined in Table A1. Standard errors, reported in brackets, are clustered at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively. Within R^2 is reported for fixed effect regressions.

VARIABLES	Guide	Capex Fcst	Guide	Capex Fcst	Guide	Capex Fcst
$Comove_{q-1}$	0.027***	0.027***	0.014	−0.093***	0.026	−0.072***
	[0.008]	[0.008]	[0.016]	[0.016]	[0.022]	[0.021]
High Comove SIC X $Comove_{q-1}$	0.057***	0.057***				
	[0.012]	[0.012]				
High Comove SIC	0.009***	0.009***				
	[0.003]	[0.003]				
% High $Comove_{q-1}$ X $Comove_{q-1}$			0.051**	0.217***		
			[0.022]	[0.022]		
% High $Comove_{q-1}$			0.015	−0.042***		
			[0.014]	[0.014]		
% High DED_{q-1} X $Comove_{q-1}$					−0.014	−0.125***
					[0.026]	[0.025]
% High DED_{q-1}					0.008	−0.007
					[0.026]	[0.024]
% High QIX_{q-1} X $Comove_{q-1}$					0.047	0.262***
					[0.035]	[0.033]
% High QIX_{q-1}					0.051	−0.084**
					[0.034]	[0.033]
Industry-adjusted controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year-quarter Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	183,934	183,934	183,934	183,934	171,056	171,056
R^2	0.060	0.086	0.060	0.087	0.061	0.091
No. of firm clusters	6,948	6,948	6,948	6,948	6,948	6,948

Table 7: The Effect of Guidance and Firm-sector Comovement on Liquidity

This table reports the coefficients of the following OLS regressions:

$$Liquidity_{iq} = \beta_0 + \beta_1 Comove_{iq-1} + \beta_2 Guide_{iq-1} + \Gamma_c' Controls + \eta_{iq}$$

The dependent variables are the fraction of trading days with zero returns in a quarter in columns (1)-(3), bid-ask spread in columns (4)-(6), and Amihud's price impact in columns (7)-(9). All dependent variables are transformed with $-\log(1+x)$ to mitigate skewness and a higher value indicates higher liquidity. Firm-sector comovement is the natural logarithm of $1+\frac{R^2}{1-R^2}$, where R^2 is the adjusted R^2 from firm-year-quarter specific regressions of firm returns on value-weighted two-digit-SIC industry returns. $Guide_{iq-1}$ is an indicator for management forecast issuance in Panel A, and is an indicator for capital expenditure forecast issuance in Panel B. All variables are defined in Table A1. All panels include firm and year-quarter fixed effects. Standard errors, reported in brackets, are clustered at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively. Within R^2 is reported for fixed effect regressions.

Panel A: Management forecast

VARIABLES	Zero Return	Zero Return	Zero Return	Spread	Spread	Spread	Amihud	Amihud	Amihud
$Comove_{iq-1}$	0.008***		0.008***	0.141***		0.140***	0.477***		0.470***
	[0.001]		[0.001]	[0.004]		[0.004]	[0.018]		[0.018]
$Guide_{iq-1}$		0.000	0.000		0.029***	0.026***		0.151***	0.142***
		[0.000]	[0.000]		[0.003]	[0.003]		[0.013]	[0.013]
Control variables:									
Log(price)_{iq-1}	0.023***	0.023***	0.023***	0.189***	0.197***	0.188***	1.172***	1.200***	1.168***
	[0.001]	[0.001]	[0.001]	[0.004]	[0.004]	[0.004]	[0.019]	[0.019]	[0.019]
Size_{iq-1}	0.004***	0.005***	0.004***	0.084***	0.088***	0.083***	0.490***	0.499***	0.483***
	[0.001]	[0.001]	[0.001]	[0.004]	[0.004]	[0.004]	[0.021]	[0.022]	[0.021]
$\text{Return volatility}_{iq-1}$	0.253***	0.254***	0.253***	−1.617***	−1.597***	−1.610***	2.070***	2.149***	2.107***
	[0.017]	[0.017]	[0.017]	[0.102]	[0.103]	[0.102]	[0.377]	[0.380]	[0.376]
$\text{S\&P 500}_{iq-1}$	−0.009***	−0.009***	−0.009***	−0.112***	−0.104***	−0.110***	−0.612***	−0.578***	−0.601***
	[0.001]	[0.001]	[0.001]	[0.010]	[0.010]	[0.010]	[0.056]	[0.056]	[0.055]
$\text{Analyst following}_{iq-1}$	−0.000***	−0.000***	−0.000***	−0.000	−0.000	−0.001	0.015***	0.014***	0.013***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.002]	[0.003]	[0.002]
Constant	−0.108***	−0.108***	−0.108***	−0.946***	−0.947***	−0.959***	−6.000***	−6.031***	−6.069***
	[0.002]	[0.002]	[0.002]	[0.012]	[0.012]	[0.012]	[0.054]	[0.055]	[0.055]
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-quarter Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934
R^2	0.098	0.097	0.098	0.386	0.376	0.387	0.469	0.464	0.470
No. of firm clusters	6,948	6,948	6,948	6,948	6,948	6,948	6,948	6,948	6,948

Panel B: Capital expenditure forecast

VARIABLES	Zero Return	Zero Return	Zero Return	Spread	Spread	Spread	Amihud	Amihud	Amihud
Comove_{iq-1}	0.008***		0.008***	0.141***		0.140***	0.477***		0.473***
	[0.001]		[0.001]	[0.004]		[0.004]	[0.018]		[0.018]
Capex Fcst_{iq-1}		−0.001***	−0.001***		0.019***	0.016***		0.081***	0.069***
		[0.000]	[0.000]		[0.003]	[0.002]		[0.012]	[0.011]
Control variables:									
Log(price)_{iq-1}	0.023***	0.023***	0.023***	0.189***	0.198***	0.188***	1.172***	1.204***	1.172***
	[0.001]	[0.001]	[0.001]	[0.004]	[0.004]	[0.004]	[0.019]	[0.019]	[0.019]
Size_{iq-1}	0.004***	0.005***	0.004***	0.084***	0.089***	0.084***	0.490***	0.504***	0.488***
	[0.001]	[0.001]	[0.001]	[0.004]	[0.005]	[0.004]	[0.021]	[0.022]	[0.021]
$\text{Return volatility}_{iq-1}$	0.253***	0.254***	0.253***	−1.617***	−1.607***	−1.618***	2.070***	2.102***	2.063***
	[0.017]	[0.017]	[0.017]	[0.102]	[0.103]	[0.102]	[0.377]	[0.381]	[0.377]
$\text{S\&P 500}_{iq-1}$	−0.009***	−0.009***	−0.009***	−0.112***	−0.105***	−0.112***	−0.612***	−0.587***	−0.610***
	[0.001]	[0.001]	[0.001]	[0.010]	[0.010]	[0.010]	[0.056]	[0.057]	[0.056]
$\text{Analyst following}_{iq-1}$	−0.000***	−0.000***	−0.000***	−0.000	−0.000	−0.000	0.015***	0.015***	0.014***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.002]	[0.003]	[0.002]
Constant	−0.108***	−0.107***	−0.108***	−0.946***	−0.938***	−0.950***	−6.000***	−5.978***	−6.018***
	[0.002]	[0.002]	[0.002]	[0.012]	[0.012]	[0.012]	[0.054]	[0.055]	[0.055]
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-quarter Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934	183,934
R^2	0.098	0.097	0.098	0.386	0.375	0.387	0.469	0.462	0.469
No. of firm clusters	6,948	6,948	6,948	6,948	6,948	6,948	6,948	6,948	6,948

Table 8: The Effect of Guidance on Liquidity Conditional on Firm-sector Comovement

This table reports the coefficients of the following OLS regression:

$$Liquidity_{iq} = \beta_0 + \beta_1 Comove_{iq-1} + \beta_2 Guide_{iq-1} + \beta_3 Comove * Guide_{iq-1} + \Gamma_c' Controls + \eta_{iq}.$$

The dependent variable is zero return days for columns (1) and (2), bid-ask spread for columns (3) and (4), and Amihud illiquidity for columns (5) and (6). All dependent variables are transformed with $-\log(1+x)$ to mitigate skewness and a higher value indicates higher liquidity. *Comove* is the natural logarithm of $1+\frac{R^2}{1-R^2}$, where R^2 is the adjusted R^2 from firm-year-quarter specific regressions of firm returns on value-weighted two-digit-SIC industry returns. $Guide_{iq-1}$ is an indicator for management forecast issuance in columns (1), (3), and (5), and an indicator for capital expenditure forecast issuance in columns (2), (4), and (6). All variables are defined in Table A1. Coefficient estimates for the control variables are not tabulated. All models include firm and year-quarter fixed effects. Standard errors, reported in brackets, are clustered at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively. Within R^2 is reported for fixed effect regressions.

VARIABLES	Zero Return	Zero Return	Spread	Spread	Amihud	Amihud
$Comove_{iq-1}$	0.014***	0.009***	0.202***	0.064***	0.756***	0.190***
	[0.001]	[0.001]	[0.006]	[0.004]	[0.026]	[0.018]
$Guide_{iq-1}$	0.003***		0.053***		0.267***	
	[0.000]		[0.004]		[0.016]	
$Comove_{iq-1}$XGuide$_{iq-1}$	−0.009***		−0.093***		−0.424***	
	[0.001]		[0.006]		[0.026]	
Capex $Fcst_{iq-1}$		−0.000		0.034***		0.156***
		[0.000]		[0.003]		[0.015]
$Comove_{iq-1}$XCapex $Fcst_{iq-1}$		−0.003***		−0.042***		−0.204***
		[0.001]		[0.004]		[0.020]
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year-quarter Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	183,934	183,934	183,934	183,934	183,934	183,934
R^2	0.099	0.099	0.390	0.387	0.473	0.470
No. of firm clusters	6,948	6,948	6,948	6,948	6,948	6,948

Table 9: Price Efficiency

This table reports the coefficient of the following regression:

$$Capex_{it} = \alpha_0 + \alpha_1 Q_{it-1} + \alpha_2 Q_{it-1} XGuide_{it-1} + \alpha_3 Guide_{it-1} + \Gamma_c' Controls + \eta_{it}.$$

The dependent variable is the capital expenditure of firm i in year t scaled by the beginning-of-year book value of assets. The independent variable is Q_{it-1}, measured as the market value of equity (price times shares outstanding) plus book value of assets minus the book value of equity, scaled by book assets. In column (1), $Guide_{it-1}$ is an indicator for whether a firm provided a capital expenditure forecast in year $t-1$. In column (2), $Guide_{it-1}$ is an indicator for whether a firm provided a management forecast in year $t-1$. All models include firm and year fixed effects. $Comove_{it-1}$ is the average quarterly firm-sector comovement of year $t-1$. All other variables are defined in Table A1. Standard errors, reported in brackets, are clustered at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

VARIABLES	(1) capex	(2) capex
Q_{it-1}	0.006***	0.007***
	[0.000]	[0.001]
Q_{it-1}XCapex Fcst$_{it-1}$	0.003***	
	[0.001]	
Q_{it-1}XGuide$_{it-1}$		−0.000
		[0.001]
Control Variables		
CF$_{it-1}$XCapex Fcst$_{it-1}$	0.046***	
	[0.008]	
Capex Fcst$_{it-1}$	−0.012***	
	[0.002]	
CF$_{it-1}$XGuide$_{it-1}$		0.018***
		[0.005]
Guide$_{it-1}$		−0.004***
		[0.001]
CF$_{it}$	0.028***	0.027***
	[0.004]	[0.004]
1/Assets$_{it-1}$	0.228***	0.212***
	[0.036]	[0.036]
Q_{it-1}XComove$_{it-1}$	0.003***	0.003***
	[0.001]	[0.001]
CF$_{it-1}$XComove$_{it-1}$	0.045***	0.056***
	[0.010]	[0.010]
Comove$_{it-1}$	−0.008***	−0.010***
	[0.002]	[0.002]
RET3$_{it}$	−0.003***	−0.003***
	[0.000]	[0.000]
Observations	48,468	48,468
R^2	0.678	0.677

Table 10: Price Efficiency Conditional on Firm-sector Comovement

This table reports the coefficient of the following regression:

$$Capex_{it} = \alpha_0 + \alpha_1 Q_{it-1} + \alpha_2 Q_{it-1} XCapex\, Fcst_{it-1} + \alpha_3 Capex\, Fcst_{it-1} + \Gamma_c' Controls + \eta_{it}.$$

The dependent variable is the capital expenditure of firm i in year t scaled by the beginning-of-year book value of assets. The independent variable is Q_{it-1}, measured as the market value of equity (price times shares outstanding) plus book value of assets minus the book value of equity, scaled by book assets. $Capex\, Fcst_{it-1}$ is an indicator for whether a firm provided a capital expenditure forecast in year $t-1$. $Comovement_{it-1}$ is the average quarterly firm-sector comovement of year $t-1$. Column (1) reports results for firm-year observations with comovement in year $t-1$ lower than the full sample median. Column (2) reports results for firm-year observations with comovement in year $t-1$ higher than the full sample median. Coefficient estimates for the control variables are not tabulated. All models include firm and year fixed effects. All other variables are defined in Table A1. Standard errors, reported in brackets, are clustered at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

VARIABLES	Low Comovement Capex	High Comovement Capex
Q_{it-1}	0.006***	0.007***
	[0.001]	[0.001]
Q_{it-1}XCapex $Fcst_{it-1}$	0.005***	0.002*
	[0.002]	[0.001]
Control Variables		
CF_{it-1}XCapex $Fcst_{it-1}$	0.021	0.057***
	[0.014]	[0.011]
Capex $Fcst_{it-1}$	−0.015***	−0.010***
	[0.003]	[0.002]
CF_{it}	0.031***	0.026***
	[0.004]	[0.009]
$1/Assets_{it-1}$	0.217***	0.754***
	[0.038]	[0.194]
Q_{it-1}X$Comove_{it-1}$	0.005	0.002*
	[0.005]	[0.001]
CF_{it-1}X$Comove_{it-1}$	−0.088**	0.057***
	[0.042]	[0.014]
$Comove_{it-1}$	0.008	−0.008***
	[0.012]	[0.003]
$RET3_{it}$	−0.004***	−0.003***
	[0.001]	[0.001]
Observations	23,383	23,330
R^2	0.643	0.738

Table A1: Variable definitions

Variable Name	Source	Description
Firm-sector comovement	CRSP Daily, Compustat	Natural logarithm of $1+\frac{R^2}{1-R^2}$, where R^2 is the adjusted R^2 from the following firm-quarter-specific regressions of firm i's daily stock returns from CRSP on the corresponding value weighted returns of firm i's value-weighted two-digit SIC industry, excluding firm i's own stock returns:$Ret_{iqt} = \alpha_{iq} + \beta_{iq,-1}IndRet_{jqt-1} + \beta_{iq,0}IndRet_{jqt} + \beta_{iq1}IndRet_{jqt+1} + \epsilon_{iqt}$. The regression requires 50 daily stock return observations. When the estimated R^2 is negative, it is replaced with zero in the calculation.
Guide	I/B/E/S, Compustat	Indicator variable equal to 1 if the management issued at least one forecast between the previous quarter end date and the current quarter end date. Following Anilowski et al. (2007), forecasts issued after the firm's corresponding fiscal quarter end dates are excluded. All forecast types (earnings, sales, capital expenditures), horizons (forthcoming and future quarters), and frequencies (annual and quarterly) are included.
Num Guide	I/B/E/S, Compustat	Natural logarithm of the total number of forecasts issued between the previous quarter end date and the current quarter end date, where forecasts are defined above.
Capex Fcst	I/B/E/S, Compustat	Indicator variable equal to 1 if the management issued a capital expenditure forecast between the previous quarter end date and the current quarter end date.
EPS Fcst	I/B/E/S, Compustat	Indicator variable equal to 1 if the management issued an earnings-related forecast between the previous quarter end date and the current quarter end date.
Short Horizon	I/B/E/S, Compustat	Indicator variable equal to 1 if the management issued a forecast for the next quarter between the previous quarter end date and the current quarter end date.
Long Horizon	I/B/E/S, Compustat	Indicator variable equal to 1 if the management issued a forecast with horizon longer than a year between the previous quarter end date and the current quarter end date.
Num Fcst Types	I/B/E/S, Compustat	Natural logarithm of the total number of unique forecast types between the previous quarter end date and the current quarter end date.
Zero Return	CRSP Daily	Natural logarithm of one plus the fraction of trading days with zero returns and positive trading volume of all trading days between the previous quarter end date and the current quarter end date, following Lesmond et al. (1999) and Goyenko et al. (2009). The variable is multiplied by -1, so that higher values of the variable indicate higher liquidity.
Spread	CRSP Daily	Natural logarithm of the quarterly means of daily bid-ask spread, where daily bid-ask spread = $\frac{ask-bid}{\frac{ask+bid}{2}}$ for ask >0 and bid >0 and ask $\neq$ bid
Amihud	CRSP Daily	Amihud (2002) price impact of trade, which is calculated using the following equation: $PID_{iq} = \log(1 + \frac{1}{D_{i,q}}\sum_{n=1}^{D_{i,q}}\frac{\lvert R_{i,q,d}\rvert}{P_{i,q,d}VO_{i,q,d}})$, where $\lvert R_{i,q,d}\rvert$ is the daily percentage price change (absolute value of daily returns), $P_{i,q,d}$ is price in \$U.S., and $VO_{i,q,d}$ is the trading volume for stock i on day d (measured in thousands). This measure is multiplied by -1, so that higher values of the variable indicate greater liquidity.

Variable Name	Source	Description
ROA	Compustat	Earnings before interest and taxes divided by the average total assets.
Loss	Compustat	An indicator for a quarter that has a loss.
Return volatility	CRSP Daily	Standard deviation of daily raw returns at the firm-quarter level (e.g., Nagar et al., 2003; Chen et al., 2011a).
Analyst following	I/B/E/S	The unique number of analysts that provide any forecast during the quarter.
Inst Holdings	Thomson 13F	Percentage of institutional holdings during the quarter.
Leverage	Compustat	Long term debt plus short term debt, scaled by total assets.
Market-to-Book	Compustat	Market value of equity plus book value of liabilities divided by book value of assets following Ajinkya et al. (2005).
Size	Compustat	Natural logarithm of one plus total assets divided by 1000 following Feng and Koch (2010).
% of High Comove	CRSP	% of firms within a SIC 2-digit industry that has comovement higher than the 50th percentile of firm-sector comovement of the full sample
S&P 500	CRSP Daily	An indicator for whether a firm belongs to the S&P 500
% of High Inst	Thomson 13F	% of firms within a SIC 2-digit industry that has institutional ownership higher than the 50th percentile of the institutional ownership of the full sample
Inst SD	Thomson 13F	The within-firm variation in the percentage of institutional ownership
High Comove SIC	CRSP	Equals one if the median comovement of a two-digit SIC industry is above the 75th percentile of the median comovement of all two-digit SIC industries, and zero otherwise.
% High Comove	CRSP	The percentage of firms in a two-digit SIC industry-quarter whose comovement is higher than the median comovement of the full sample.
% High DED (QIX)	Thomson 13F	The percentage of firms in a two-digit SIC industry-quarter whose percentage of dedicated (DED) and quasi-indexer (QIX) institutional holdings are higher than the corresponding full sample medians.
Price	CRSP Daily	Natural logarithm of one plus share price as of the fiscal quarter end.
Earnings Surprise	Compustat, CRSP	Seasonal change in earnings divided by stock price of the prior quarter.
Capex	Compustat	Capital expenditure scaled by the beginning-of-year book value of asset.
Q	Compustat	Market value of equity (price times shares outstanding) plus book value of debt (computed as book value of assets minus the book value of equity), scaled by book assets.
CF	Compustat	The sum of net income before extraordinary items, depreciation and amortization expenses, and R&D expenses, scaled by beginning-of-year book assets following Chen et al. (2006).
RET3	CRSP	Cumulative market adjusted stock return for the next three years.